

REMEMBERING DESIGN

by

David Botta

B.F.A., University of British Columbia, 1985

M.F.A., University of Calgary, 1989

A THESIS SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

in the
School
of
Interactive Arts and Technology

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Spring 2010

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APPROVAL

Name: David Botta
Degree: Doctor of Philosophy
Title of thesis: Remembering Design

Examining Committee: Dr. John Bowes
Chair

Dr. Robert Woodbury, Senior Supervisor
Professor, Interactive Arts and Technology
Simon Fraser University

Dr. Marek Hatala, Supervisor
Professor, Interactive Arts and Technology
Simon Fraser University

Dr. Chris Shaw, SFU Examiner
Professor, Interactive Arts and Technology
Simon Fraser University

Dr. John Gero, External Examiner
Professor, Krasnow Institute for Advanced Study
George Mason University

Date Approved:

December 11, 2009



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Abstract

The increasing availability of web based collaboration tools fuels design conversation between heterogeneous stakeholders across organizational boundaries, underscoring the need for new designers to get to the heart of conversations that might include huge numbers of entries. The goal of this work is to show that *linkography* is a viable candidate to help make that kind of discovery possible. A linkograph links *design moves* with prior moves, resulting in a model of the design episode. The research methods were mixed, though primarily qualitative. The primary data comprised records of a series of eleven two to three hour design meetings over a six month duration, with five participants. A model for predicting the location of topic shifts was developed on the first two exploratory meetings, and tested on the remaining nine design meetings. The model used a finer-than-topic-shift granularity linkograph of the nine meetings to predict topic shifts. It combined a measure of both backward and forward links, plus a threshold, in order to segment the design discourse on topic shifts. An additional threshold comprising a number of segments was used to filter transitive links to retrieve contextualizing information from the discourse. The test included quantitative comparison of model segmentation with human segmentation, and qualitative evaluation of relevant contextual information drawn (using the model, the segmentation, and the linkograph) from previous design conversations. The results suggest that employment of linkography is a viable and pragmatic addition to design rationale.

Keywords: Design history; Design intent; Design rationale capture; Knowledge management; Linkography.

Subject Terms: System design; Human-computer interaction

Acknowledgments

My supervisor, Robert Woodbury, demonstrated his love for philosophy through his unhesitating support of my academic inquiry, even when it took more than one unexpected turn into risky territory, seemingly away from our original agreement, with his research money. Like other great designers, he works with the materials at hand, explores the possibilities, and seizes opportunities. It was a lucky day for me when our paths crossed.

Steven Forth, the most broad, voracious and creative mind I have ever known, substantially supported me by employing me and allowing me to use the office facilities for school work, even when my contribution to the company was questionable. It was Steven who introduced me to the semantic web and knowledge management, leading inevitably to my fascination with distributed design, which underlies the construction of ontology.

Marek Hatala drove home the message that pragmatic means can reach beautiful ends.

David Vogt, the CEO of CrowdTrust Inc., supported my participant observation of the company's product design, and also supported an Accelerate BC MITACS internship. I thank *all* the members of CrowdTrust; they supported my research without reservation.

This research would not have been possible without the support of the TechOne Program at SFU Surrey, by enabling my participant observation of the design of a university course. I thank the course design team members who put up with my audio recorder; working with them was a pleasure.

Konstantin (Kosta) Beznosov employed me for three and a half years as a research assistant doing ethnographic research about IT security management, associated with UBC's Laboratory for Education and Research in Secure Systems Engineering (LERSSE). The lab is a friendly, sociable, very hardworking, rigorous treadmill of research, writing, revision, presentation, and publication. Kosta's academic and professional standards and care for his students are completely inspiring. The students, research assistants, and post docs come

from a wide variety of backgrounds, and every one of them is delightful. Being exposed to both technical and social IT security issues gave me the kind of insight that I hoped for when I joined the lab. Fortune was such that I was able to mobilize for usable security some areas of my own research that never made it into this dissertation.

Finally, I would like to thank my wife, Dawn Mills, for her unconditional support.

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Chapter 1

Introduction

1.1 Motivation

Freely available collaboration technology provides designers the opportunity to hold mediated conversations. Yet it is known that humans poorly manage exploration of the space of design decisions in face to face conversation (Conklin & Yakemovic, 1991), let alone mediated conversation.

Design teams typically suffer from *forgetting*. They spend considerable effort bringing members “up to speed” on prior discussion. For example, Walz et al. (1993) video-recorded the design phase of a software development project that was undertaken in 1986 at a micro-electronics and computer technology corporation by a single team, whose members had not previously worked with one another. The team met 19 times over the course of four months. There were eight designers, one project manager, and one representative from the customer group. Walz et al. focused on the acquisition, sharing and integration of knowledge. They explained that, over time, software design teams usually develop shared models of the system to be built as they learn from one another about the expected behavior of the system. In order to share knowledge about the system, the team members and other stakeholders must make themselves understood, which means they must somewhat share terminology.

Not only did Walz et al. observe the importance of “context-sensitive learning,” and the force of knowledge and expertise behind participation and leadership, they also observed that requirements determination did not end cleanly, and that much information that was presented to the team was never captured – was “forgotten.” Concerning this “forgetting,” even the customers did not fully understand “the true nature of the requirements at the

beginning of the process” (p. 64). The two customers disagreed about several things. Walz et al. note that a very influential customer spoke a great deal in response to designers’ questions, even providing elaborate *scenarios of use*, to explain his views, needs and preferences. Although the designers were attentive, very little of the information was recorded.

In one interchange, the designers asked C2 to prioritize three distinct approaches which seemed to be indicated by the initial specification. C2 did this within a very long discussion which included detailed and elaborate scenarios as well as modifications and clarifications of these three approaches. After this discussion, the designer taking notes wrote simply: ‘2-3-1.’ In fact, the documentation produced by the scribe designer during the two lengthy meetings with C2 . . . consisted of less than 150 words written on the design team’s copy of the question sheet. This documentation was used by the designer who took the notes to help produce a first draft of a design intent document. However, . . . when two other designers from the team took over the production of this document, even the small amount of information here seems to have been lost (p. 80).

Walz et al. also observed cases in which design decisions were lost or forgotten between meetings. Previously made decisions were commonly questioned. Walz et al. speculate that this “forgetting” was because every team member was not present at every meeting, and some designers were added to the project relatively late. The researchers noted that sometimes the design team could not “remember” some information because they considered it to be unimportant. Furthermore, the complexity of the topic and lack of structure in the discussions contributed to the difficulty of “remembering.” Also, the team members participated unequally – three main contributors, out of eight.

Walz et al. (1993) proposed that “Productive design activities need to revolve around the integration of the various knowledge domains. This integration leads to shared models of the problem under consideration and potential solutions” (p. 63). The team members must come to “*speak the same language.*”

Complexity and distributed design magnify the need for design recall. In 2008, the open source Mozilla FireFox web browser interaction designers made videos of their design meetings public; to their surprise, the videos were viewed by thousands of people, and the design team garnered much response (Raskin, 2009). The newcomers had to understand the FireFox interaction design issues in order to give relevant responses. Unpacking this incident revives the longstanding theme of *design rationale* – why and how to understand the “motivations, requirements, conditions, struggles, deliberations, negotiations, trials, reflections, tradeoffs, and reasons” in design (Moran & Carroll, 1996). Moran & Carroll accept an approach to

design that assumes the presence of distributed expertise with multiple perspectives, the need for discovery, and the centrality of argument. To give an obvious example, Bowker & Star (1999) describe the design of the World Health Organization’s International Classification of Diseases as grappling with international conflicts, conflicts involving the state versus the individual, the conflicting needs of doctors, epidemiologists and statisticians, plus the interests of insurance companies, industrial companies and pharmaceutical companies. It is reasonable to think that explication of the rationale behind design is worthwhile. The increasing opportunity afforded by internet technologies to distribute the design process beyond organizational boundaries highlights the question of how to help newcomers become insightful contributors, as illustrated with the FireFox example.

Despite widespread interest in design rationale and recognition of its value, demonstrated successes are rare (Regli et al., 2000). Shipman III & McCall (1997) summarize the pragmatic purposes of design rationale as: (1) argumentation and frameworks for argumentation; (2) the capture and potential reuse of normal communication about design; and (3) the documentation of design. The argumentation perspective focuses on the framing and solving of problems, and typically attempts to get designers to think and discuss design within a given argumentative framework. There are significant difficulties in getting designers to use them to structure their thinking (Shum & Hammond, 1994; Fischer et al., 1991). Designers may not be familiar with the classification system; they may not be sure how to classify their statements; some statements may not fit within the classification scheme; and the classification scheme may not be suitable for the mode of argument (Shum, 1996). Also, intertwined ideas may not be divisible into *chunks* (Shipman III & Marshall, 1999) or abstracted beyond the problem (McKerlie & MacLean, 1994).

1.2 Approach

Shipman III & McCall (1997) take an integrative approach to overcome the difficulties in getting designers to articulate their thinking as they design. They use the communication perspective for capture, and the argumentation perspective for retrieval. To bridge the gap between unstructured and structured information, they use “incremental formalization,” in which, during use of the system, structure emerges gradually on a demand-driven basis, and snowballs. Their incremental formalization proceeds by offering suggested classification terms, with the options to modify or reject the suggestions, and to view their rationale

(Shipman III & McCall, 1994). Zaychik & Regli (2003) follow Shipman III & McCall's (1997) integrative approach, but they also combine argumentative hypertext with representations of designed artifacts.

Design rationale is an aspect of knowledge management (Regli et al., 2000). In the area of knowledge management, similar to Shipman III & McCall's (1994) incremental formalization, Ackerman & McDonald (2000) augment and support informal information flows by implementing *graceful escalation* and *collaborative refining* of answers. After the collection of informal information, the information is collectively culled, organized, and distilled. Organization utilizes concatenation of selected material, outlines, and formal or informal classification terms. "*Distillates*" can replace the original raw information. Context is somewhat preserved by preferring answers from local contexts, before escalating the question.

This research combines the approaches of Shipman III & McCall (1997) and Ackerman & McDonald (2000). Ackerman & McDonald (2000) put the human at the center of the reinterpretation of past information for current context, while Shipman III & McCall avoid making impositions on the act of design, reserving formalization for a kind of postprocess. Because mediated conversation can be captured, this research takes the same stance as Shipman III & McCall, though differs from them by postponing the use of any classification terms. Rather, the intuition here is that simple pointing (*diesis*) avoids the problems of unknown designers in unforeseen circumstances attempting to interpret and apply classification terms; pointing is fundamental, ubiquitous, and underlies much of human communication. Because pointing is so general, not only are people free of learning and applying terminology, but support from existing technology can be expected.

There is a design research system that uses a kind of pointing: *linkography* (see Section 3.7), in which prior *design moves* that are related to the current one are pointed to (linked to). "Links are determined solely on the basis of common sense, in a non-categorical manner: neither moves nor links are encoded" (Goldschmidt & Weil, 1998, p. 90). Because linkography has been used to study creativity in design (see for example Goldschmidt & Weil (1998); Van der Lugt (2002); Goldschmidt & Tatsa (2005)), it holds promise to give sufficient insight into design discourse to help answer the question "How can a newcomer quickly become an effective contributor?"

Note that (1) Goldschmidt & Weil (1998) divide the record of a design session into subject matter units, while each utterance in a team process comprises one move, and the

moves are numbered relative to the units, and (2) Van der Lugt (2002) and Goldschmidt & Tatsa (2005) aggregate the design process into ideas, and build the linkograph on the aggregation. However, this research presumes a context of mediated conversation upon which a linkograph is built with no prior aggregation of entries. Nevertheless, seeing that a linkograph provides a structure of context, an association between context and topic shifts (Grosz & Sidner, 1986; Reichman, 1981) suggests that a fine grained (non-topical) linkograph can be used to propose topic shift locations, and thereby distinguish links between topical aggregations.

Chapter 2

Synopsis

The main goal of this research to establish that a linkograph that is constructed from finer-grained design moves than topical segmentation can be used to predict topical segmentation. Another goal of this research is to show that distinguishing links between topic units enables the retrieval of relevant contextual information at any point in the design discourse. The relevant contextual information may then be rewritten in a human-driven, documentation-oriented process of incremental formalization.

2.1 Research Methods

The methods to test the research goals were mixed, though primarily qualitative. The researcher as participant observer attended eleven meetings in which a university course was designed. The first two meetings were exploratory meetings that established a draft syllabus. The detailed, handwritten meeting notes for these first two meetings were used to construct a preliminary linkograph. The remaining nine team-based design meetings were audio recorded, and the transcripts used as the basis for a fine-grained linkograph. (The transcripts for all eleven meetings comprise Appendix F, and the fine-grained linkograph can be seen in Appendix B.)

A model for segmenting a record of a design process according to topics was developed using (1) the transcripts of the first two meetings, but hand-coded for topic shifts (see Appendix A), and (2) the linkograph of the first two meetings.

In order to quantitatively assess the model, two sets of topic segments were developed and compared: (1) The researcher wrote a thick description of the nine design meetings, in

which every statement was justified with references to the transcript unit numbers. Each paragraph was based on a high-level topic. The heads of contiguous sequences of references were taken as signs of topic segmentation. The paragraph starts were also taken as topic segmentation. (Appendix C comprises the thick description.) (2) The model plus the fine-grained linkograph of the nine meetings was used to segment the transcripts of the nine meetings. (3) The two sets of segments were compared.

The model was also used to excerpt text from the transcripts. (Appendix D comprises the retrieved text.) This text was derived from filtered transitive links, and was expected to be relevant to the places from which the links were made. The researcher in the role of thick description writer used the excerpted source text to compose distillates, and inserted the distillates as annotation into the thick description (see Appendix D). The excerpts were qualitatively assessed, plus the number of excerpts that were used was counted. Also, lessons learned from the process of writing distillates were articulated.

2.2 Results

The model predicted between 39% and 71% (subtracting the references that were judged to not be topic shifts – see Appendix E) of the heads of reference sequences. The model predicted between 72% and 88% of thick description paragraph starts. The lessons learned include: within the scope of a paragraph (high-level topic) (1) do not retrieve what was recently said, and (2) do not incessantly retrieve the same thing.

2.3 Contributions

The results suggest that the framework is viable. The results plus some evocative observations together suggest a program of future research. The method of segmenting design discourse that was tested in this study supplements existing linkograph-based design research by providing a non-subjective way to assist in identifying topic units. The segmentation also provides linkograph-based design research a way to consider filtered transitive links. On a more broad note, this research combines two areas of design research that heretofore were not combined: design rationale, and linkography.

2.4 Layout of chapters

2.4.1 Chapter 3, *Background and Related Work*

The context of design rationale includes design problem solving, information processing in groups, conversational coherence, cooperation amongst heterogeneous stakeholders, and knowledge management. Some aspects of linkography resonate with points from these topics. These areas are presented, in so far as they bear on design rationale. Finally, relations between them, and a stance on design rationale, are discussed.

2.4.2 Chapter 4, *A Model for Segmenting Design Process*

A visual comparison of a linkograph with human-designated topic shifts (Figure 4.2) suggests that *shallow* links correspond with *local coherence*, and that *deep* links correspond with *global coherence* – the coherence between topical segments of discourse (Grosz & Sidner, 1986; Grosz et al., 1995). A model was empirically derived to mark segmentation based on a measure of linking, and the resulting segmentation was used to distinguish deep links, and to gather transitive deep links into sets.

2.4.3 Chapter 5, *Research methods*

As mentioned above, the research methods were mixed, though primarily qualitative. The primary data was empirically derived, assessment of the first research goal was quantitative, and the assessment of the second research goal was qualitative.

2.4.4 Chapter 6, *Results*

Several results are presented: (1) comparison of where the two sets of segmentation coincide, (2) comparison of where they do not coincide, (3) description of how the model fails in places, (4) assessment of the quality of excerpted text, (5) lessons learned from the process of writing distillates, and (4) initial hypothesis generation about evocative patterns in the visual comparison of the two sets of segmentation.

2.4.5 Chapter 7, *Discussion of Results and Future Research*

Throughout the discussion of the meaning and possibilities of the results there are suggestions for future research. Observations about the process of linkograph construction are

discussed, even though this was outside of the research scope. Following this research's limitations, lessons learned about writing distillates are discussed. Finally an evocative observation about *influential* design moves is discussed. This chapter concludes with discussion of what kind of experimental designs the future research topics might entail.

2.4.6 Chapter 8, *Conclusion*

Against the background of *Google Wave*, an open source tool for communication and collaboration, how linkography is a viable candidate for helping new designers get to the heart of design conversations that might include huge numbers of entries is discussed. Concerning the research methods, both close reading and reflection on the process of doing the qualitative exercises that were undertaken in this work were invaluable. Finally, how future research could provide quantitative assurance of the segmentation model is presented.

Chapter 3

Background and Related Work

The context of design rationale includes design problem solving, information processing in groups, conversational coherence, cooperation amongst heterogeneous stakeholders, and knowledge management. Some aspects of a branch of design research called *linkography* resonates with points from these topics. These areas are presented, in so far as they bear on design rationale, and relations between them are discussed.

3.1 Design problem solving

According to Goel & Pirolli (1992), design problem solving consistently exhibits certain characteristics. That is, other types of problems may or may not show these characteristics, while design problems always show all of them.

Design problems are incompletely specified. Therefore, the problem space is incompletely specified, meaning design problems are typically *ill-structured*. *Problem structuring* statements are crowded toward the beginning of the task, as might be expected, but also occur periodically as needed.

Design problem structuring differs from design problem-solving in the following ways:

- “Problem structuring in design is associated with attention to how the artifact may be used and what is available to form it, whereas problem-solving is associated with attention to specification of the function and form of the artifact” (pp. 413–414).

- The client and design brief are important sources of knowledge during problem structuring but not during problem-solving.
- The commitment to problem-structuring statements is less than the commitment to problem-solving statements.
- There is “a higher percentage of add and propose operators in the problem-structuring phase than the problem-solving phase” (p. 415).

Problem-solving is sub-categorized into design, refinement, and detail design.

The problem-solving phases differ from each other in the following ways:

- There is “a steady decrease in the consideration of people, purpose, and resource aspects of design development from preliminary to detail design and a corresponding increase in the structural aspect” (p. 417).
- There is still some input from the client and/or design brief at the preliminary design stage, which disappears by the detailing stage.
- There is “increasing commitment to the emerging design . . . The distinct phases result not only from the size and complexity of the problems, but perhaps more importantly, from a combination of the different types of information that must be considered during the session (i.e., people, purposes, behavior, function, and structure) and the different levels of detail at which it is considered” (p. 417).

Design problem-solving often reverses the direction of transformation: “. . . designers will occasionally stop and explicitly try to change the problem situation so it more closely fits their expertise, knowledge, and experience. This involves manipulating both the problem constraints and the client’s expectations” (p. 418). In corroboration, Akin (2001) points out that goals, ends and means are routinely redefined. Also, the problem solving process is only clarified as the solution to the problem is constructed (Lawson, 2006; Wigngaards et al., 2005; Nicholson & Sahay, 2001).

Designers decompose the design solution into sparsely connected modules. Given the presence of interconnections (leaks), development of a current module will often be deferred in order to attend to an interconnected module, or the leaks are blocked by making functional level assumptions about the interconnected modules. “As interim design ideas

or solutions are generated, they are retained, massaged, and incrementally developed until they reach their final form. Very rarely are ideas or solutions forgotten or discarded” (p. 419), because the problems are typically large with no right or wrong answers – there is little basis for giving up partial solutions and starting over. Also, incremental development is compatible with modularization.

Solutions are developed incrementally. While the solution modules are interconnected to some degree, the designer’s cognitive process is assumed to be sequential, and the solutions are developed incrementally, with considerable carry over and development of a module from visit to visit. When working on an, as yet, incomplete module, a designer can put it on hold in order to attend to another (even unrelated) module, and return to the first at a later time (pp. 421–425).

3.1.1 Ill-structured representations and ill-structure solutions

Goel (1992) further characterizes design problem-solving as involving four development phases: problem structuring, preliminary design, refinement, and detail specification. The problem structuring and preliminary design phases are characterized by the use of *ill-structured representations*, such as sketching as opposed to drafting, and the widening of the problem space with more mutually independent alternatives. During refinement, the problem space is deepened with dependent sub-problems, while *well-structured representations* come into use.

The kinds of representation are respectively associated with well-structured and ill-structured mental states. Furthermore, a set of mental states comprise a space. Well-structured mental states are precise, distinct, determinate, and unambiguous. No state overlaps with any other state, there is a measurable amount of *distance* between states, and the referent of a state does not change with context.

Ill-structured mental states can be called imprecise, ambiguous, fluid, amorphous, indeterminate, vague, and so on. They exhibit (1) overlapping states; (2) dense states with no distance between them; and (3) ambiguous states. Ill-structured spaces promote a widening of the problem space in that: (1) overlapping states postpone commitment to a particular state, and also simultaneously embody a number of ideas; (2) dense states show a full range of possibilities and facilitate transformation from one to the other; and (3) ambiguous states help avoid premature articulation of (and commitment to) ideas.

Star (1989) considers shared representations (*boundary objects*) to be *ill-structured solutions*. Being ill-structured and shared representations, they are a kind of ill-structured representation. “Boundary objects are objects which are both plastic enough to adapt to local needs and the constraints of the several parties employing them, yet robust enough to maintain a common identity across sites. They are weakly structured in common use, and become strongly structured in individual-site use. ... When participants in the intersecting worlds create representations together, their different commitments and perceptions are resolved into representations. ... This resolution does not mean consensus. Rather, representation, or inscriptions, contain at every stage the traces of multiple viewpoints, translations and incomplete battles” (Star & Griesemer, 1989, p. 413).

Many kinds of design solution are like containers that afford any number of different refinements; this is related to the concept of boundary objects, as well as that *designers decompose the design solution into sparsely connected modules*. For example, Fischer & Scharff (2000) promote *meta-design*, which comprises enabling conditions for the design activities of others. Here are two examples of ill-structured solutions as design solutions:

- Baldwin & Clark (1999) describe IBM’s creation of System/360, the first modular computer family. The task-structure of the design process was modularized, meaning decision interdependencies between modules were severed by instituting executive decisions about the values of certain design parameters. Baldwin & Clark call these decisions *design rules*. IBM being a collective enterprise, “the task structure had to be *packaged* in a contract structure” (p. 192). This modularity enabled other corporations to provide modules that were compatible with System/360. In Baldwin & Clark’s words: “A hidden-module innovator can then proceed rapidly and unilaterally as long as he or she adheres to the system’s design rules. If the innovation works, it can easily be incorporated into the preexisting modular framework. This in turn creates a whole new set of possibilities for creating value in a large complex system” (p. 217).
- The World Health Organization’s International Classification of Diseases (ICD) attempts to satisfy the requirements of many different parties (Bowker & Star, 1999). Over a long period of time the ICD has grappled with: international conflicts, conflicts involving the state versus the individual, the conflicting needs of doctors, epidemiologists and statisticians, plus the interests of insurance companies, industrial

companies and pharmaceutical companies. Not only is the design (the classification) a compromise between competing interests, it is never complete because the common understandings of the communities evolve and the infrastructure changes.

Rittel & Webber (1984) point out that evaluation criteria is usually variable, and solutions are judged as good or bad, rather than true or false.

3.1.2 Summary of design problem solving characteristics

The main characteristics of design problem solving are:

- Incomplete specification
- Sub-categorization of the solution into problem structuring, preliminary design, refinement, and detail specification
- Decomposition of the solution into leaky modules
- Incremental development of the solutions
- Ill-structured representations

3.2 Information processing in groups

Literature on decision making in small groups sheds light on information sharing. Communication researchers studying small group decision making, within a paradigm of *groups as information processors*, found that face to face groups tend to both receive and present only information that is already commonly shared prior to discussion (*manifest profiles*) (Stasser, 1988; Gigone & Hastie, 1993), and also do not like to change initial preferences once formed (Tindale & Kameda, 2000). These traits were exhibited by the software developers in Walz et al.'s (1993) example of *forgetting* in design (Section 1.1); their uneven participation and disparate preferences inhibited their ability to “remember.” Brodbeck et al. (2007) say, “Since its introduction into the literature about twenty years ago, the acknowledgement of information distribution in the form of manifest and hidden profiles has stimulated a lot of experimental research and theorizing in the domain of group decision making. We think that it is now time to encourage the practical application of these ideas via applied research about knowledge sharing, decision making, and innovation” (p. 475).

Davis et al. (1978) reports on bias in group decision making, in the context of selecting (American) trial juries. Their definition of bias

consists of two important ingredients: (a) a true value or goal that should or would ‘normally’ be attained, and (b) the process or procedure for reaching or approximating the true value. The biasing entity is the latter, but controversy or conflict can and does surround both. (In fact, evaluation of bias is difficult in many instances because of disagreement over what constitutes the true value.) (p. 34)

Using *social decision scheme theory* (Davis, 1973) – the major categories of which are: *Individual Preferences*, *Group Composition*, *Social Combination Processes*, and *Group Response* – to represent preference aggregation processes in groups, Davis et al. (1978) found a significant relationship between individual traits and group bias, “although social interaction did attenuate the effect somewhat” (p. 48). Also, they found no evidence that “a preponderance of like-minded (biased) subjects might create an atmosphere that amplifies or pushes the bias further than would be anticipated from considering only the input level of individual bias” (p. 49). In other words, the manner of group discussion has little influence on the amount of bias, which sets the stage for an information-oriented perspective.

Stasser & Titus (1985) show that “group members often fail to effectively pool their information, when that information is unevenly distributed in a hidden manner, because discussion tends to be dominated by (a) information that members hold in common before discussion and (b) information that supports members’ existent preferences” (p. 1467). Stasser & Titus (1987) introduce an *information sampling* model that explains the results of Stasser & Titus (1985). The model is based on the parameters: (1) the probability that an individual will recall an item; and (2) the group size. With the “DISCUSS” model of the flow of information through discussion, Stasser (1988) simulates the findings of Stasser & Titus (1985), but with the surprising suggestion that even if the group members were unbiased in their recall and contribution of information, they would *still* fail to effectively pool their information. The same model demonstrates that *minority effects* might facilitate effective information pooling, suggesting that there can be conditions that mitigate bias.

Similar results by Gigone & Hastie (1993) also suggest that the distribution of information in the group influences group judgments only indirectly through the *sharedness* of member preferences. Thus Tindale & Kameda (2000) propose *social sharedness* as a unifying

theme for information processing in groups.

Groups must somehow aggregate their choices, and often use some *majority process* to do so; e.g., *strength-in-numbers*, in which individuals are more likely to shift their opinion to a new position the more that position gains support. Tindale & Kameda (2000) review some factors that can mitigate such majority processes:

- Members who have more shared information may acquire *pivotal* power in the group (p. 128).
- Shared representations – “any task/situation relevant concept, norm, perspective, or cognitive process that is shared by most or all of the group members” (p. 129) – can enable a minority to persuade the majority.
- The extent to which members have shared knowledge of what the others know, that is, *transactive memory* (Wenger, 1986), and the extent to which group members have shared knowledge of both what is and what is not shared (Hinsz et al., 1997), altogether can influence majority processes (Tindale & Kameda, 2000, p. 132).

Overall, the nature of information diffusion in groups promotes bias, which in turn inhibits “remembering.” Nevertheless, there are opportunities to mitigate bias.

Strategies to reduce the effect of bias in decision making

There are several strategies that have been proposed to mitigate bias with respect to decision making in small, face-to-face groups. They are:

- **Provide access to informational records during discussion:** Allowing group members to have access to informational records during discussion can attenuate *hidden profile effects* (Sheffey et al., 1989).
- **Foster dissent:** Brodbeck et al. (2002) show that the presence of dissent causes debating factions to produce more evidence in favor of their respective positions, altogether resulting in better quality decisions.
- **Promote more thorough discussions:** Although more discussion brings out more information (Winquist & Larson, 1998), this does not necessarily reduce the bias toward shared information (Stasser & Vaughan, 2000). Structuring the information

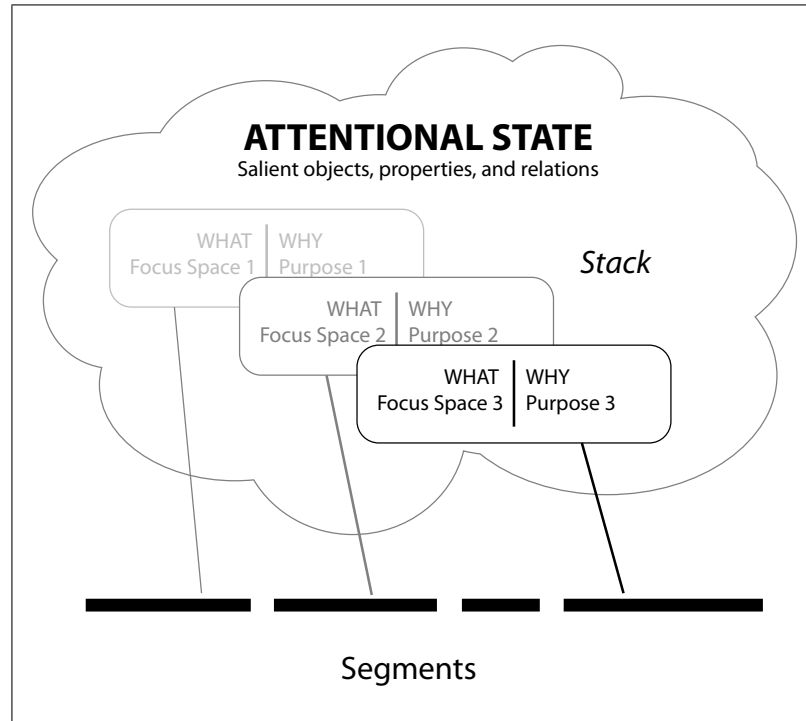
processing by means of decision-making training and by leadership (in which the leader ensures that none of the information that is mentioned gets overlooked or forgotten) does increase the pooling of information (Larson et al., 1994; Larson Jr et al., 1996).

- **Enable group-ordained experts to tailor their information to the needs of the group:** Stasser & Vaughan (2000) show that designation of experts will increase information pooling (increase the recall of unshared information), but not necessarily the acceptance of the new information. The critical factor for acceptance of new information is the opportunity for the “expert” to tailor the rehearsal of information to fit the designated expert role.
- **Group members know how to access information that is distributed in the group:** Related to the designation of experts, the coordinated retrieval and communication of information is essential for the pooling of previously unshared information (Stasser et al., 1995; Wenger, 1986).
- **Decision making is construed as finding a logically defensible correct answer:** Stasser & Stewart (1992) confirmed that groups are less prone to overlooking unshared information if the decision making task is construed as finding a logically defensible correct answer, as opposed to coming to consensus. (This strategy is not relevant for design because design solutions are judged as good or bad, not right or wrong.)
- **Limit shared information prior to discussion:** Stasser & Titus (1987) found that the tendency to reiterate already-shared information will be reduced when little information is available for discussion, and when most information is unshared before discussion. (This strategy is not relevant with respect to a technology whose fundamental principle is to share information.)

3.3 Conversational coherence

The topic of conversational coherence is important to the study of design because the design process is a conversation (Lawson, 2006); not only do the participants in the design process talk to each other, but arising solutions help clarify the problem (*design problems are incompletely specified*), which in turn influences the generation of solutions. Any contribution to a

Figure 3.1: Attentional state.



design process must be *conversationally suitable*. Grice (1975) states several maxims about “conversational moves,” that violation of any of the maxims would be “conversationally unsuitable” (p. 45). For example, one maxim is: *Be relevant*. Grice admits that this “terse” maxim masks questions about “what different kinds and focuses of relevance there may be, how these shift in the course of talk exchange, how to allow for the fact that subjects of conversation are legitimately changed, and so on” (pg. 46). Reichman (1981) endeavors to answer several of these questions, such as:

1. What is a discourse context? 2. What does it mean for something to be in the “foci” of this discourse context, i.e., what influences does the subject of the discourse foci have on the discourse’s succeeding semantic development and on the surface linguistic tools used to express developments? 3. How does a conversational move affect the preceding discourse context? 4. How does the discourse context determine what otherwise would be an ambiguous reference or an overly informative utterance? 5. What is “relevance,” i.e., can relevance be formally defined as a set of semantic/logical relationships between utterances? and 6. Given a more exact specification of such maxims, how can they be integrated to yield a system capable of discourse modeling as an active process? (Reichman, 1981, p. 2)

Reichman points out that “(1) conversational moves are identified in terms of their functional relation to preceding utterances; (2) the smooth flow of a discourse rests upon identification of these functional relations; and (3) not all preceding utterances are considered in this identification process” (p. 18). Reichman claims that there are conventional standards associated with conversational moves, which enable identification of previous utterances that are influential. The elements within an utterance also have varying influential status. “The conversational moves represent the types of semantic/logical coherence relations holding between utterances of a discourse” (p. 22). (Reichman cites Hobbs (1979) and others with respect to coherence relations.) Reichman identifies categories of conversational move – *support, restatement, interruption, return, indirect challenge, direct challenge, subargument concession, logical abstraction, contrastive respecification, analogy, and further development* – each with methods of achievement. Reichman also identifies states of context space influential status – *active, controlling, controlling but temporarily usurped, open, generating, closed, and superseded*.

Similarly, Hobbs (1985) provides relations of *rhetorical coherence* in discourse that are based on the following four classes of situation between speaker and listener: (1) the speaker wants to convey a message; (2) the message is in service of some goal; (3) the speaker must link what he or she says to what the listener already knows; and (4) the speaker should ease the listener’s difficulties in comprehension. The coherence relations include: *occasion, evaluation, parallel, elaboration, generalization, exemplification, and contrast*.

However, Grosz & Sidner (1986) claim that the relations of rhetorical coherence that underly discourse are so diverse that the fixed rhetorical patterns advanced by Hobbs (1979), Reichman (1981), and also Mann & Thompson (1983), do not suffice. Grosz & Sidner (1986) simplify and extend previous work with a computational-oriented theory of discourse structure. They propose that discourse is a composite of the three interacting components: (1) a sequence of utterances; (2) a structure of intentions (which includes both their hierarchy and order of satisfaction); and (3) an attentional state. See Figure 3.1.

As a conversation progresses, different sets of previous utterances (each associated with a “focus space”) become salient for understanding the current utterances. There is a collection called the “focus structure,” which is a stack of “focus spaces” that are available at any one time. The “focusing process” associates a focus space (containing the salient entities) with each discourse segment. The attentional state is “an abstraction of the focus of attention of the discourse participants; it serves to summarize information from previous utterances crucial for processing subsequent ones, thus obviating the need for keeping a complete history of the discourse” (Grosz & Sidner, 1986, p. 177). “The attentional state is a property of the discourse itself, not of the discourse participants” (p. 179).

3.3.1 Discourse segmentation

Grosz & Sidner point out that the factoring of discourses into segments has been widely observed. They indicate that, in Mann et al. (1975), subjects segmented discourse approximately the same, while their disagreements were about utterances at the boundaries of segments. An embedding relationship can hold between segments: consecutive utterances can be in different segments, while nonconsecutive utterances can be in the same segment. Discourse segmentation is related to topically. Hobbs (1985) states that there are two kinds of topic: discourse versus sentence. “A [discourse] topic is a segment of a discourse about a single thing, and a topic is a characterization of the thing a segment is about” (p. 23). (Mann et al., 1975, p. 57) say:

The participants in a conversation often continue to talk about a particular set of concepts for several turns. This related set of ideas constitutes a ‘Topic’ of discussion. Topics may proceed for a long time, as in a long telephone discussion of vacation plans, or may proceed for only two short turns, as in a simple question about the time its the answer [sic]. Topics may be general or specific, and the

participants may be discussing more than one Topic at a time. Topic is a unit based on the content being discussed rather than the forms being used. Some parts of the discussion may be part of no clearly distinct Topic – for example, the negotiation of what to discuss next.

Concerning sentence-level topicality, Tracy (1982) proves that people use a *global* framework, rather than a purely local, chaining framework that depends on the immediately previous utterance, to distinguish “issues” and “events” – concepts from Reichman (1978). Tracy explains that relevancy is identified by means of two types of information: (1) cohesive devices such as pronouns that refer back, and (2) the thematic organization of the sentence, which is: the *theme* – concerns an entity about which something is said; and the *rheme* – a statement about the *theme*. Tracy cites Schank’s (1977) rule about topic shift in response to the theme or rheme: “A Potential Topic has two parts. The first part consists of an intersection of concepts from an input conceptualization, which we call the Reduced Old Topic. The second part is a new conceptualization that comprises the new topic shift. From the Potential Topic, the new topic for a response is derived” (Schank, 1977, pg. 424).

Every relevant sentence shifts the sentence topic somewhat, and this is done within both a local and global context. A change of “focus space” signals a shift of discourse topic.

3.4 Heterogeneous stakeholders

As mentioned in Section 1.1 *Motivation*, Moran & Carroll accept an approach to design that assumes the presence of distributed expertise with multiple perspectives. Externalization of business processes by means of the internet, plus the availability of web services, including Software as a Service (SaaS) for collaboration,¹ fuel the ability of heterogeneous stakeholders to interact across organizational boundaries. Yet, as Walz et al. (1993) show in the motivating example, design team members must come to “speak the same language.” Star & Griesemer (1989) portray the cooperation of heterogeneous actors in a natural history research museum, in which there is a central tension between divergent viewpoints and the need for generalizable findings. Star & Griesemer point out that “Consensus is not necessary for cooperation nor for the successful conduct of work” (p. 388). Nevertheless, to ensure integrity, the actors must reconcile the different meanings that their common objects and

¹See Chari et al. (2009) concerning access control issues in this context.

methods have in their different worlds. Each actor must reinterpret the concerns of the others to fit the its own goals, and establish itself as a gatekeeper of that *translation*. “[E]ach translator must maintain the integrity of the interests of the other audiences in order to retain them as allies” (p. 389). The space of each actor is entrepreneurial, and coherent translation between the spaces is indeterminate – “there is an indefinite number of ways entrepreneurs from each cooperating social world may make their own work an obligatory point of passage for the whole network of participants” (p. 390).² Both the entrepreneurial spaces and their reconciliation in shared representations (e.g., common language) are negotiable, indeterminate and incomplete (ill-structured). Such a shared representation has to satisfy more than one set of concerns: “This resolution does not mean consensus. Rather, representations, or inscriptions, contain at every stage the traces of multiple viewpoints, translations and incomplete battles.” (p. 413).

The development of shared language is in itself an act of design. Star (1998) compares the qualitative research method of grounded theory (Glaser & Strauss, 1967) – in which concepts emerge and are organized during the process of ethnographic research – with Ranganathan’s construction of faceted³ classifications (Ranganathan, 1950) in library and information science. “Both struggle with a core problem – i.e., the representation of vernacular words and processes, empirically discovered, which will, although ethnographically faithful, be powerful beyond the single instance or case study” (Star, 1998). In both cases, the categories are discovered empirically and iteratively, through comparison and synthesis over disparate domains. Both see the universe as open and evolving. Development in both is toward formalization. The openness of the problem space and the ongoing probing of it by means of the iteratively developing solution altogether suggest that both the problem and the solution are ill-structured. While the practice of grounded theory is *dialectical* and *evolutionary* only, a classification system must serve the purposes of its users, so its development is also *teleological*, like the design process.⁴

²Also see Gerson & Star (1986) for an account of similar “*due process*” in office work.

³Maple (1995) explains that a facet is simply a category. She quotes Wynar & Taylor’s (1985) definition of facets as “clearly defined, mutually exclusive, and collectively exhaustive aspects, properties, or characteristics of a class or specific subject.” For example, an event might have a time facet and also a place facet. Facets can be arranged hierarchically, with relationships between the terms. Also see Vickery (1960) for faceted classification.

⁴See Poole et al. (2000) for a typology of process theories.

3.4.1 No proven revenue model for tagging

The highlighting of cooperation across organizational boundaries and of shared language suggests that *social bookmarking and tagging* might play a role in design rationale.⁵ One question is, if it happens across organizational boundaries, what is the business model? Who pays for the infrastructure and the effort to reach *critical mass*? Tagging does not necessarily need to be a direct revenue generator, it can be branded and bundled as part of a family of products, such as IBM's tagging software *dogear* being put under the *Lotus* brand as a feature of the product *Lotus Connections*. However, even if SaaS overcomes the difficulty of attaining standardization of corporate infrastructures (see Hanseth & Braa (2001) concerning unobtainable standardization), nevertheless, the number of people within any one organization who would use the service would likely not warrant that organization's investment. Thus a startup tagging company faces significant hurdles. It must demonstrate value beyond what is already offered for free by companies like *del.icio.us*. To win corporate acceptance, it must support work groups and guarantee privacy. Likely, the social connections around information sharing would be along the lines of professional associations that span multiple organizations CrowdTrust (2007).

There is no proven revenue model for tagging (at the time of this writing). On October 3, 2005, Fred Wilson of Union Square Ventures, which invested in *del.icio.us* (a major tagging company) wrote "The question everyone asks is 'what is the business model.' To be completely and totally honest, we don't yet know. This was a seed investment and none of the investors put up very much capital."⁶ In December 2005, Yahoo acquired *del.icio.us*. In response, on December 12, David Beisel wrote *The Search for Delicious Bookmarking Revenue*, in which he discussed four potential revenue models, and wrapped up with "My only disappointment, however, was that the Delicious team didn't have a chance to fully experiment and discover a business model that worked and scale it."⁷ The models that he discussed are:

⁵Sharing beyond "walled gardens" will become easier because an extension to OpenID that permits web authentication by e-mail address (Adida, 2008), together with with role-based trust-management policy service, enables service providers to separate content management from the management of both both identity and social capital (Sun & Beznosov, 2009).

⁶May 2008: <http://www.unionsquareventures.com/2005/10/delicious.html>

⁷May 2008: http://www.genuinevc.com/archives/2005/12/the_search_for.htm

- *Contextual Ads in a Social Search Engine*: “The difficulty is, of course, gaining enough critical mass in any keyword, let alone large set of keywords, before the search results are meaningful or useful to any degree.”
- *Selling ‘Tag-Stream Data’*: “[T]he difficulty is in harnessing the valuable sets, package it into a digestible format, and find customers willing to pay for it.”
- *Advertorial Tags*: “A significant number of product links could be monetized through relationships with merchant advertisers who offer these items.”
- *Other Contextual Advertising based on User Value*: “These services offer more than just social bookmark value, but also trend discovery and content organization. . . . For example, knowing every user’s e-mail address and the fact that they’ve tagged many pages with the keyword ‘skiing’ could give opt-in direct marketers with a rich list of users to target with advertisements, coupons, and other information. Once marketers know specific interests (and to a certain degree, their behavior), advertising can move beyond simple AdSense contextual ads on the side of a page.”

3.4.2 Summary of tagging functionality

For a general sense of tagging systems and what they are capable of, see Table 3.1 for Marlow et al.’s (2006) taxonomy of tagging systems that designers might consult.

Product concepts that were discussed by CrowdTrust (CrowdTrust, 2007) included: (1) what may a chunk of saved information comprise; (2) the relation between personal and shared terminology (also see word completion (Sen et al., 2006), “seed” terms (Sen et al., 2006), and recommendations (Muller, 2007; Sen et al., 2007)); (3) how to query the public space; (4) how to collaborate; (5) long-term safeguard of personal investment; (6) identity management; (7) groups: egocentric and workspace (also see “induced tagging” (Sánchez et al., 2007), structured note taking (Trafton & Trickett, 2001), and “social summarization” (Boydell & Smyth, 2007)); (8) decentralized access control (also see discretionary access control (Chari et al., 2009)); (9) filtering of notifications; (10) how to manage and display tags; (11) metadata; (12) versioning; (13) statistics about individuals’ behavior (also see Dubinko et al. (2007)); (14) navigation: based on faceted tags (also see structured tags (Noll & Meinel, 2008; Preneur, 2006), tag networks (Halpin et al., 2007; Noll & Meinel, 2008), and salient labels (Hornof, 2004)); (15) two-way navigation relation between annotation and

the annotated (also see Storey et al. (2006)); (16) ease of creating a network; (17) people tagging (also see Farrell et al. (2007); Mason & Thomas (2007)); and (18) mobile tagging: *geo-tagging* (also see tagging combined with camera phones reading barcodes (Holmquist, 2006)).

Table 3.1: Dimensions of tagging systems

Dimension	Main categories	Summary of Potential implications
Tagging Rights	Self-tagging, permission-based, Free-for-all	Nature and type of resultant tags; role of tags in system
Tagging Support	Blind, suggested, viewable	Convergence on folksonomy or over-weighting of tags
Aggregation model	Bag, set	Availability of aggregate statistics
Object type	Textual, non-textual	Nature and type of resultant tags
Source of material	User-contributed, system, global	Different incentives, nature and type of resultant tags
Resource connectivity	Links, groups, none	Convergence on similar tags for linked resources
Social connectivity	Links, groups, none	Convergence on localized folksonomy

3.5 Knowledge management

Design rationale is an aspect of knowledge management (Regli et al., 2000). With organizations, *memory is historiographic* – constrained by “frame of reference, organizational context, and technical feasibility” (Ackerman, 1994, p. 194). The organizational context must be managed to provide “the correct level of implicit knowledge and social assumptions

about the author and reader” (p. 194). In the area of organizational memory, Ackerman & McDonald (2000) follow the call by Shipman III & McCall (1994) to augment and support informal information flows. Their Answer Garden 2 addresses lessons learned from a field study of an earlier version (Ackerman & Malone, 1990; Ackerman, 1998). With the earlier version: retrieval was extended to include the organization’s social network; experts had the incentive that commonly asked questions could be off-loaded; the information database evolved iteratively; and information was produced on demand. But there were status issues; a problematic dichotomy between experts and users; questions were inappropriately broadcast to everyone; answers suffered from being out of context; and the cost of authoring was too high. Answer Garden 2 uses the principles: *graceful escalation* and *collaborative refining* of answers. After the collection of informal information, the information is collectively culled, organized, and distilled. Organization utilizes concatenation (of selected material), outlines, and formal or informal classification terms. “*Distillates*” can replace the original raw information. Context is somewhat preserved by preferring answers from local contexts, before escalating the question. Preference of the local also bolsters participation, due to enhancement of personal social ties. The distributable component architecture (including anonymity services) of Answer Garden 2 accommodates a variety of organizational and informational configurations.

Note that Ackerman & McDonald’s incremental formalization is primarily human-driven. Relevantly, Ackerman (2000) argues that a fundamental problem in computer supported cooperative work (CSCW) is that there is a mismatch between what is required socially and what CSCW technology can provide. He proposes making CSCW into a “science of the artificial” (Simon, 1981), beginning with “first order approximations” to find work-arounds for the social-technical gap that are not extremely odious, and have known effects.

3.6 Design Rationale

Design rationale is the about processes that give shape to a designed artifact – the motivations, requirements, conditions, struggles, deliberations, negotiations, trials, reflections, tradeoffs, and reasons (Moran & Carroll, 1996). Design rationale has several senses, depending on the pragmatic purpose at hand. Moran & Carroll (1996, p. 8) give six senses of design rationale:

1. An expression of the relationships between a designed artifact, its purpose,

the designer’s conceptualization, and the contextual constraints on realizing the purpose.

2. The logical reasons given to justify a designed artifact.
3. A notation for the logical reasons for a designed artifact.
4. A method of designing an artifact whereby the reasons for it are made explicit.
5. Documentation of (a) the reasons for the design of an artifact, (b) the stages or steps of the design process, (c) the history of the design and its context.
6. An explanation of why a designed artifact (or some feature of an artifact) is the way it is.

Shipman III & McCall (1997) summarize the pragmatic purposes as: (1) argumentation and frameworks for argumentation; (2) the capture and potential reuse of normal communication about design; and (3) the documentation of design. The argumentation perspective focuses on the framing and solving of problems, in which designers try to think and discuss design within a given argumentative framework; that is, they mark up a representation of their conversation according to some ontology of design-oriented argumentation rhetoric. Take for example Kunz & Rittel’s (1970) argumentation schema called Issue-Based Information System (IBIS), in which “Project participants propose issues. For each issue, they propose various answers – also called positions – to each issue; and then state arguments about the pros and cons of the proposed answers. Finally, a decision is made about which answer or answers to accept and reject for the given issue. Design then becomes a process of raising and deciding a set of related issues” (Shipman III & McCall, 1997). The three types (issue, position, argument) have rhetorical relations between them (Rittel, 1984).⁸

Although most design rationale can be adequately represented in argumentation schemas, there are significant difficulties in getting designers to use them to structure their thinking (Shum & Hammond, 1994; Fischer et al., 1991). Although argumentation is about construction, it is not the same as construction (Fischer et al., 1989). The recursive nature of problems and solutions (Duncker, 1945) can confound whether a statement should be labeled *issue* or *alternative* (Shum, 1996). Designers may not be familiar with the classification system; they may not be sure how to classify their statements; some statements may not fit

⁸The rhetorical relations are: *supports*, *objects-to*, *replaces*, *responds-to*, *generalizes*, *specializes*, *questions*, and *suggested-by*.

within the classification schema; and the classification schema may not be suitable for the mode of argument (e.g., competing criteria are not suitable for a depth-first, evolutionary mode) (Shum, 1996). Intertwined ideas may not be divisible into *chunks* (Shipman III & Marshall, 1999) or abstracted beyond the problem (McKerlie & MacLean, 1994). Also, not only are designers unlikely to take the time and effort to mark up their arguments, often a good understanding of the artifact is sufficient to resolve questions – finding good reasons for doing things may suffice for finding the historically accurate reasons (Karsenty, 1996). Nevertheless, since argumentation schema indexes the information, the argumentation approach excels at retrieval (Shipman III & McCall, 1997). Argumentative hypertext can be combined with representations of designed artifacts; e.g., Fischer et al. (1989) and Storey et al. (2006).

The communication perspective entails capturing and retrieving naturally occurring communications and other relevant information, with no intention of shaping the thought process. It lacks control over the quality of the information. Its lack of structure undermines the ability to retrieve the information.

The usual purpose of documentation is to record decisions, not to influence them. Documentation is commonly practiced, often in constrained formats (not preserving the language or form in which the decisions were made), and is generally retrospective. An outside observer cannot determine the accuracy of a piece of documentation.

Shipman III & McCall take an integrative approach; they use the communication perspective for capture, and the argumentation perspective for retrieval. To bridge the gap between unstructured and structured information, they use “incremental formalization” (Shipman III & McCall, 1994), in which, during use of the system, structure emerges gradually on a demand-driven basis, and snowballs. The incremental formalization proceeds by offering suggested classification terms, with the options to modify or reject the suggestions, and to view their rationale.

Zaychik & Regli (2003) combine argumentative hypertext with representations of designed artifacts, and also follow Shipman III & McCall’s (1997) integrative approach. They automatically capture the email exchanges between software developers, and *anchor the conversations* (Churchill et al., 2000) by providing the ability to include deictic references to the software code. The message context and content are formalized by automatically indexing them with terms from a message ontology, by utilizing extracted semantic information. This enables later reasoning about the design process.

Significantly, Yang et al. (2005), in studying how the evolution of design information affects its retrieval, find that thesauri are an effective way of handling the changes in design language. They show that manually created thesauri from informal information produce better precision and recall than machine-generated thesauri. A note of corroboration: library science has articulated the need for human resources to manually formalize vocabulary in distributed scenarios: Cruz & Krichel (2000) claim reasonable success with academics cataloging their own work, with support given in a decentralized fashion. A librarian can independently examine the records and address problems like inconsistent terminology: “We have found that it is possible to build such a collection to a reasonable degree of accuracy if some archives where mistakes occur are aided by others. There needs to be a small group of people who actively support the collection. However, this support can be given in decentralized fashion without the need for much coordination between supporters” (p. 240). Greenberg (2000) observes, “the question of who should create metadata now extends to how can the professionally trained metadata creator help other individuals produce quality metadata records in an efficient fashion” (p. 7).

3.7 Linkography

According to Goldschmidt & Tatsa (2005, pg. 595), linkograph analysis is “based on the premise that effective reasoning in a creative endeavor must perforce aim at first mining and then relating to one another the many items of data that are relevant to the task.” Goldschmidt & Weil’s (1998) argument for the use of linkography in design research rests on that, in the solving of ill-structured problems that are typical of design, a solution and its rationale are constructed (via search) of many small fragments of information, and the size of the fragments is a matter of definition, relative to the grain of the investigator’s analysis. They say, “*Linkography* is a system that parses protocols [here, records of think-aloud design sessions] into individual *design moves*, independent of any time units. Having established moves, the system records links among them” (p. 89). “Links are determined solely on the basis of common sense, in a non-categorical manner: neither moves nor links are encoded . . . a link between two moves is established when the two moves pertain to the same or closely related, subject matter(s)” (p. 90). The term *design move* has been used in design research to indicate “small steps that transform the state of the design search” (Goldschmidt & Tatsa, 2005, pg. 594). Researchers identify design moves by parsing the

process into a sequence of short verbalizations. Further, researchers describe the coherence of the process by marking the previous design moves that are *linked* to the current move, thereby constructing a *linkograph*.

Note that (1) Goldschmidt & Weil (1998) first divide the record of a design session into subject matter units, while each utterance in a team process comprises one move, and the moves are numbered relative to the units, and (2) Van der Lugt (2002) and Goldschmidt & Tatsa (2005) first aggregate the design process into ideas.

Goldschmidt (1995) performed a comparative linkograph analysis of two design protocols (here, records of design sessions), one a *think-aloud* session with an individual designer, and the other of a team of three designers interacting, from the Delft Design Protocols Workshop (Cross et al., 1996), citing Vygotsky (1986) – that thought derives from *inner speech* – as the grounds for comparison of group conversation protocols with individual think-aloud protocols. Also, citing Wertheimer (1971), Goldschmidt (1995) takes productive thinking – thinking that gives rise to genuine ideas – as the trait of comparison between the two groups. *Productivity* was operationalized as follows: The one-designer protocol was divided into 28 units by the subject matter that was dealt with; likewise, the team protocol was divided into 45 units. Moves were numbered relative to the design units that they were found in. In the case of the one-designer protocol, a design move was marked by the beginning and end of a *coherent utterance* (not always easy to delimit in a think-aloud protocol, according to Goldschmidt), while in the case of the team protocol, each utterance was taken as a move. Links to previous moves (*backlinks*) “record the path that led to a move’s generation,” while links to subsequent moves (*forelinks*) “bear evidence to its contribution to the production of further moves” (p. 195). Goldschmidt contends “that an effective design process is characterized by a high ratio of interlinking among its moves” (p. 195) – the ratio of links to moves (*link index*). Cross (1997) declares that Goldschmidt’s (1995) linkograph analysis most accurately pictures the emergence of a pivotal idea, though he also mentions that it does not *explain* the emergence.

Link-intensive moves are called *critical moves*. The link intensity for critical moves arbitrarily depends on the grain of analysis and the purpose of the study. Critical moves in a sequence describe a *critical path*. Goldschmidt (1995) (1) states that a link-intensity of seven or more links in one direction provides the clearest structural representation of exploration, and conclusion of that exploration, within the design discourse; (2) cites Miller’s (1956) limit on the number of items that can be held in short-term memory (five, plus or minus

two); and (3) shows that, between the two protocols, the difference between the percentages of critical moves generated by a link intensity of, respectively, five, six, seven and eight, becomes statistically insignificant at an intensity of seven. Goldschmidt contends that the percentage of critical moves, out of moves in a unit, also indicates productivity.

In order to compare the two protocols, compatible units were found, where compatibility was “judged by content or subject matters that are as close as possible to one another” (p. 198). Because Goldschmidt was interested in *hard core* design activity, she excluded stages of information collecting, clarification, summaries and calculations from comparison. Over the compared units, despite a striking difference in the absolute number of moves, the mean *link indexes* and the mean *percentage of critical moves* were not significantly different between the two protocols (respectively, $p = 0.6$ and $p = 0.1$). She admits that her analysis was not exhaustive, because it depended on the selection of units to be compared.

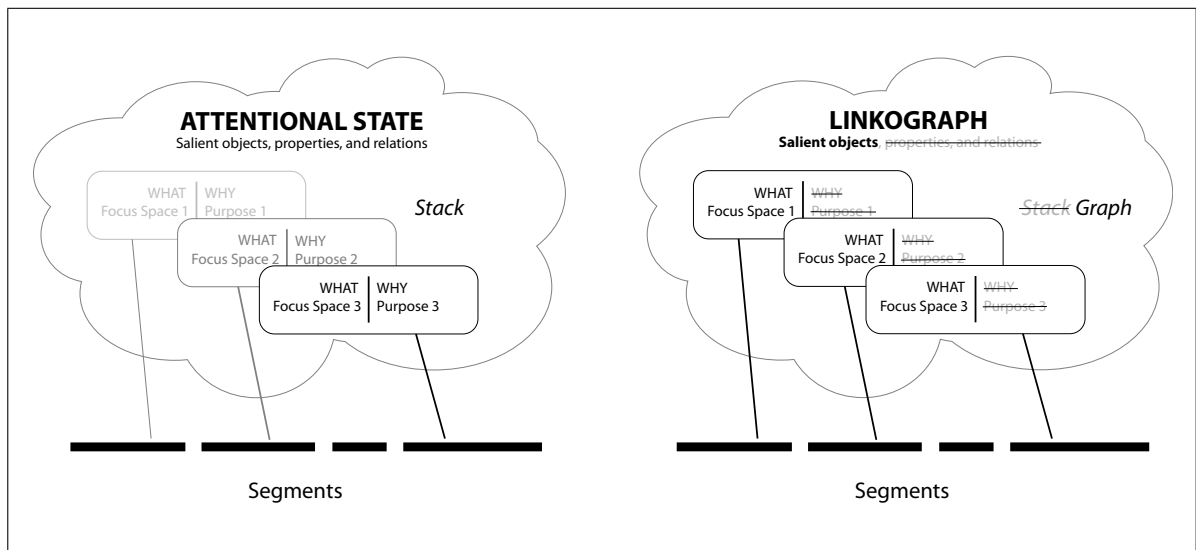
Goldschmidt shows that the individuals in the team protocol practiced a kind of division of labor in the types of move that they respectively contributed, while the one-designer protocol exhibits all the types. The move types are characterized in terms of the balance of *backlinks* and *forelinks*. Between the two protocols over the compared units, the two *percentages of forelinking critical moves*, out of *critical moves*, are almost identical. Goldschmidt takes *forelinking critical moves* to indicate innovation and invention. Regardless of whether they are included in the final results, *forelinking critical moves* “play a decisive role in the design search” (p. 206).

Goldschmidt interprets these results as very little difference in productivity between the one-designer session versus the design-team session – “the individual designer is a unitary system that resembles the team” (p. 209). She explains that the single designer “oscillates between overviews and technical details, between functional aspects of the design product and issues related to human factors. He thinks of features, product identity and aesthetics along with stiffness, strength and ease of production. Team members do the same, but they can let a colleague answer a question they raise, or pick up someone else’s line of thought and build on it” (p. 208). She suggests that the design behavior of both individuals and groups have the same measurable cognitive parameters. “The measured values of these parameters are similar for teams and individuals who reach equally productive results in the same design tasks” (p. 202).

3.8 Discussion

3.8.1 Linkography and conversation

Figure 3.2: Attentional state and linkograph



Because linkography maps coherence in a conversation-like, decision making process, then resonance with findings in conversational coherence and group decision making should be expected. There is the evocative similarity between Grice’s (1975) term *conversational move* and Goldschmidt’s (1995) term *design move*. Also, the notion that designers must identify the previous design moves that are influential with respect to the current move is similar Reichman’s (1981) premise that conversation participants must identify the previous utterances that are influential with respect to the current one.

The notion that “the individual designer is a unitary system that resembles the team” (Goldschmidt, 1995, p. 209) resonates with Grosz & Sidner’s (1986) declaration that “The attentional state is a property of the discourse itself, not of the discourse participants” (p. 179), meaning that a linkograph is associated with the attentional state, and therefore shows attributes of the discourse, irrespective with whether the discourse is carried on by one designer who wears several hats, or several designers each of whom wear one hat.

(Remember that the attentional state is “an abstraction of the focus of attention of the discourse participants” (Grosz & Sidner, 1986, p. 177).) Also, the suggestion that individual designers and team-based designers have the same cognitive parameters shifts emphasis from the modes of communication amongst the team to the structure and availability of information, and thereby resonates with the information-oriented perspective in small group decision making

The links associated with some design move are similar to Grosz & Sidner’s focus spaces. First, links are listed in a linear order, which is similar to how focus spaces are stacked, with the most recent being the first one to be examined for salience to the current discourse segment. Second, beyond stacking the focus spaces and selecting one that is salient to the current discourse segment, there is no attempt to convey rhetorical relations (Grosz & Sidner generalize *rhetorical coherence* as *intentional structure*). Similarly, the link conveys nothing more than salience. The link does not preclude rhetorical relations. Rather, like a boundary object, it embodies the lowest level of generality that permits multiple viewpoints; although it is weakly structured in general use, it can subsequently become strongly structured, that is, inscribed with classification terms from some individual scheme.

The area of conversational coherence generally attempts to identify linguistic markers that signal discourse structure, whereas most frameworks of design rationale from the argument perspective rely on the designers themselves to markup their conversation, either as structured meeting notes, or as post-meeting analysis (an interesting exception being Zaychik & Regli’s (2003) automated semantic analysis of email documents and application of formal concepts for later automated reasoning). There is a resemblance between the rhetorical relations by design rationale researchers like Kunz & Rittel (1970) and researchers of conversational coherence like Hobbs (1979). Likely, Grosz & Sidner’s (1986) claim, that the relations of rhetorical coherence that underly discourse are so diverse that fixed rhetorical patterns do not suffice, also applies in design rationale. There are significant difficulties in getting designers to use argument schema to structure their thinking; although argumentation is about construction, it is not the same as construction (Fischer et al., 1989). Interestingly, Hobbs also mentioned that that people are not necessarily cognizant of making their discourse coherent. Perhaps the simplicity and generality of the link, being a fundamental metaphor (Lakoff & Johnson, 1980), may help mitigate this issue.

Goldschmidt subjectively aggregates fine-grained design moves into topical design segments prior to performing linkograph analysis. A focus space over a discourse segment is

analogous to a set of links over a design segment. A linkograph is analogous to an attentional state, except that it is explicitly known and laid out.

If a linkograph was constructed from fine-grained design moves, rather than topical design segments, because of the association between sets of links (analogous to focus spaces) and topical segmentation, then the linkograph could be used to predict the location of topic shifts (which here are unknown because the linkograph is constructed from a finer grain of moves than topical segments).

So what? Linkograph construction is already labor intensive; constructing one from a finer-than-topical level would be yet more costly. One benefit to design research would be to reduce the subjectivity of aggregating fine-grained design moves, or at least to triangulate the subjective method with a scripted method.

Also, in the context of a mediated design conversation, I expect that current technology can use context, human-designated keywords, and artificial intelligence tools to construct a linkograph of the conversation as it progresses. The linkograph would comprise a skeleton ontology in which all of subject, predicate and object are not further refined for the time being; that is, the linkograph would comprise deictic references only, which later could be given or contribute to more refined semantics. Supposing such a linkograph can predict topical segmentation, that segmentation may then be used by the arsenal of computational tools to further represent the discourse.

Finally, a such a linkograph of mediated conversation may be used to make relevant prior conversation available for writers reporting about any one spot in the conversation. A reporter could replace swaths of prior relevant conversation with “distillates” of them, and insert the distillates as annotation into current documents. Such an act would be analogous to the summarizing aspect of the attentional state.

I take the stance that transitive links must be considered, because a hyper-linking reader may arrive at a random document; its full context should be available. I also take the stance that the transitive links must be filtered, because a pedantic reader should not be reminded of what he or she just read. Plus design conversation is both teleological and recycles on modules; without filtering, the end-conversation can link to everything.

3.8.2 Preference for Web 2.0 technology

Because design includes heterogeneous stakeholders from across organizational boundaries, where common language – like formal or informal classification terms – is established, what

can be expected of design rationale may be similar to what can be expected of *social bookmarking and tagging*, including that a business model for design rationale may depend helping individual designers in their professional development. But can social bookmarking and tagging embody strategies to foster good decision making in groups? Those bias mitigating strategies that are relevant for both design and tagging (Section 3.2) are here discussed from the point of view of how they can be supported.

Provide access to informational records during discussion: Tagging provides a simple way to bring together information that was collected or authored in diverse situations.

Promote more thorough discussions: By accumulating distributed work under them, tags that structure discussion can simulate the effect of providing more time for discussion, which permits more previously-unshared information to enter discussion (although doing so does not necessarily decrease bias).

Enable group-ordained experts to tailor their respective information to the needs of the group: In a similar vein, there is a tension between the need of organizations to behave economically and the need for the renegotiations that are characteristic of design. Therefore, a goal for design support in organizational settings is to couch previous conversations in the terms of the present. The mechanisms of accomplishing this emphasize being able to (1) specify semantic relations between tags; (2) specify the order of tags; and (3) control the visibility of tagged items (and even of tags). From the point of view of the technological support, this strategy roles into *promote more thorough discussions*.

Foster dissent: For the same reasons, this strategy also roles into *promote more thorough discussions*.

Group members know how to access information that is distributed in the group: Tag clouds, people tagging and performance metrics provide a high-level picture of individuals and groups that group members can use to become familiar with the kind of things that the other members are good at or are responsible for.

In conclusion, current technology seems capable of embodying three distinct strategies that help maintain good decision making in groups: (1) provide access to informational records during discussion; (2) promote more thorough discussions; and (3) group members know how to access information that is distributed in the group.

A weakness of tagging is that a topic of discussion can have very many tagged items. If a discussion covers numerous such topics, there may be no satisfactory way to quickly understand the tagged conversation. But that weakness is the very subject of this research.

3.8.3 Stance on design rationale

The approach taken in this research draws upon both Ackerman & McDonald (2000) and Shipman III & McCall (1997). It adopts Ackerman's (2000) human-oriented stance, with an eye to the capabilities of current Web 2.0 technology. This research applies Ackerman & McDonald's employment of *incremental formalization* (Shipman III & McCall, 1994) toward the construction of *distillates*, but in the service of design rationale, following Shipman III & McCall's (1997) integrative approach of using the communication perspective for capture, and the argumentation perspective for retrieval. The incremental formalization begins with constructing a linkograph of the communication. This stage is assumed to rely on conversation that is mediated by some Web 2.0 technology that offers sufficient clues for system-generated recommendations for links, and may proceed as part of the act of making conversation, similar to Gmail's *conversations* that are derived by means of the Reply function. Those who construct the linkograph do not have a global appreciation of the design, and cannot themselves segment the design process record into topic units. The resulting linkograph is then used to suggest source material from which people might construct distillates, which could include the use of tagging and the development of thesauri (Yang et al., 2005).

3.8.4 Proposed theory

This research proposes that a linkograph that is constructed from finer-grained design moves than topical segmentation can be used to predict topical segmentation. Knowing the segmentation enables discovery of the links between segments, as opposed to the links within segments. The segmentation can also be used to filter transitive links between segments. The filtered links can be used to retrieve prior relevant conversation for the purpose of documentation as design rationale.

The Framework chapter proposes a framework for how to use a linkograph to segment a design process record, and also how to gather the salient prior design moves. The Methodology chapter explains how the framework was tested.

Chapter 4

A Model for Segmenting Design Process

4.1 Introduction

Toward supporting the theory that a linkograph that is constructed without the aid of prior, human-designated topic units can be used to automatically segment a written record of a design process into topic units, a model for predicting topic shifts must be proposed and tested. In this chapter, a model is derived. Additional to the basic model, I propose that the segmentation that the model generates can be used to distinguish *deep* from *shallow* links, the idea being that deep links indicate relevant, topical prior conversation.¹

4.1.1 Visualization of a linkograph together with topic shifts

The first stage of investigation included drawing a linkograph of a design process and visually comparing it with a human assessment of topic shift locations in the same process. The drawing style was adapted from van der Lugt (2000) (the foreground in Figure 4.1²). In this style, it can be more easily seen which back links are closer in time to whatever item on the diagonal line is under consideration.

¹Having then delineated both segments of conversation and locations within a segment that have deep links, those distinct locations may indicate co-located topics. However, the subject of co-located topics relies on finding relevant prior conversation in the first place, so the subject would be better handled as the focus of future research.

²From van der Lugt (2000) and Kan & Gero (2004).

Figure 4.1: Different styles of drawing linkographs

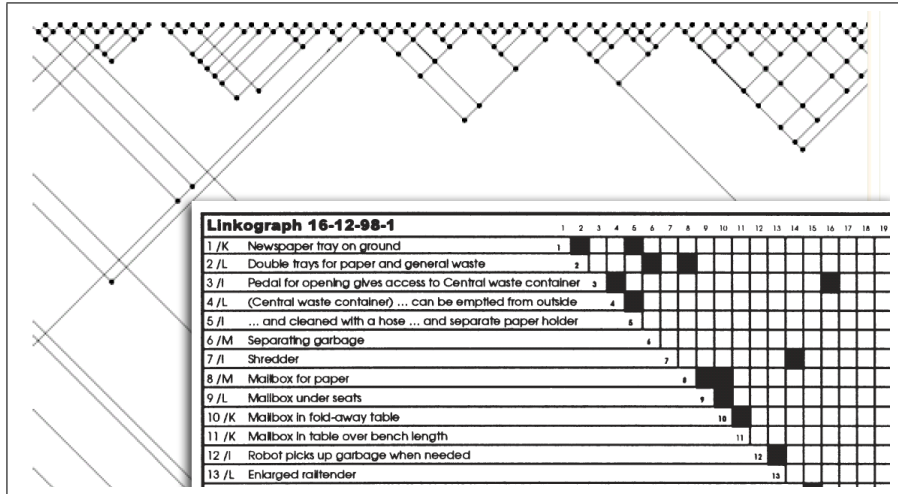


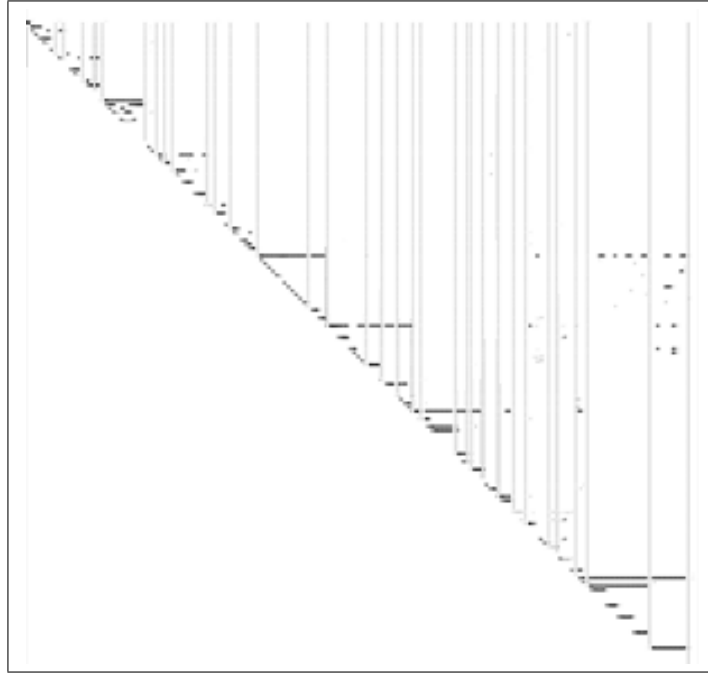
Figure 4.2 shows the comparison between links and human-perceived topic shifts; the human-perceived topic shifts are the gray vertical lines. The links are darker dots. The points that comprise the diagonal line represent the transcript units, start from the upper left, down to the lower right. To trace a link, draw a vertical line from the diagonal upward to the dot, and then horizontally leftward to the diagonal. It can be seen that the links often form somewhat contiguous horizontal lines.³ There is a visual correspondence between the horizontal dot-lines (automatically derived from the linkograph) and the gray vertical lines (human-perceived topic shifts).

This intuitive visual correspondence guided the second stage of investigation. The links that are close to the diagonal line – here called *shallow* links – give a much more dense and clear suggestion of being associated with topic shifts than do the links that are far away from the diagonal line (*deep* links). Possibly, deep links relate segments with each other, while shallow links help demarcate the segments themselves.

Suwa & Tversky (1997), in a study of what architects see in their sketches, segmented their design process record in a similar manner as Goldschmidt (1995). They (Suwa & Tversky) defined how segments could have a conceptual dependency (CD) to past segments, whether immediate or distant, and observed that the design process includes many blocks

³The image is slight blurred horizontally in order to enhance the effect.

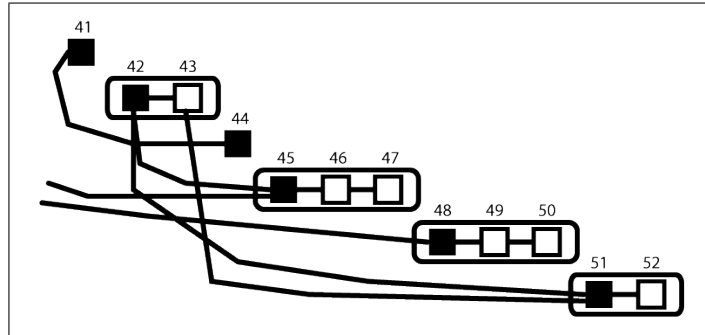
Figure 4.2: Comparison of topic shifts and conversation strings that are contiguous.



of contiguous segments in which the statements are about one topic. In such a “*dependency chunk*” (their term), “The first segment does not have a CD from its immediately preceding segment (‘segment P’) nor from any segments in the dependency chunk, if any, to which ‘segment P’ belongs” (p. 393). Their graphic representation of this observation, simulated in Figure 4.3, looks similar to Figure 4.2. Distinguishing chunks of neighbor links from distant links is consistent with Grosz & Sidner’s (1986) and Grosz et al.’s (1995) distinction of local coherence versus global coherence, in which the global coherence comprises intentional (rhetorical) relations between topical segments. Thus there is an intuition that shallow links delineate the span of segments (over which ideas that are co-located within the span may be found), while deeper links tie segments together and show the influence of prior conversation. In Figure 4.2, the kind of pattern that the shallow links do form (head on the time line with a tail of somewhat contiguous links) can be detected independently for each unit; it does not rely on accumulative properties of the process.

The goal of this chapter is to (1) derive a way to detect topic shifts, and (2) propose a way to use the segmentation to distinguish shallow from deep links.

Figure 4.3: The first segment of a *dependency chunk* does not have a conceptual dependency from its immediately preceding segment.



4.2 Research methods

4.2.1 Data

Concerning the nature and acquisition of the data, the researcher participated in two meetings about a potential university course. The purpose of the initial meeting was to “Establish a mutual understanding between [the main stakeholders] about the nature of the course, its design, delivery and role in research.” The first meeting had four participants, and the second meeting had five participants. Both meetings each lasted about one hour. The researcher took detailed handwritten notes of these exploratory meetings; the paraphrased and typed notes were sent to the meeting participants. The sent notes comprise the transcripts upon which subsequent analysis was performed. The transcripts were divided into numbered phrases, based on periods, colons, and semicolons.

4.2.2 Analysis

The researcher:

Stage I

1. Performed a linkograph markup of the transcripts. The links were typed into the transcripts. The following is an example: “{1.022 1.023}.” The digits before the decimal indicate the meeting number, and the digits after the decimal indicate the linear ordering of the design moves within that meeting.

2. Marked in the transcripts where he thought topic shifts had occurred. Wherever the coder thought a topic shift occurred, he typed “_t{ }” into the transcripts.

Stage II

1. Closely read the transcripts, and, for each topic segment, noted the linking behavior within that segment. That is, at the end of each segment, each link that had appeared in that segment was respectively described with statements like: links to head; links to before head; links to before previous head; links to previous statement; links to between this and head . . .
2. Discussed commonalities that were found in the linking behavior over all the topic segments.

Stage III

1. Proposed a mathematical model of the linking behavior that was perceived to be associated with topic shifts.
2. Ran the topic shift model on the linkograph model.
3. Analyzed and discussed the results.

4.3 Results of Stage II

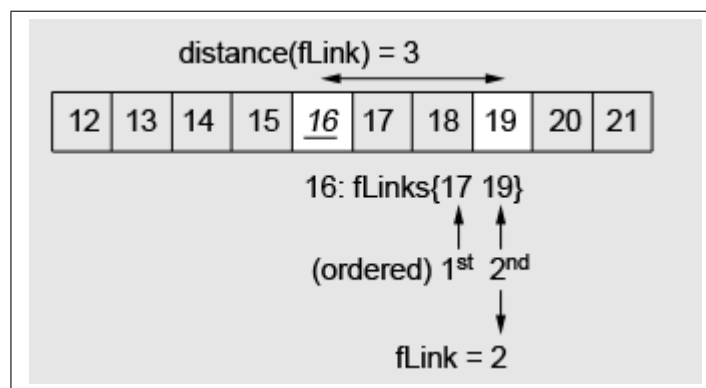
The marked-up transcripts with inserted discussion of linking behavior comprise Appendix A.

Consideration of commonalities between the descriptions of links at the end of each segment reveals some characteristics of topic shifts: (1) a statement chains or branches to several other statements that immediately follow – *one* step of transitive linking is respected in constructing the chain/branch. That is, if A links to B, and B links to C, and C links to D, then C is in A’s set of forward links, while D is not. And (2) the statement often links back to other statements that are significantly earlier in the conversation, while exhibiting few or no links to statements that are immediately prior in the conversation. This is consistent with the observation by Suwa & Tversky (1997) that “The first segment [of a dependency chunk] does not have a CD [conceptual dependency] from its immediately preceding segment (‘segment P’) nor from any segments in the dependency chunk, if any, to which ‘segment P’

belongs” (p. 393). Concerning backward links, since conversational coherence demands that every statement be relevant to prior conversation, a link to the immediately prior statement is weak evidence of a topic shift.

4.4 Discussion of Stage II: The segmentation model

Figure 4.4: fMeasure parameters by example



The mathematical model mimics these observations as follows: Concerning forward links, each link contributes to a total measure of whether the statement is a topic shift. An unbroken chain gives strong evidence of a shift, while a far away link, with any number of breaks between it and the statement, gives weak evidence of a shift (though signals the importance of the topic). The contribution of each link in an unbroken chain is taken to be 1; for example, if there are only two links, and they form an unbroken chain, then the total measure is 2. If there is a break in the chain, then, beyond the break, the number of links is less than the distance from the statement, and the contribution of each of the links that are beyond is less than 1, and squared in order to further penalize the rate of contribution with respect to distance. A distant forward link with many non-links in between contributes almost nothing to the measure.

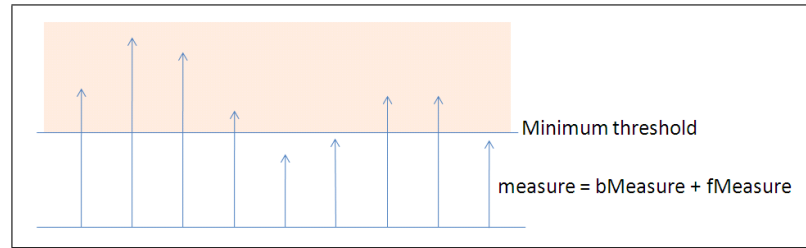
The following expression displays this behavior. The parameter $fLink$ is the ordinal number of a link within a unit's ordered list of links, while $\text{distance}(fLink)$ is the distance of the indicated link from the unit, according to their ordinal positions in the list of all units. See Figure 4.4 for a visual example.

$$fMeasure = \sum_{fLink=1} \left(\frac{fLink}{distance(fLink)} \right)^2$$

Concerning backward links, a link to the immediate prior statement tells nothing about whether the current statement is a topic shift, while links to prior statements approach a value of 1 at even a moderate distance of 5 units away. That is, the value should be 0 for a distance of 1, far from certain for a distance of 2 (say approximately 50/50), and increase to near 1 at a moderate distance. This behavior is mimicked by taking the measure of backward links to be:⁴

$$bMeasure = \sum_{bLink=1} \frac{1}{1-\sqrt{2}/2} \left(\frac{distance(bLink)}{\sqrt{1+distance(bLink)^2}} - \frac{\sqrt{2}}{2} \right).$$

Figure 4.5: Minimum threshold



The overall measure of a topic shift is the forward measure plus the backward measure. However, *every* statement has some measure, therefore the model requires one more ingredient: a minimum threshold below which a statement is rejected as a candidate topic shift. The threshold is taken to be: $(fMeasure \geq 1) \text{ and } (fMeasure + bMeasure > 1 + 0.95)$. That is, a statement that initiates a topic shift must have forward linking that adds up to the equivalent of an unbroken chain of at least length 1; plus, if the forward linking adds up to merely 1, then the backward linking must show strong evidence – must add up to the equivalent of linking to something that is at least six units away.

Note, these expressions are intended to be the subject of future research. The experiment was run with slight variations on all the parameters; e.g., cubing the forward measure versus

⁴This expression is essentially a cosine that is shifted to equal zero when the distance=1, and scaled to approach 1 when the distance is large. When distance=2, the expression yields 0.64, which is reasonably close to the required uncertainty; when distance=6, the expression yields 0.95, which is reasonably close to the required certainty.

not raising it to any power. The current parameters sufficed to match the researcher’s impression of the data while adhering to simplicity (avoiding unwarranted complexity). Components of the *threshold* expression were adjusted to minimize: “*The human-coded was not predicted, and clearly should have been predicted*” and “*Invalid prediction.*”

4.5 Final Results of Iterating Stage III

The final results of iteratively applying and adjusting the segmentation model to the *exploratory meetings* linkograph are laid out in Table 4.1, which compares predicted topic shifts with coded topic shifts.

The comparisons are coded as follows:

Y = The predicted and the coded match;

V = The predicted does not match a coded, but it is valid nevertheless;

V? = The predicted does not match a coded, but might be valid;

N = The predicted does not match a coded, and it is not valid;

X = The coded was not predicted;

XV = The coded was validly not predicted (was not a viable topic shift anyway);

XL = Missed because of weakness in linking;

XX = The coded was not predicted, and clearly should have been predicted.

Predicted Vs. Coded

ID & Measure	Code	Discussion
1.006 (10.5)	Y	
1.00702 (2.84)	V?	Following statements explain implications of this one.
Missed 1.009	X	This is a title.
Missed 1.011	X	This is a title.
1.013 (2.56)	V	Seems valid. Unit 1.012 is a contextualizing issue, while this is an approach to the issue.
1.015 (5.3)	Y	
1.016 (4.08)	V	This is the first statement following a title (which was declared to be a topic shift). It can be argued that this is valid topic shift.
Missed 1.018	XV	This may be a continuation of 1.016, that is, the judgement that this is a topic shift is questionable.

1.02 (6.76)	Y	this is a title
1.021 (9.83)	V	This is the first statement following a title (which was declared to be a topic shift). It can be argued that this is valid topic shift.
1.023 (2.09)	V	Kicks off discussion of important implications of 1.021.
Missed 1.027	XL	This is a title. The statements under this title do not link to it, even though they should. This was missed because a weakness in the linking. Strategies to recover from weak link might be devised.
1.03 (2.94)	Y	This is a title, followed by one statement only.
1.032 (2.0)	Y	This is a title, followed by one statement only.
1.034 (9.58)	Y	
1.036 (2.78)	V?	Only slightly more developed than the other things said. This segment is like a list of previous decisions.
1.038 (3.94)	V?	Only slightly more developed than the other things said. This segment is like a list of previous decisions.
1.04 (1.99)	Y	
1.042 (3.0)	Y	
2.005 (2.0)	Y	
2.00602 (2.14)	V	This inspired subsequent conversation, plus it relates to earlier points that the coder did not indicate. This is part of a list of points.
2.00603 (2.0)	V	This is a stance taken on 2.0062. The strength of 2.00602 is largely through this linking back to 2.00602.
2.008 (17.22)	Y	
2.00814 (3.55)	V	The segment starting at 2.008 is a list of ideas. This item revealed more about the overall design problem.
2.00815 (4.14)	Y	This is a stance taken on 2.00814. The strength of 2.00814 is largely through this linking back to 2.00814.
2.0082 (2.83)	V	This is an important consequence of the problem space.
2.01 (9.7)	Y	
2.011 (6.64)	V	This is a summarization and repetition of previous points, and links to consequences in the current context.

2.015 (10.84)	Y	
Missed 2.016	X	This is a kind of repetition of 2.013.
2.017 (8.72)	V	This is related to 2.016.
Missed 2.018	X	A branching of 2.017
2.019 (2.91)	V	An expansion of 2.017.
2.01901 (3.01)	V	A branch of 2.019.
missed 2.02	XV	Linked to 2.018.
2.021 (5.99)	Y	
2.022 (9.32)	V	This is an elaboration of 2.021.
2.02201 (8)	V	This links to 2.022, and six nearby statements branch from this.
2.023 (3.95)	Y	
missed 2.02302	X	This is a small branch that was not taken up later.
2.024 (4.98)	Y	
missed 2.026	X	This is a title that heads a summarizing list.
2.029 (5.71)	Y	A title.
2.029001 (2)	V?	A small branch.
2.03 (2)	Y	
2.03102 (7.96)	Y	
2.03107 (2)	V	
missed 2.03108	X	An expansion of 2.03107.
missed 2.033	XL	This is a title; none of the following statements link to this.

Table 4.1: Comparison of predicted vs. coded topic shifts.

4.6 Discussion of Stage III

See Table 4.2.

Table 4.2: Model development: Assessment of topic shift prediction

Cat	Num	Yes	In
Y	19	19	19
X	7	0	7
XV	2	0	0
XL	2	0	0
V	15	15	15
v?	4	2	4
N	0	0	0
XX	0	0	0
		36	45
Accuracy (Yes/In): 80%			

The total topic shifts that were indicated by either human or model was 49. However, some of these were disqualified, as explained below:

Human-coded shifts that were missed: Of the human-coded, the model validly missed 2 of them (XV: *The coded was validly not predicted (was not a viable topic shift anyway)*); the coder was likely in error to indicate that they were topic shifts in the first place. The model missed 2 of them because of incomplete coding (XL: *Missed because of weakness in linking*). These 4 are excluded from the selection set because the failure to predict them had nothing to do with the model. Thus the selection set is out of 45.

Of the human-coded ones that were missed, 2 were an expansion or branching of the immediately prior statement, which, in both cases, was predicted to be a topic shift; thus these two missed topic shifts were possibly compensated for.

Of the ones that were missed, 5 of them were titles. Two of these were disqualified due to incomplete linking (XL), leaving 3 that were titles out of the 7 that were missed (X). This suggests that the model has trouble with titles *per se*. Humans recognize titles as topic shifts, but backward linking is usually to content rich statements. Although the model missed these titles, it declared immediately following statements to be topic shifts; that is, in a sense, the model compensated for the missed titles.

For the remaining 2 that were missed, one was a small branch that was not taken up

later, and the other was a repetition of an earlier statement. Although it is likely that both of these are topic shifts, it is not clear and indisputable that they are topic shifts that should have been predicted.

Of the 11 missed items, 4 were disqualified, 5 were likely compensated for, and it was unclear whether the remaining 2 should have been predicted. None that were missed clearly should have been predicted (XX: *The coded was not predicted, and clearly should have been predicted*). In conclusion, the ones that were missed do not indicate serious fault with the model.

Model-coded shifts that were not human-coded: Of the 19 predicted topic shifts that were not coded, 15 were considered to be valid (V: *The predicted does not match a coded, but it is valid nevertheless*), and thereby showed some strength of the model over hand-coded topic shifts, likely because the model takes advantage of the hindsight provided by processing both past and future statements. Of the remaining 4 in which it is not clear whether they are valid topic shifts (V?: *The predicted does not match a coded, but might be valid*), two of these are in segments that are like summarizing lists of previous conversation, in which each list item is of equal value with respect to whether it is a topic shift. Because of the uncertainty of these 4, half are taken as valid predictions (Yes). None of the predicted topic shifts were considered to be clearly invalid (N: *The predicted does not match a coded, and it is not valid*).

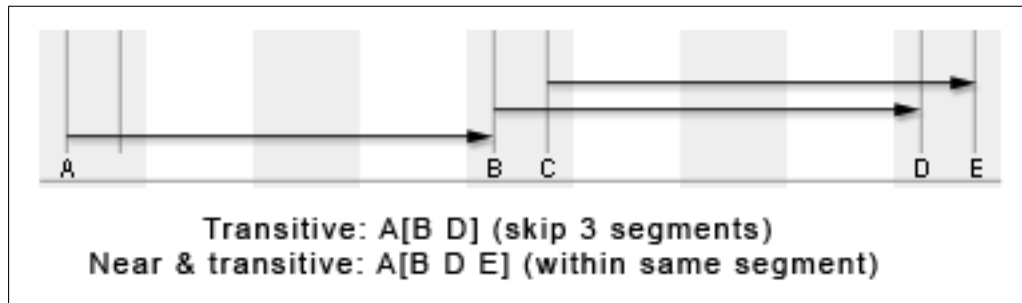
4.7 Conclusion

The model seems to have trouble with titles and lists. Nevertheless, it performed fairly well, within the limitation that it was developed and run on one small data set. The difference between the data used here to derive the model and the data used later to test it is that the design process record here was based on meeting notes that had been reorganized from handwritten notes, while the test process comprised transcripts of audio recordings. Unsurprisingly, the test process was much more fine grained. In order to be able to set the granularity of the topic segments, a *granularity threshold* was added. Its initial value was set at the median of all topic shift measures, as being more insensitive to skew (the rare but high measures could be very high). The model was iterated on a sample of the test process (the fourth design meeting), and finally the third quartile was settled on as a

more appropriate granularity threshold. This raises the future research topic of dynamically balancing the model based on attributes of the process being analyzed.

4.8 Granularity of transitive links

Figure 4.6: Use of segments to gather transitive links



The framework for gathering related information used transitive links. The framework is shown in Figure 4.6. The *shallow* links were excluded by only accepting links that were **not** from within the same segment; the included links are here called *deep* links. However, practice on the test data (the fourth design meeting) immediately showed that this was not enough, because information that was quite nearby and thereby redundant (with respect to the conversation at hand) was offered by the system. Therefore, a rule for adjusting the granularity was instituted, and its value was set by iterating on the data (the fourth meeting) with various values, finally settling on: *skip 3 segments*.⁵

⁵Toward noting ideas that are co-located, links that were even more indirect were also gathered. These are here called “*near*” links, because they are branches of transitive links whose roots are near to each other; that is, in the same segment.

Chapter 5

Research Methods

5.1 Research objectives

This research is exploratory, but with the perspective of aiding tool development, rather than adding new knowledge about design; it is dependent on existing models of design. The intent is to support design collaboration, therefore questions of what information is required and how it is shared are of interest. This perspective is common in the field of design research (Oxman, 1995). The goal of this research is to show how linkography can be used to support design rationale. The first objective is to show that a linkograph can be used to segment, according to topic, the design record from which it was derived, and the second objective is to show that the segmentation together with the linkograph can be used to gather information from the record that is helpful during the human activity of reporting about the design process.

5.2 The approach

The overall approach is qualitative. Not only did the data come from a participant-observer case study, but the analysis was also primarily qualitative. To support design rationale in the world at large, it is necessary to have theory that holds in multiple realistic cases that embrace the day-to-day variations of normal work. Thus the study of naturally occurring design sessions is appropriate for this research, despite the tradeoff of the research losing statistical power in favor of external validity. Relevant to this point, Poole (1999) states that studies of decision making in naturally occurring small groups lack statistical power;

it is often difficult to identify populations of naturally occurring teams that are sufficiently large enough to satisfy traditional canons of quantitative research design, and also it is often difficult to find equivalent groups/teams for establishing the kind of control groups that are desired in such research. Poole further states that laboratory studies of decision making in groups lack external validity, as well as some internal validity, such as shared history of working together. The design research by Olson et al. (1992) draws on small group decision making literature. Case studies build theory, rather than make predictions about populations (Yin, 1994). Confidence in theoretical concepts strengthens with more evidence in their favor, but concepts are not necessarily overturned if the numerical count of evidence is weak – a single piece of qualitative evidence can have great rhetorical power. Support for the concepts across multiple cases greatly boosts confidence in the theory, especially with design cases that tackle unique problems.

5.2.1 Linkography

Linkography was explained in Chapter 3 *Background and Related Work*, Section 3.7 *Linkography*, because of its centrality to the research problem, above how the problem is answered. Linkography is a kind of process analysis, often applied in protocol analysis to design protocols. Protocol analysis is a research method that elicits verbal reports from research participants, and was popularized by Ericsson & Simon (1984). It became common as an effective way to study the design process (Cross et al., 1996). Protocol analysis is not restricted to think aloud sessions; conversation and action have also been used (Cross et al., 1996). A *protocol* is usually a transcription of a recorded *think aloud* session, which is then divided into small units and encoded using a category scheme that reflects the research objectives. Although Ericsson & Simon (1984) divide their protocols into time-based units, linkography divides protocols into design moves.

Linkography requires significant familiarity with the design process from which the protocol was derived. One of the researcher's roles in the design process was to supply meeting notes. Also, it was the researcher who transcribed the audio recordings of the meetings. Thus the researcher was well-prepared to conduct a linkograph analysis of the protocol. An unfortunate aspect of the need for such familiarity is it became impossible for this project to find additional coders. However, this shortcoming was mitigated by coding the protocol in parts over a long period of time (almost two years); that is, the coding proceeded meeting by meeting, with long durations (sometimes months) between the coding sessions. This is

similar to the coding of protocols by Gero & Tang (2001), in which a single coder rested for ten days between encoding two different video protocols (closeup drawing details versus overall gestures) of one design session. Also, the coder returned to previous coding (as much as three times in places) and corrected instances where coder-fatigue had caused poor judgement. The poor judgment almost entirely had to do with not coding at a fine-grained level of detail, and revision comprised breaking chunks into smaller pieces. For example, in the beginning, if several people took turns talking about the same thing, the coder took that as one design move; that is, the topic (ironically) was identified as the move. In the second pass, the coder divided the speakers from one another, and in the third pass, divided the sentences and phrases, linking the relationships between them on a microscopic level. (In the end, 77% of the design moves comprised simple sentences or phrases.)

5.3 The case

The case in this study comprises eleven meetings concerned with the creation of a broad, survey-like, first year university course about design thinking for students who likely have not yet chosen a direction. The first two meetings were to establish a mutual understanding between the main stakeholders (the Simon Fraser University at Surrey TechOne Program¹ and the Canadian Design Research Network (CDRN)²) and engage a project manager. The subsequent nine meetings comprised the design team, who brought the design to a level of detail sufficient to obtain approval from the TechOne program that would be responsible for putting on the course. The design meetings were held periodically over a five month duration, about once every two weeks, and ran between two to three hours each. Between meetings, the project manager consulted with an instructional designer, and sometimes with other members of the school program. The initial exploratory meeting was attended by two members of the TechOne program, one member of the CDRN, and one student (the participant observer); the second exploratory meeting included the same people, plus the candidate project manager, who was also from TechOne. The team consisted of the project

¹“TechOne is a first year experiential program at Simon Fraser University’s Surrey campus that prepares students for academic success. . . . It is a program for anyone who is interested in design and technology and their integration within everyday life. . . .” (2008 Jan: <http://students.surrey.sfu.ca/techone>).

²“The Canadian Design Research Network is a new consortium of academics and partners from the private, public and non-governmental sectors working together to improve design outcomes in Canadian society through research in design” (2008 Jan: <http://www.cdrn.ca/>).

manager, four team members (one dropped out early, and another joined late), and one instructional designer. Beyond directly participating in the design of the course, the role of the participant observer was also to write detailed meeting notes, which were used by the project manager and the instructional designer to keep track of action items and help fill out the course template.

Concerning whether valid theory can be build from multiple meetings, a good deal of design and organizational research spans multiple meetings, for example Olson et al. (1992), Walz et al. (1993), and Poole et al. (2000). Even if a conversation spans a number of meetings, in which different aspects of the design problem are taken care of in different meetings, nevertheless the intended design gets accomplished, meaning that overall discourse remains coherent. Concerning the question of building valid theory from multiple meetings, in the field of small group decision making, Gersick (1988) was cited by Poole & Roth (1989b) as building valid theory about decision-making processes from cases that spanned multiple meetings.

5.4 Data

The overall data is broken into two parts: (1) two initial exploratory meetings, and (2) nine design meetings. The exploratory meetings were used for a preliminary study in which the model for segmenting the discourse was developed. In these first two meetings, the researcher took detailed handwritten notes, which were then paraphrased and sent to the meeting participants. The sent notes comprise the protocol for the preliminary study. Like all the transcripts, these notes were divided into numbered phrases, based on periods, colons, and semicolons. These meeting notes were used by the project manager, who was appointed to bring the course design to fruition, as source material for writing the course syllabus that would eventually be approved. This use verifies the transcripts of the exploratory meetings.

The nine meetings were audio recorded and transcribed; the design process was mostly non-visual, through conversation, and the design outcome was not a visual product; it was a textual instructional design template that was filled out with details particular to the course in question.

Meeting notes were derived from the transcripts and given to the team members; the transcripts themselves were appended to the meeting notes. For this reason, the transcripts were somewhat paraphrased to make them easy for the team members to read – stuttering,

repetition and so on were removed. Despite this filtering of the text, it remains valid because the researcher did not rely on recall or inference, but rather could rerun the audio recording as many times as necessary (Ericsson & Simon, 1980). Furthermore, the field notes that accompany the thick description (Appendix C) indicate an evolution in response to the team's reception of the meeting notes. To begin with, the transcripts were simply condensed. Then, at the request of the project manager, they were summarized into the following categories: action items, issues, mapping (ideas that map to the course or to each other), perspectives (team members points of view), resources, and shelved ideas. Then, upon further response from the project manager and the instructional designer, the transcripts were summarized into the categories: action items, agreements, team values, general issues, final project, potential reading material for the course, ideas, and tabled ideas. Thereafter, the project manager was satisfied, and pulled information from the summaries into the instructional design template. This further triangulates (cross verifies) the transcripts.

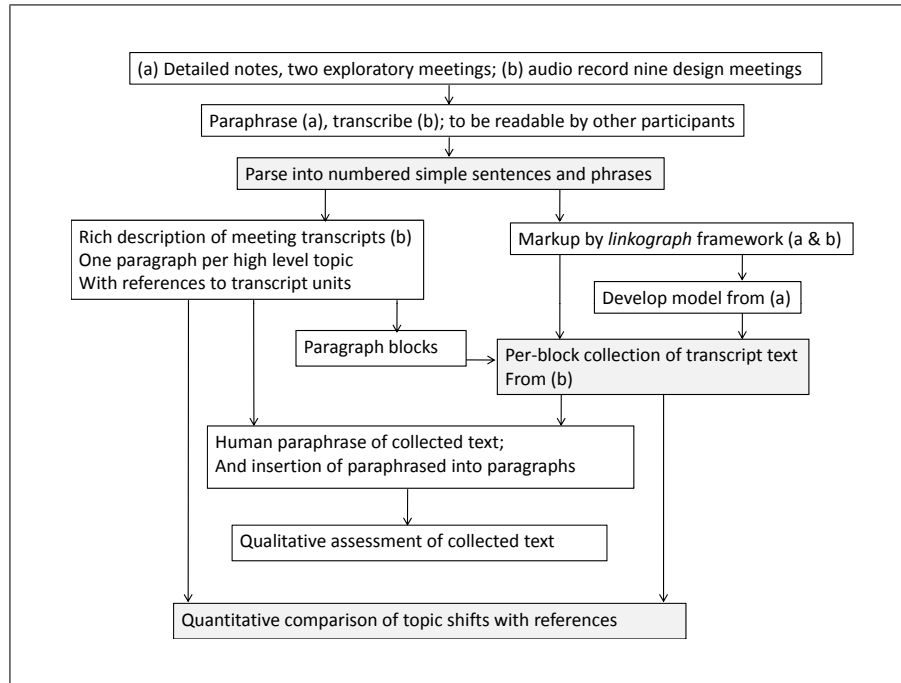
Beyond mention in this chapter of the institutional level of participation in this research, the transcripts as represented in Appendix F are sanitized. Some members were mildly uncomfortable with a recorder present. People will tell off-color jokes, gossip, reveal behind-the-scenes power struggles, and discuss personal information or information that is private to the organization. Such conversation is a part of team building, but should not go beyond the meeting. The researcher explained to each participant how the data would be handled. To begin with, the original audio recordings would not be available to anyone except the researcher. The transcripts that were used for research purposes were sanitized of any identifying information. Names were replaced by alphabet letters that would be meaningful to the participants only. Any potentially identifying phrases or place names were disguised. Furthermore, any conversation that any of the participants were, or might be, uncomfortable with being recorded was omitted altogether. Any jokes, personal remarks, information that was private to the organization, or utterances that were not directly relevant to the purpose of the meeting were omitted.

5.5 Analysis

The stages of analysis proceeded as follows (also see Figure 5.1):

1. The transcripts were parsed into simple sentences and phrases which were numbered, providing a layer of "objective coding" (Akin & Moustapha, 2004).

Figure 5.1: Method steps – the gray boxes were automatically executed.



2. Then the transcripts were “theoretically coded” according to the linkograph framework (see Section 3.7). In the terminology of process analysis, the design moves were the “events” of interest to this research (with topic segments being the “event sequences”) (Poole et al., 2000). See Figure B.1 in Appendix B for a graphical representation.
3. Based on the two exploratory meetings, the topic shift model was developed. The model was extended to address granularity of both topic shift and separation of *shallow* links from *deep* links toward the gathering of transitive deep links. This step is not elaborated here; see Chapter 4 for the methods that were used to develop the model.
4. The nine design meetings were carefully described, with references from the description to transcript unit numbers, altogether following the procedure of *thick description*

(Creswell & Miller, 2000; Bucciarelli, 1994).³ The description was broken into paragraphs that followed the high level topics, usually dictated by the agendas.

5. The paragraph blocks (indicated by start and end transcript unit numbers) and the references to transcript units were recorded.
6. For the scope defined by each paragraph, an automated script retrieved contextualizing text from the transcripts. The script employed the linkograph model of the design discourse, plus the model for predicting topic shifts. References within the paragraphs tied specific retrieved items to specific places within the paragraphs.
7. The researcher enhanced the description using only the retrieved text, which was rewritten into *distillates*, which in turn were inserted *post hoc* into the description.

Section 3.5 explains that with one system for knowledge management (Ackerman & McDonald, 2000), after the collection of informal information, the information is collectively culled, organized, and distilled by people, with sensitivity to the context that warrants the recourse to historical material. This process of incrementally formalizing informal information into distillates is simulated in this research as follows: the researcher selected from the offered text, and organized, paraphrased, summarized, and generally rewrote it to fit into the specific places within the chunks. The process of writing and inserting distillates occurred entirely *post hoc* to the thick description.

The automatically derived text preserved the evidence trail between its context, where it came from, and what it was directed at, while the references in the description, which were physically collocated with the distillates, facilitated comparing distillates with the retrieved text. Thus the evidence trail is laid out.

8. The researcher subjectively assessed the comprehensiveness and quality of the retrieved text, plus how easy it was to write the distillates, in line with the design researcher Bucciarelli's (1994) appeal to the readability and rhetorical power of his interpretation and write up of designer behavior. The researcher – having (1) participated in the meetings, (2) transcribed the meetings, (3) written the meeting notes, (4) marked up

³Although the linkograph coding and the description were carried out as separate steps, ultimately it does not matter whether they are mingled, or even play off each other, because neither rely on memory or inference, but rather are more true to the thing that they approximate (the transcripts) the more they are reworked.

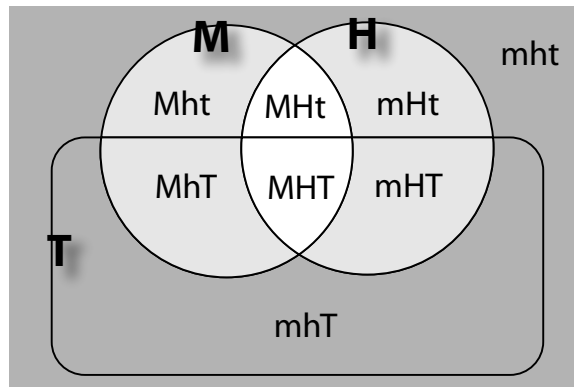
the transcripts according to the linkograph framework, which forces constant review of all the transcripts, and (5) constructed close readings of the meetings – was qualified to assess the retrieved text. In any case, as mentioned, there is sufficient evidence for the interested reader to check the researcher’s judgment.

9. The system compared the model-generated segmentation with the references that were made in the close description. The comparison made the assumption that, if a reference was made to a contiguous set of transcript unit numbers, then the head of the set was likely a topic shift. That is, model-generated topic shifts were compared for coincidence with human-indicated topic shifts. The totals were counted, and also the comparison was visualized for each individual meeting.

Chapter 6

Results

Figure 6.1: Coincidence of model and human segmentation



The research plan (Section 5.5) calls for a comparison of model-generated segmentation (M) with human-generated segmentation (H). Whether a unit is in truth a topic shift (T) is separate from whether it was detected by the model or the human. Thus comparison entails looking at the intersection of M, H and T, as illustrated with Figure 6.1 (see Table 6.1 for an explanation of the figure's terms).

Concerning the comparison of model-generated segmentation with human-generated segmentation, first, how M and H coincide (the white areas in Figure 6.1) is presented in Section 6.1. Second, how M and H do not coincide (the light gray areas in Figure 6.1) is presented in Section 6.2. Non-coincidence does not necessarily indicate model failure, again

Table 6.1: Coincidence terms

Term	Explanation	Model	Human	Topic Shift
<i>Mht</i>	Model predicted, not human referenced, is not a topic shift; invalidly predicted; model failure.	t	f	f
<i>MhT?</i>	Model predicted, not human referenced, maybe a topic shift; maybe validly predicted; uncertain model success.	t	f	t?
<i>MhT</i>	Model predicted, not human referenced, is a topic shift; validly predicted; model success.	t	f	t
<i>MHT</i>	Model predicted, human referenced, taken to be a topic shift; model success.	t	t	t
<i>MHt</i>	Model predicted, human referenced, taken to be a topic shift; model success.	t	t	f
<i>mHt</i>	Not model predicted, human referenced; not a topic shift; correctly not predicted; not a model failure.	f	t	f
<i>mHT?</i>	Not model predicted, human referenced; maybe a topic shift; maybe should have been predicted; uncertain model failure.	f	t	t?
<i>mHT</i>	Not model predicted, human referenced; is a topic shift; should have been predicted; model failure.	f	t	t
<i>mhT</i>	Not model predicted, not human referenced, is a topic shift; unknown.	f	f	t
<i>mht</i>	Not model predicted, not human referenced, not a topic shift; unknown.	f	f	f

because T is separate from M and H. Whether members of M or H were also members of T was determined by an independent qualitative coding of the non-coincident units (see Appendix E). Third, how the model fails is described in Section 6.3.

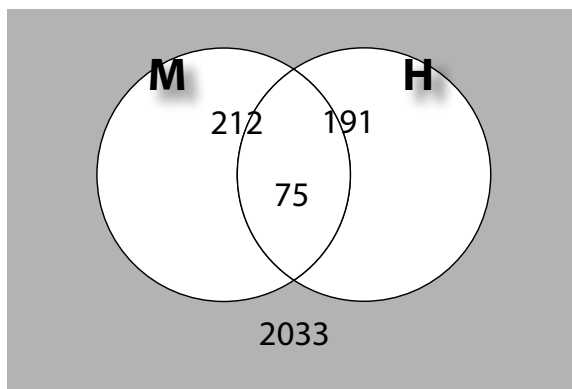
The research plan also calls for an evaluation of the quality of retrieved text (Appendix D) from the transcripts for the purpose of writing distillates to be inserted as annotation into the thick description (Appendix C). The researcher's observations that were made during the course of writing and inserting the distillates are presented in Section 6.4.

Finally, graphical representations of the comparison of model and human segmentation enable hypothesis formation concerning evocative patterns that may reveal aspects of conversation; these are illustrated in Section 6.5.

In conclusion, how the results support the theory (Section 3.8.4) is laid out in Section 6.6.

6.1 Coincident Segmentation

Figure 6.2: Intersection of model and human segmentation



Out of the 2033 transcript units in nine meetings, the model predicted 212 of them to be topic shifts (threshold quartile 3). Of these, 75 coincided with nonsingular references, out of 191 nonsingular references¹ (fewer would be actual topic shifts), and 16 coincided with singular references, out of 112 singular references.² It was expected that the model would

¹Nonsingular reference: A reference in a thick-description paragraph, in which the reference is the head of a contiguous sequence of references.

²Singular reference: A reference in a thick-description paragraph, in which the reference is a stand-alone

have a poorer performance with singular references, which was why they were distinguished in the first place. The definition of model success includes the area of coincidence between predicted topic shifts and nonsingular references (the white area in Figure 6.1). The likelihood of randomly selecting 75 of the 191 nonsingular references from a set of 2033 in 212 tries is vanishingly small – $1.2404\text{E-}29$.³

Also, the occurrence of M and the occurrence of H are dependent, according to the test for independent variables (DeGroot, 1975). Two variables M and H are independent *iff*

$$\Pr(M \cap H) = \Pr(M)|\Pr(H).$$

In this case,

$$\Pr(M) = 212/2033,$$

$$\Pr(H) = 191/2033,$$

$$\Pr(M \cap H) = 75/2033 \approx 0.037,$$

while

$$\Pr(M)\Pr(H) = (212 * 191)/(2033 * 2033) \approx 0.0097.$$

Since

$$\Pr(M \cap H) \neq \Pr(M)\Pr(H),$$

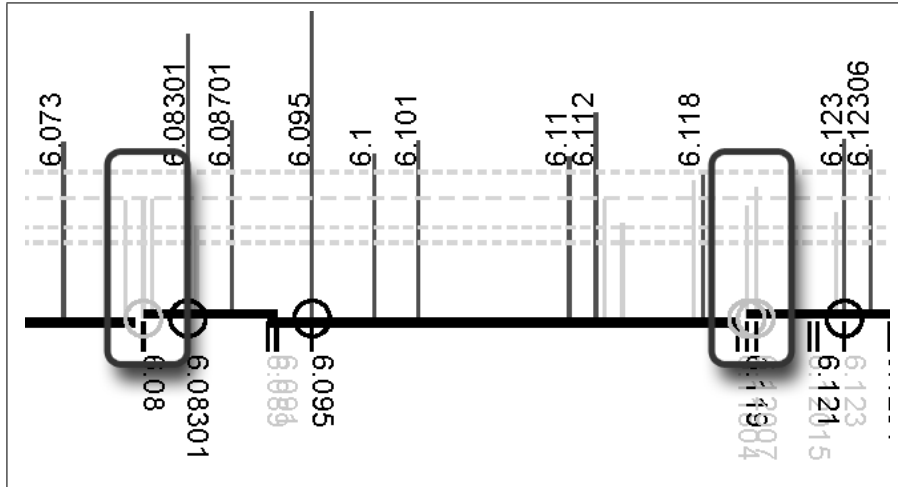
M and H are dependent.

Concerning predicting the starts of paragraphs from the thick description, 32 of the 44 paragraphs had topic shift markers at or very close to the start (see Section 6.5.2). If tightly clustered threshold of quartile 2 (Q2) markers are taken as equivalent to a quartile 3 (Q3) marker, then the number of predicted starts is at least 35 (could be as much as 37, depending on the permitted density of Q2 markers). See Figure 6.3. Of the failures, three occurred on end-of-meeting paragraphs. The model was expected to not do well with lists, such as action item lists that occur at meeting ends. Therefore, these three failures

reference.

³Calculated according to the Hypergeometric distribution: Weisstein, Eric W. “Hypergeometric Distribution.” From MathWorld—A Wolfram Web Resource. <http://mathworld.wolfram.com/HypergeometricDistribution.html>. Implemented using Sterling’s factorial approximation: Weisstein, Eric W. “Stirling’s Approximation.” From MathWorld—A Wolfram Web Resource. <http://mathworld.wolfram.com/StirlingsApproximation.html>.

Figure 6.3: Clusters of Q2 markers at paragraph starts.



might be removed from the test set, bringing it down to 41. Altogether, the performance of predicting paragraph starts was between 72% (32/44) and 90% (37/41).

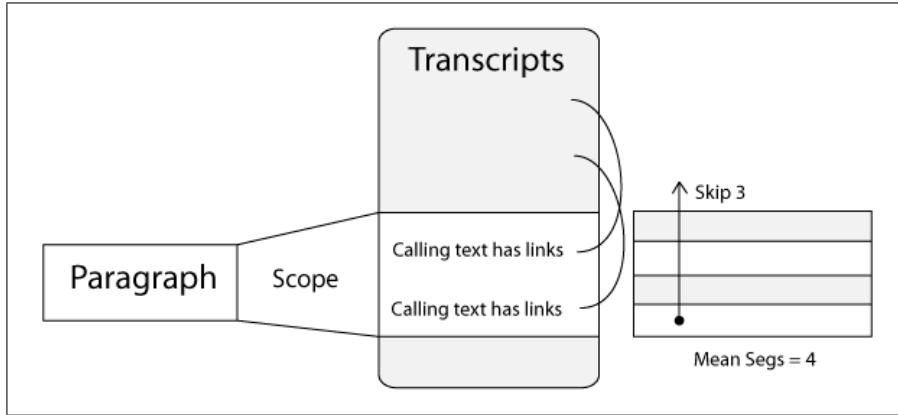
Comparing magnitude of segments with the magnitude of paragraphs, the median segmentation over paragraphs was 4;⁴ that is, 4 topic shift locations, with the first one usually being at the very beginning of the paragraph. this segmentation plus the *skip three* rule resulted in spans that were roughly the same magnitude as the human-generated paragraph segmentation into high-level topics.

6.2 Non-Coincident Segmentation

During the development of the model, analysis of its performance (Section 4.6) indicated that it is possible that (1) the model validly predicted topic shifts that the human missed or ignored, and (2) many of the human references are not topic shifts, so the model cannot be faulted for not finding them. In order to assess these, the units that populate the areas of non-coincidence were identified, their respective texts in the transcripts were reread (this rereading is later referred to as the *post-prediction review*, and which ones were topic shifts was qualitatively determined. This was done for the non-coincident terms only, because the

⁴The average number of per paragraph topic shift locations was 4.681; six topic shifts fell outside of paragraphs.

Figure 6.4: Paragraph scope and “skip 3” rule.



coincident ones were taken as model success. The coding of non-coincident terms comprises Appendix E. The results are aggregated in Table 6.2.

An explanation of the terms that are used for the various areas of non-coincidence is given in Table 6.1. To illustrate, if “predicted by the model” is true, then the corresponding letter (corresponding to: Model, Human, or Topic Shift) in the acronym term is capitalized (“M”), otherwise it is small (“m”). For example, if “predicted by the model” is true, “referenced by the human” is false, and “is a topic shift” is false, then the term is “*Mht*” (capital–true, small–false, small–false).

Table 6.2 is interpreted as follows:⁵ The impact of categories of “uncertain model success” (*MhT?*) and “uncertain model failure” (*mHT?*) are reduced by 0.5. For example, the total of *MhT?* was 46, but its impact on the results is taken to be 23. *mHt* (“Not model predicted, human referenced; not a topic shift; correctly not predicted; not a model failure”) is removed from the test set, because these were not good topic shifts to test against (and a random process could also have not found them). “Model predicted, not human referenced” (*Mht*, *MhT?*, and *MhT*) are removed from the test set, because they were not presented against a known quantity. The remainder indicates a success rate of about 71%: (total - failure)/total : $((MHT|Mht + mHT? + mHT) - (mHT + 0.5 * mHT?))/(MHT|Mht + mHT? + mHT) \approx 0.708$

⁵Note that the coding was not subjected to inter-coder reliability testing. The number of coded items was 259, and each was independently considered.

Table 6.2: Non-coincident segmentation

Meeting	# Units	<i>Mht</i>	<i>MhT?</i>	<i>MhT</i>	<i>MHT</i> <i>MHt</i>	<i>mHt</i>	<i>mHt?</i>	<i>mHT</i>
1	168	1	7	1	10	1	8	2
2	152	4	9	2	5	6	6	0
3	235	7	9	7	6	0	4	0
4	231	5	5	9	6	1	8	1
5	266	5	5	10	8	8	9	3
6	269	6	5	8	11	7	11	3
7	227	3	3	7	11	1	5	0
8	253	5	2	5	8	13	8	0
9	232	1	1	5	10	3	5	3
Totals	2033	37	46	54	75	40	64	12

Concerning predicted topic shifts that had no coinciding human references, the model had about a 55% success rate: $\text{valid}(Mh)/\text{all}(Mh) : (0.5 * MhT? + MhT)/(Mht + MhT? + MhT) \approx 0.55$.

6.3 Model Failings

Two issues recur in model failures. First, every sentence shifts the topic somewhat, particularly during brainstorming sessions, in which the goal is to generate new topics. (For example, as can be seen in Table 6.2, meeting three (an idea generation meeting) exhibits the highest failure of topic shift prediction, and a relatively low rate of coinciding with thick description references. In the light of the post-prediction review, the model seemed too sensitive for meetings three and four, spawning excessive false topic shifts.) Topic shifts are somewhat relative. Sometimes a new and important topic would enter conversation as a typical sentence-level topic shift, escaping the notice of the model, and then foster branches that garner ever more attention from the designers. This might be typified as a *fountainhead*, with a small nozzle and a large spray.

Second, because links graph connected utterances, the model will frequently take a well grounded response in conversation as a topic shift when it is not, but rather an example of

strong ideas gaining more purchase as the conversation matures.

The following example illustrates both of these issues. (The terms *status* and *code* are explained in Appendix E):

7.061 (status: missed by the model, code: should have been predicted) “D: the ideas here can be lived by the students, for example a couple of design games. If the students play the game and live through some of the things Lawson talks about, then the ideas are no longer abstract.”

7.062 (status: topic shift, with another topic shift following, code: invalidly predicted) “R: You want to engage the students in the first year in active, doing courses. Less about talking about design, and more about doing design. Trying to teach them the cycle of critique and design; have to set critical frameworks and discuss the work within them at every step along the way, but that activity follows the design activity. The reading has to make sense with respect to the design activity. . . .”

7.063 (status: topic shift, with another topic shift previous, code: invalidly predicted) “C: We don’t know what they are going to make. Each big idea can be an introduction to design through a certain lens. For example ‘precedent’ in our time—focus on everydayness—has to be relevant for the students. What is Precedent—examples? Next session they would have to do something. How do we meet at every level all of these constraints so that they are consistent.”

Although 7.061 kicked off this branch of discussion, and was thereby the site of the topic shift, 7.062 and 7.063 were well-grounded in previous discussion and thereby scored relatively well on links, gaining the model-predicted status of “topic shift.” Here the model performed better at indicating salient points than finding topic shifts.

6.4 Distillates from Retrieved Text

During the course of constructing distillates and inserting them as annotations into the paragraphs of thick description, the researcher made the following observations.

1. **CHUNKING:** The researcher tried to avoid repetitious enhancements to a paragraph of thick description (each paragraph based on a high-level topic). To be reminded of

what was just said is annoying. To be incessantly reminded of something is also annoying. The researcher found the paragraphs to be appropriate representations of short term memory, in which repetition of previous discourse was not necessary. Therefore, the researcher avoided considering enhancing a paragraph with material from within the scope of that same paragraph (see Figure 6.4 for an illustration of “scope”). However, if the paragraph and its scope in the transcripts covered a lot of material, exceptions to this rule were allowed. The segmentation model roughly matched the magnitude of thick description paragraphs, and was thereby able to avoid the two kinds of repetition (“just said” and “incessant”).

2. **SELECTION:** There were 306 calling texts⁶ with one or more deep links.⁷ Of these, 38 of them are here ignored (leaving 268) because they offered no text; i.e., had entirely redundant text. (In this case, a list of transitive links is derived from a calling text. If a link appears previously on that list, then it is considered to be redundant, and ignored.) There were 102 distillates,⁸ which used 177 of the 228 calling texts (66%).

The researcher exercised considerable freedom in selecting which text to take from the automatically retrieved material and how to rewrite, explain, abbreviate, or paraphrase it for the context at hand (consistent with organizational memory being constrained to frame of reference and organizational context (Ackerman, 1994)). If the retrieved material was a repetition of what was being said at that point in the thick description, it was ignored. The retrieved material provided the means to explore other places in the transcripts where the retrieved material had appeared (had been linked to), but the researcher chose to include such expanded material in only a few cases, because, most often, the provided material was sufficiently self-explanatory, and to add more was judged to not improve the reader’s understanding. (A motivated reader could go to the retrieved material and thereby pursue exploration of the transcripts.)

⁶Calling text: A transcript unit that has one or more deep links.

⁷Deep link: A link that is more than three topic segments away from its calling text.

⁸Distillate: Information that is culled, organized (concatenated, outlined, classified), and distilled. A distillate can replace the original information.

3. **QUALITY:** The researcher – having (1) participated in the meetings, (2) transcribed the meetings, (3) written the meeting notes, (4) marked up the transcripts according to the linkograph framework, which forces constant review of all the transcripts, and (5) constructed close readings of the meetings – found that the retrieved material was comprehensive, with few irrelevant items. This quality is dependent on the quality of the linkograph markup.

Because links graph relevant previous units, it is ostensibly not surprising that the retrieved text was almost entirely relevant. However, meaningful context is not necessarily transitive, and transitive links can thereby pull in irrelevant information. Hence the method of filtering transitive links succeeded fairly well. The main issue with the use of transitive links was recalled already retrieved unit text. In this case, redundancy was avoided by detecting such duplicate retrievals within the scope of a calling text but not within paragraph scope. One paragraph scope would usually have several calling texts, and redundant material across calling texts but within one paragraph scope was common and desired.

4. **WRITING:** Over the course of generating insertions, moving only forward in time from the beginning of the first meeting to the end of the last meeting, the researcher’s tendency was to simplify the inserted distillates, sometimes reducing them to a single word. The reason is because much of the distillate text was redundant. For example, as of meeting seven, the design effort had moved from divergent exploration to convergence on implementation of solutions. It was noticeable in this stage that the automated retrieval of relevant context obtained the same things over and over. For example, during the early stages of design, when the participants debated about the Norman text, it was important at that time to understand the details of what had been said about the Norman text in order to complete the debate. But as of meeting seven, every time the Norman text was even distantly relevant, the retrieval got the whole list of what was said. At that point, the researcher tended to represent all the familiar details about the Norman text with a single keyword: “Norman.”
5. **INSERTION:** The insertions were like hyper-links, with (1) a location in a document – in this case the document is the close reading, (2) a representation that is paraphrased for the purpose at hand, and (3) locations of further documents, i.e. the transcripts.

6.5 Visual comparison of Topic Shifts with Paragraphs and References

This section comprises visual comparisons of model-generated topic shift markers with human-generated paragraphs that included references that were taken as indicators of topical segmentation. There is one graph per design meeting. These visual comparisons enable hypothesis formation concerning evocative patterns that may become features of a future model; these are illustrated.

6.5.1 How to read the figures

Figure 6.5: How to read the comparison figures.

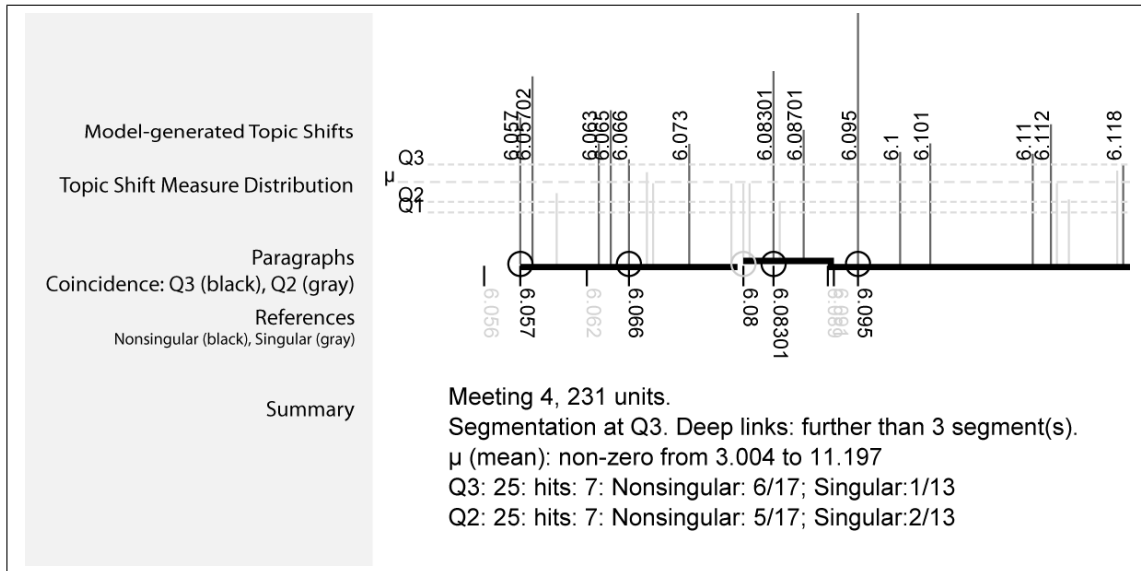


Figure 6.5 illustrates where the figures represent (1) model-generated topic shifts (threshold Q3 are black, threshold Q2 are gray), (2) the distribution of topic shift measures (the mean and three quartiles – Q1, Q2, and Q3), (3) human-generated paragraph segmentation (broken thick horizontal lines), (4) Coincidence between topic shifts and references (circles – Q3: black, Q2: gray), (5) human-generated references (nonsingular: black, singular: gray), (6) a summary of coincidence. The summary in this illustration reads as follows: At the threshold of quartile 3 (of all topic shift measurements over all the meetings), 30 units were

declared to be topic shifts. Of these 30, 11 matched with nonsingular references – there were 32 nonsingular references; and zero matched with singular references – there were 17 singular references. Considering accepting a threshold of Q2, there were 33 declared topic shifts, 12 of which matched with nonsingular references, and 2 with singular references.

In all the graphs, three quartiles of topic shift measures are shown, together with the mean, in order to give a sense of the distribution. It can readily be seen that Q2 and the mean do not coincide; the distribution is skewed because a few high measures are very high. Each graph states the interval on which the mean and quartiles are based. Although it is the same for all the meetings, this indicates that the interval can vary; how it ought to vary is a matter for future research. The threshold at which segmentation is declared can also vary. To explain, supposing that, for samples of conversation, ideal topic shifts are known, and ideal information to be retrieved is also known, then the thresholds can be adjusted to best fit the samples, and perhaps then be applied to the rest of the conversation.

6.5.2 Comparison with paragraphs

Meeting four, Figure 6.9, is the one that was used to settle on quartile 3 (Q3) for a threshold, and the *skip three segments* rule for distinguishing deep links. One can select generally any location in the middle of a paragraph, and the rule will move that location to just outside of the paragraph, suggesting that the rule and the human reading of high-level topic segmentation are around the same magnitude.

Also, one can see in meeting four that the second and fourth paragraphs are started with a cluster of Q2 topic shifts, not a Q3 topic shift. This suggests that a cluster of lower level measures might stand in for one higher level measure.

Coincidence of topic shifts with paragraph starts:

Legend:

- 1 = Q3,
- 0 = no match,
- 0+ = Q2,
- 0++ = Q2 cluster,
- 0++? = possible Q2 cluster,
- 0- = failure at meeting tail end.

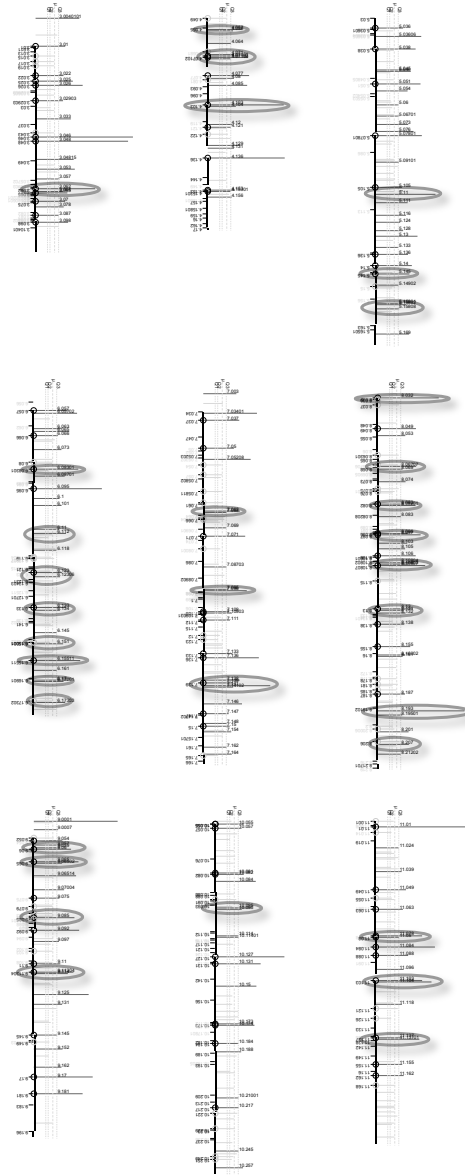
Meeting one: [1 1 1 1];
 meeting two: [0+ 1 1 1 1];
 meeting three: [0 1 1 1 0-];
 meeting four: [1 0++ 1 0++ 1];
 meeting five: [1 0++ 1 1 1 1],
 meeting six: [1 0+ 1 0-];
 meeting seven: [1 1 1 1 0-];
 meeting eight: [1 0++? 1 1 0++?];
 meeting nine: [1 1 1 1].
Totals: 1:32 0++:3 0++?:2 0-: 3.

Altogether, 32 of the 44 paragraphs had topic shift markers at or near the start. If tightly clustered threshold of quartile 2 (Q2) markers are taken as equivalent to a quartile 3 (Q3) marker, then the number of predicted starts is at least 35 (could be as much as 37, depending on the permitted density of Q2 markers).

6.5.3 Summary of patterns

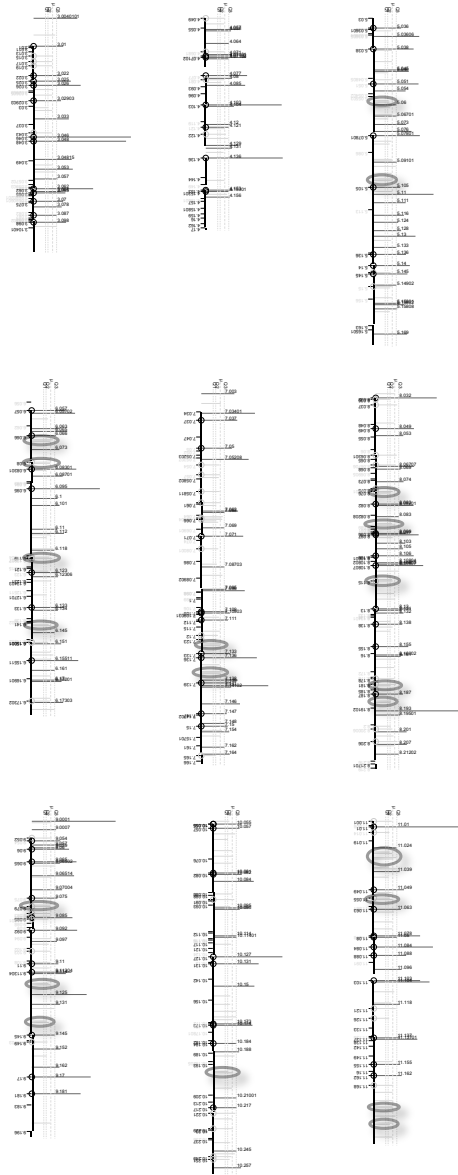
These four patterns are followed by more detailed explanations. (The reader can zoom in on the figures as much as necessary, if this is the electronic document.)

Table 6.3: Mountain peak: A very high measure that is clustered with weak measures increases confidence that this is a topic shift.



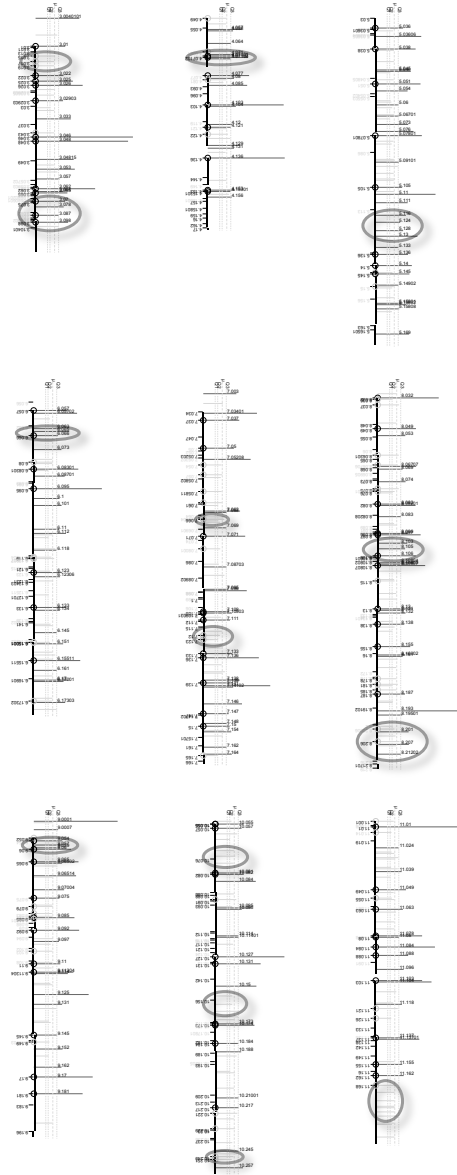
Meeting 1, Fig. 6.6 Meeting 2, Fig. 6.7 Meeting 3, Fig. 6.8
 Meeting 4, Fig. 6.9 Meeting 5, Fig. 6.10 Meeting 6, Fig. 6.11
 Meeting 7, Fig. 6.12 Meeting 8, Fig. 6.13 Meeting 9, Fig. 6.14

Table 6.4: Roots: Tight, isolated clusters of weak topic shifts may indicate (1) topic shifts, or (2) areas of conversation that attempt to clarify arising issues.



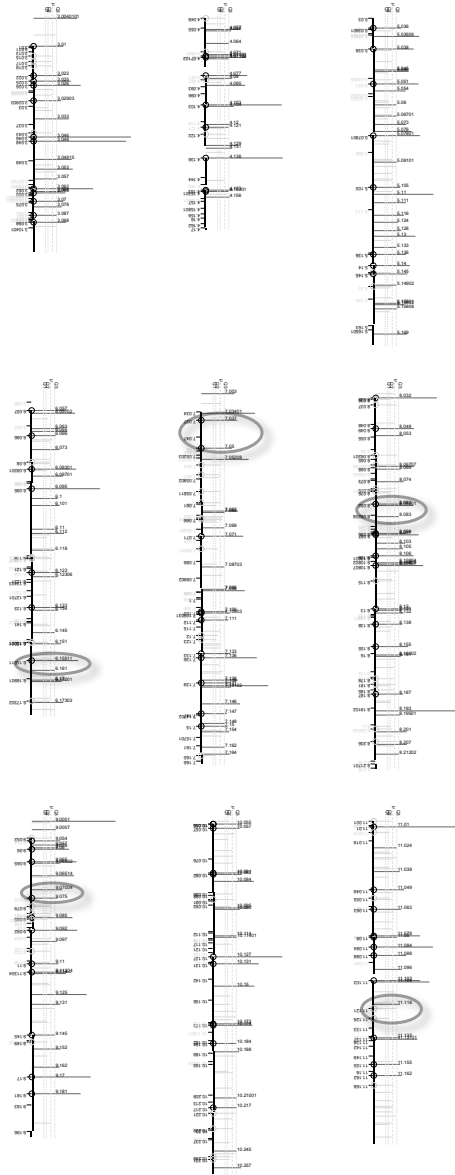
Meeting 1, Fig. 6.6 Meeting 2, Fig. 6.7 Meeting 3, Fig. 6.8
 Meeting 4, Fig. 6.9 Meeting 5, Fig. 6.10 Meeting 6, Fig. 6.11
 Meeting 7, Fig. 6.12 Meeting 8, Fig. 6.13 Meeting 9, Fig. 6.14

Table 6.5: Staccato: Regularly spaced markers indicate a summarizing or list-like area of conversation.



Meeting 1, Fig. 6.6	Meeting 2, Fig. 6.7	Meeting 3, Fig. 6.8
Meeting 4, Fig. 6.9	Meeting 5, Fig. 6.10	Meeting 6, Fig. 6.11
Meeting 7, Fig. 6.12	Meeting 8, Fig. 6.13	Meeting 9, Fig. 6.14

Table 6.6: Slope: Descending slope from a topic shift with a nearby weak topic shift down to a near topic shift indicates a span of connected conversation.



Meeting 1, Fig. 6.6 Meeting 2, Fig. 6.7 Meeting 3, Fig. 6.8
 Meeting 4, Fig. 6.9 Meeting 5, Fig. 6.10 Meeting 6, Fig. 6.11
 Meeting 7, Fig. 6.12 Meeting 8, Fig. 6.13 Meeting 9, Fig. 6.14

Figure 6.6: Team meeting one (1) The first topic shift (3.0040101 agenda item “1. Introduce Team Members”) lies outside of the human-designated paragraph, but was marked by the model because there are links to it. All the other cases of particularly high links in this meeting all coincide with human-made references. (2) It was pointed out earlier that many topic shifts mark the repetition or entry of important ideas, rather than shifts of topic. 3.053 is such a one, and is pointed out here because it is followed by a marker that is higher than the mean. These points might be used to discover which ideas are brought up in response to which other ideas. (3) Toward the end of this meeting there is a dense cluster of human references, few of which were marked as topic shifts. These indicate a list of points of views that were held by the participants, whereas the topic shifts indicate focus on the respective participants themselves.

Figure 6.7: Team meeting two (1) 4.049 was referred to because it was about the availability of an instructional designer to the team, but was only weakly marked as a topic shift because design conversation did not depend it. (2) There is a dense cluster of Q3, Q2 and references near the end of the first paragraph. The conversation in this area expressed aspirations that were apparently never fulfilled, yet are important for understanding the design intensions. (3) In the last paragraph of this meeting, there are a number of references without topic shifts; these comprise a to-do list.

Figure 6.8: Team meeting three 5.09101 (maybe valid) and 5.06701 (valid) (see Appendix E) are clustered with Q2 topic shifts (the later’s being both at the mean). Possibly clustering like this boosts confidence that a marked unit is validly a topic shift. 5.14902 (clustering, valid) strengthens this hypothesis.

Figure 6.9: Team meeting four Three of the five paragraphs in this meeting were not predicted by q3 topic shifts. However, two of them are marked with a tight cluster of Q2 topic shifts, while the third is not only weakly marked (Q2) but is immediately followed by 6.151, which was declared to be a valid topic shift (see Appendix E).

Figure 6.10: Team meeting five Many of same kinds of patterns as already mentioned are also exhibited in this meeting. About a third of the way into paragraph five there is a cluster of four Q3 topic shifts. In this area, the participants summarized their plan for several of the learning units that they were designing. One of the units sparked discussion

at 7.14102 (“R: What does the designer do that others don’t? How do they avoid traps?”), resulting in a particularly high measure.

Figure 6.11: Team meeting six (1) Many of same kinds of patterns as already mentioned are also exhibited in this meeting. The cluster of topic shifts starting with 8.10804, around two thirds of the way through the second paragraph, is a list-like summarizing area of conversation. (2) The very high measure at 8.193 (which starts with a quote and ends with “the design as communication”) is embedded in a discussion about the interconnection of some of the Big Ideas about design, and it sparked discussion about the designed artifact as an act of communication. (3) The list-like wrap-up conversation at the end of this meeting did not garner any topic shifts.

Figure 6.12: Team meeting seven 9.079 is marked by both a reference and a cluster of two Q2 (at the mean) topic shifts; it was indicated to be validly excluded from being a topic shift (see Appendix E). In this area, the participants discussed logistics of preparing for and carrying off a final student project. Tight, isolated weak topic shifts may indicate areas of conversation that attempt to clarify arising issues.

Figure 6.13: Team meeting eight The regularly spaced Q2 markers around 10.156 in the second third of the third paragraph occur where a member presented his detailed design for one of the learning units. Here, somewhat regularly spaced markers indicate a summarizing or list-like area of conversation. The regularly spaced markers starting with 10.245 in the last paragraph also occur in a summarizing, list-like area of conversation.

Figure 6.14: Team meeting nine 11.118 is a valid topic shift (bolstered by clustering with a Q2) that introduces discussion about prototyping, followed fairly closely at 11.121 by an almost-Q3 on the same topic, that was correctly excluded (validly excluded by the model) because it was neither a topic shift, nor the entry of a connected idea. The topic shift is located at the weakly marked 11.126, which was coded as a likely failure of the model to notice a valid topic shift (see Appendix E). The descending slope from 11.118 to 11.121 may indicate connected conversation. The same pattern (bolstered strong topic shift with slope down to marginal topic shift) can be seen at 6.15511, where there is a connected discussion about cool activities that students might do, with a change to a related subject at 6.161 (“hard for us to think of things where they do *reflection in action*”). Examples of similar

patterns are: 9.07004 (teamwork) slop down to 9.075 (what we are agreeing about); 9.092 (resource materials) slope down to 9.097 (why these materials); and 8.082 (presentation on learning unit one) down to 8.083 (subtopic: put definitions of design, and designer before design thinking); and 7.037 (course goals: implications of intended of course offering) slope down to 7.05 (repository (branched from student need to see each others' work)).

6.6 Conclusion: Support for Theory

The proposed theory from Section 3.8.4 is as follows.

This research proposes that a linkograph that is constructed from finer-grained design moves than topical segmentation can be used to predict topical segmentation.

The model's segmentation, and the human's segmentation are dependent. The model's prediction of 39% of the human references that were taken as topical segmentation has almost no chance (1.2404E-29) of being random. The model predicted between 72% and 90% of the paragraph starts. Removal from the test set of non-predicted human references that were not good topic shifts to measure against boosts the success measure as high as 71%. Of the model predictions that were missed or ignored by the human, 55% of them were valid topic shifts.

Another theory prediction was that *knowing the segmentation enables discovery of the links between segments, as opposed to the links within segments. The segmentation can also be used to filter transitive links between segments. Paragraph scope*⁹ exhibited a mean of four segment markers, with the first segment marker usually at the very beginning of the paragraph. This, together with the *skip three segments* rule (only keep transitive links that are further than three segments away), formed a filter for transitive links that roughly matched the magnitude of the thick description paragraphs.

The filtered links can be used to retrieve prior relevant conversation for the purpose of documentation as design rationale: About 66% of the retrieved items were used in the process of writing distillates. The remainder were rejected mostly because they had been used previously (were redundant), rather than because they were irrelevant.

⁹Paragraph scope: The swath of transcript units delimited by the first and last referenced transcript unit identification numbers from a thick-description paragraph.

Figure 6.6: Team meeting one

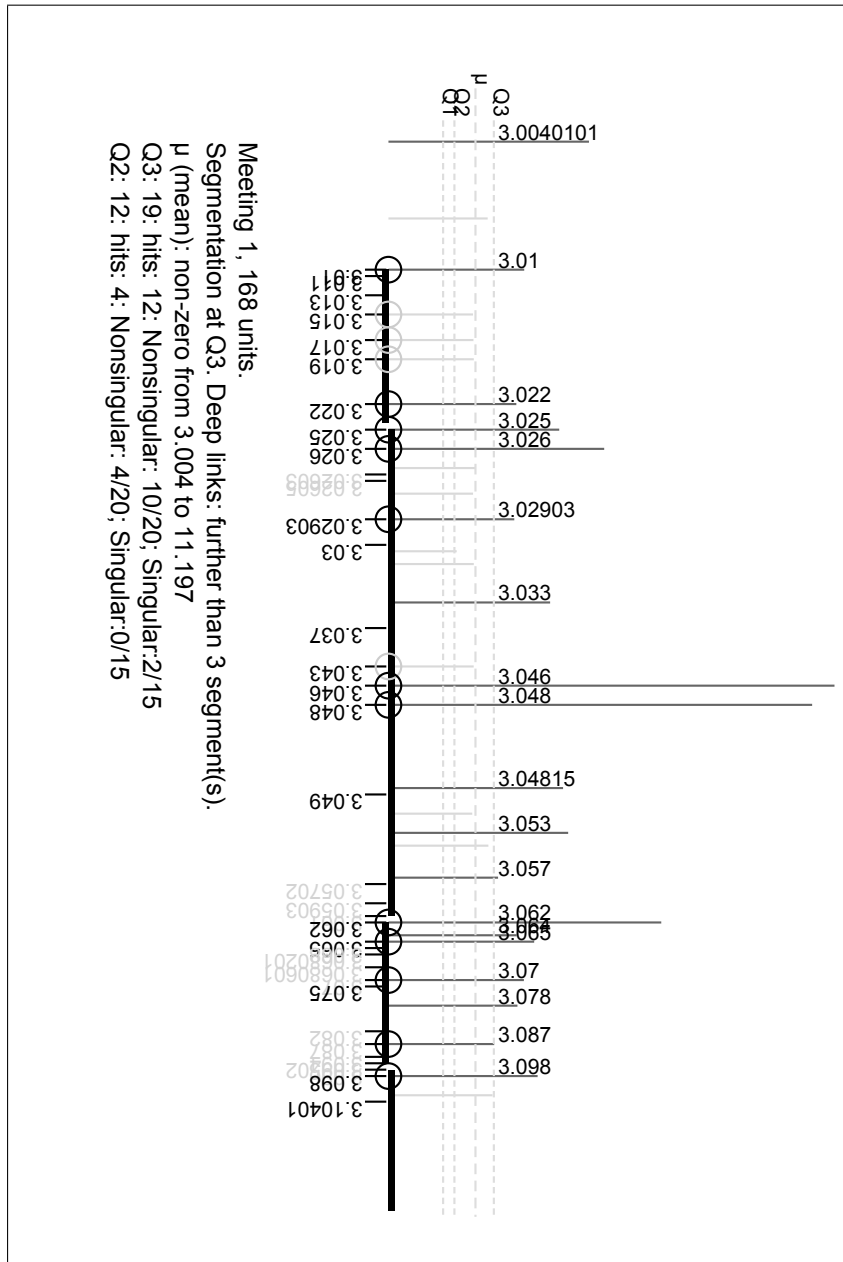


Figure 6.7: Team meeting two

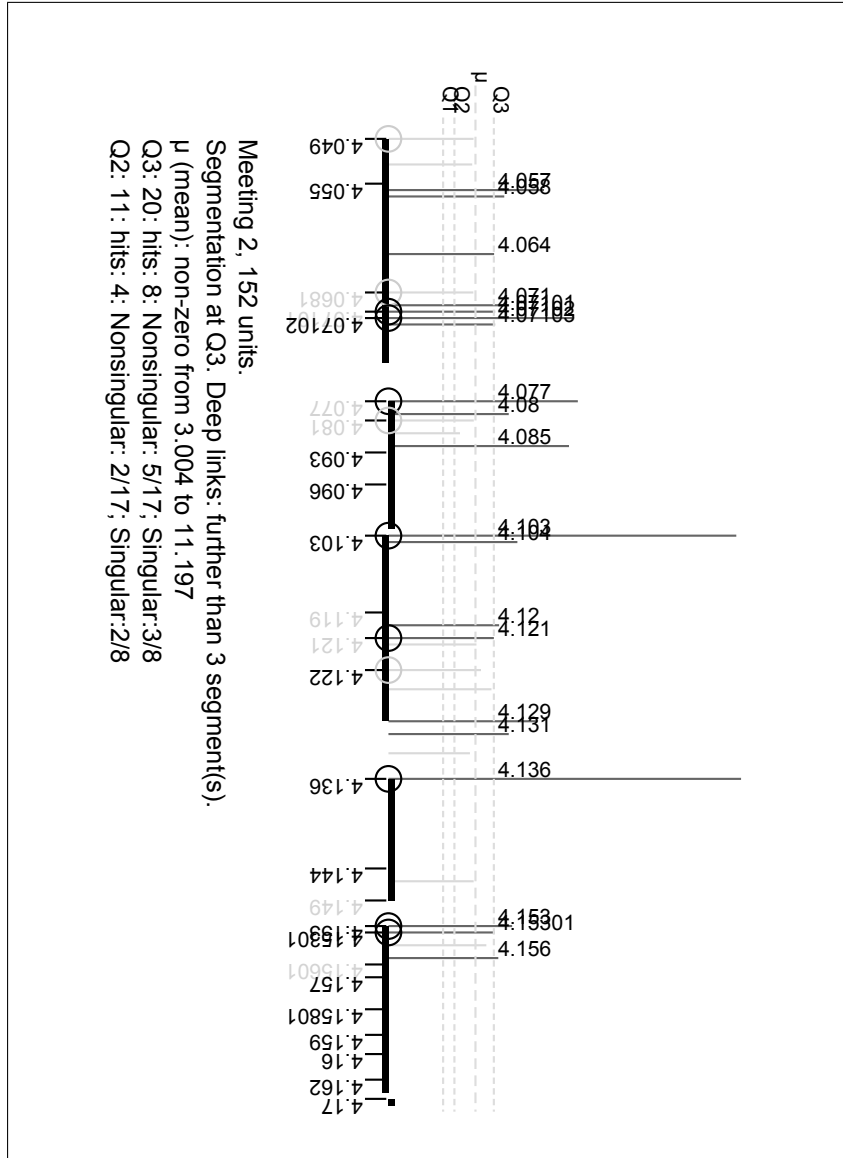


Figure 6.8: Team meeting three

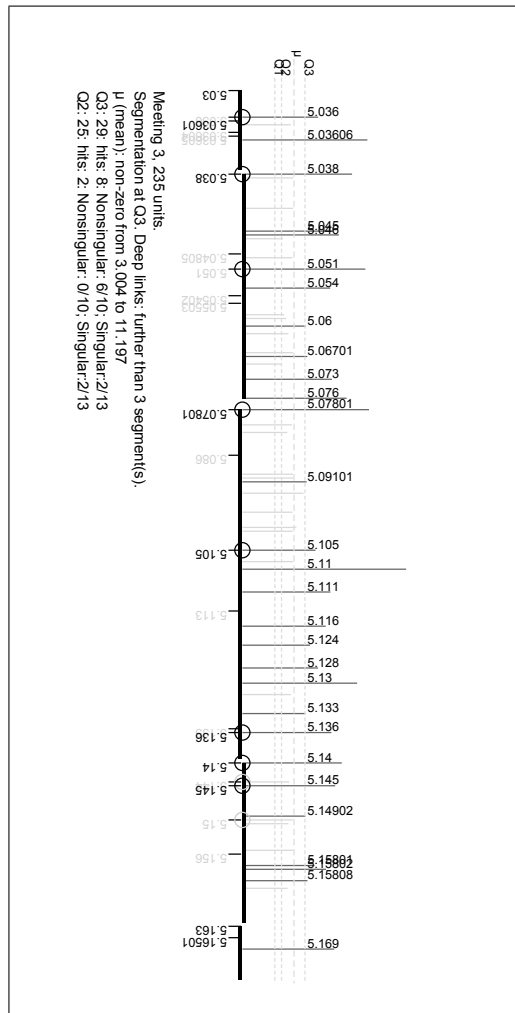


Figure 6.9: Team meeting four

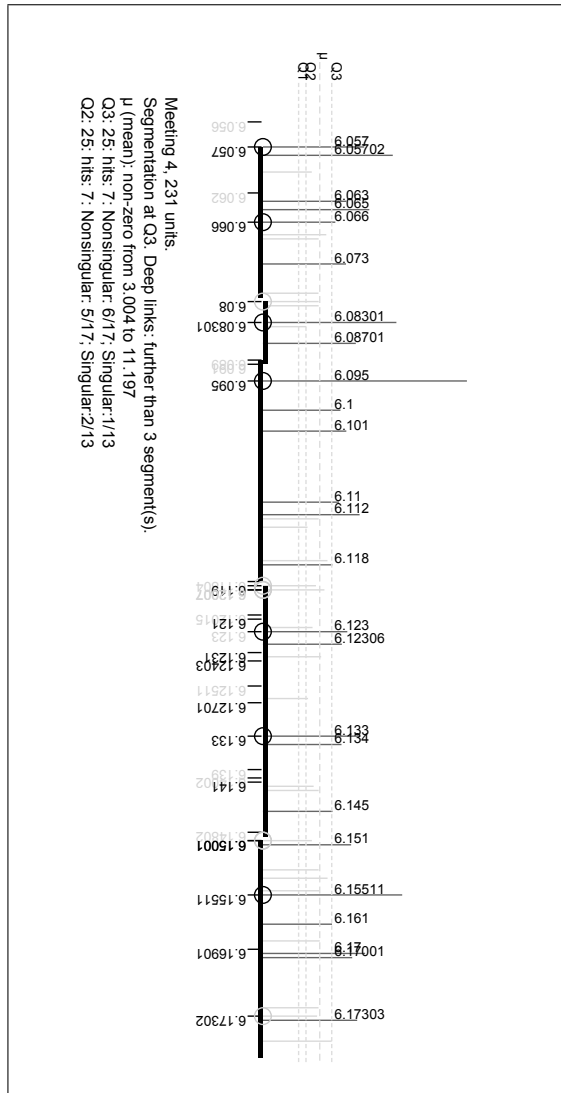


Figure 6.10: Team meeting five

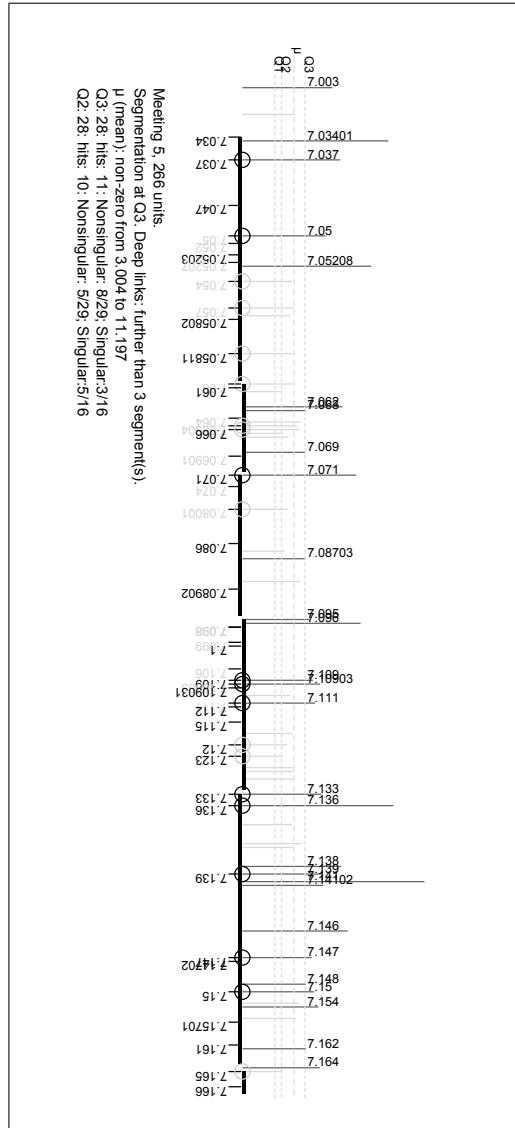


Figure 6.11: Team meeting six

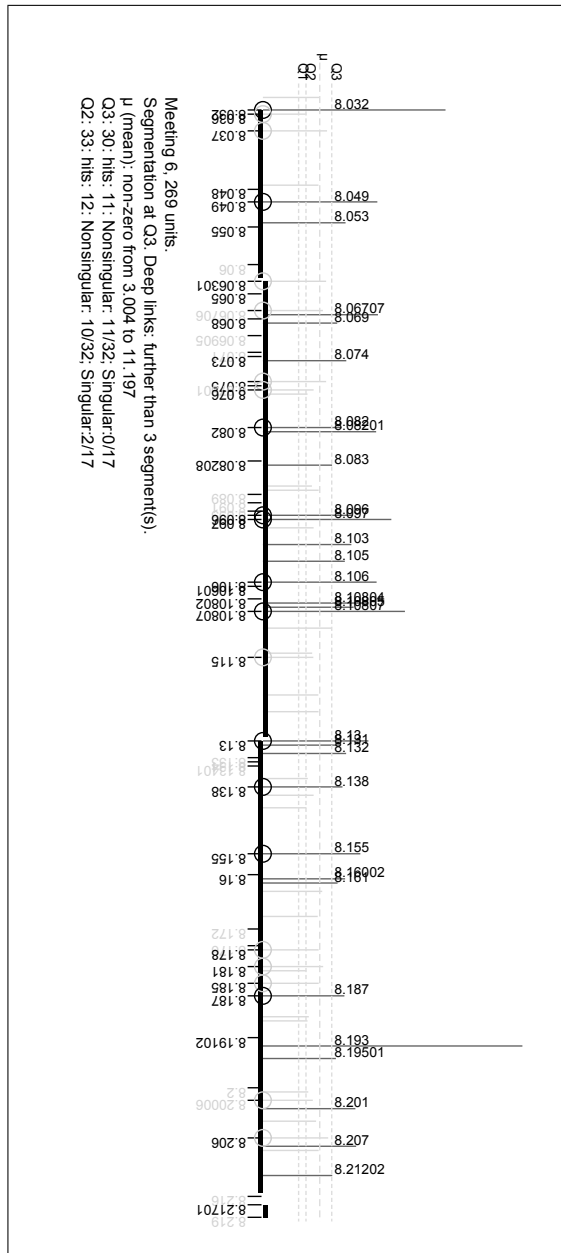


Figure 6.13: Team meeting eight

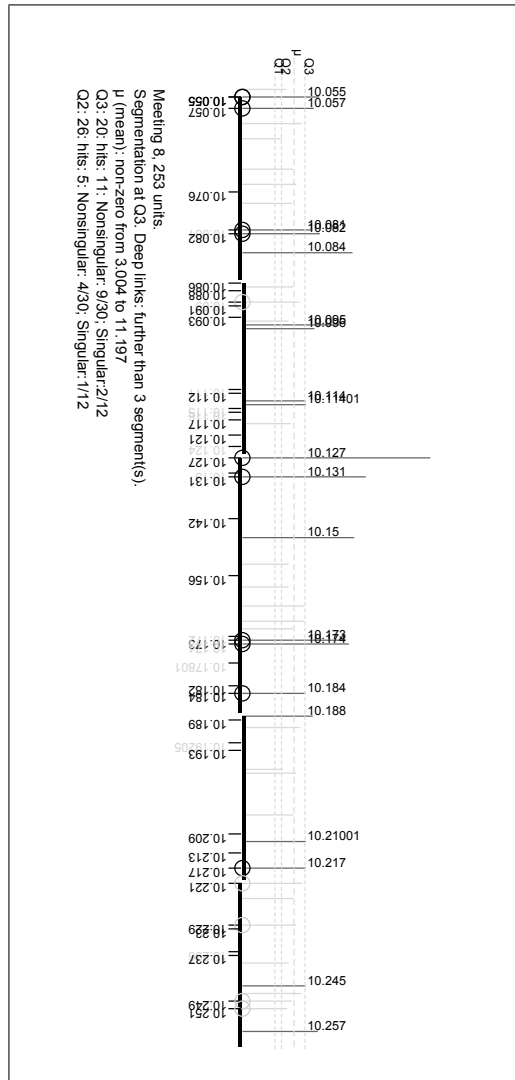
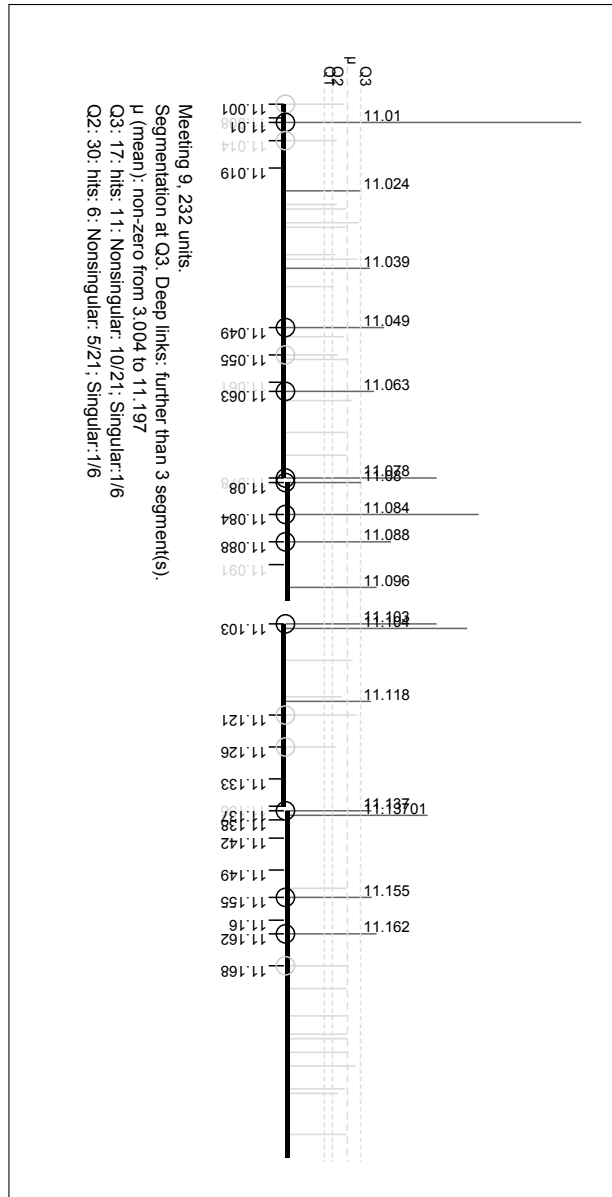


Figure 6.14: Team meeting nine



Chapter 7

Discussion of Results and Future Research

Throughout this discussion of the meaning and possibilities of the results there are suggestions for future research. The discussion opens with an observation about how the transcript markup proceeded. Although this is not a test result, the markup being an input, it has evocative implications. Then, following this research's limitations, implications of the test results are discussed. The summary of this chapter is concluded with discussion of what kind of experimental designs the future research topics might entail.

7.1 Ease of implementation

Not only are links like the fundamental gesture of pointing, but the nature of the design moves themselves (as observed in this work) also exhibits fundamental characteristics that might be exploited toward the automated construction of links. Consider that 77% of the 2033 design moves comprise a simple sentence or a phrase (Appendix F includes the marked up transcripts).

Like Edgar Allan Poe's *Purloined Letter*, this fact hides in plain sight. It happens that the researcher had originally tried to mark bigger chunks of units as higher-level design moves, but, reluctantly because constructing a linkograph involves a lot of work, finally realized that practically every phrase was a design move that responded to at least its immediate context, and often to distant context. Every acceptable sentence in a conversation is a

relevant extension of (contains a pointer to) prior content (Schank, 1977). The marked-up transcripts demonstrate that almost every design communication that can be construed as a sentence is a design move, because it is accepted as part of the design discourse only if it is relevant to prior conversation and adds something new.

Despite the extra work for the coder, this observation suggests that linkograph construction is ultimately a light-weight demand on the end user, and thereby likely attainable.

To explain, linkograph links are uncategorical, while sentence structure is fundamental in human communication, therefore linkograph construction requires no learning and application of special terminology. Future research could investigate ways to assist the construction of linkograph models. A link is like a non-verbal pointing gesture; it permits a wide range of clues for an automated construction of links, in the context of mediated conversation. For example, in the Gmail.com e-mail interface, the Reply function automatically constructs a link to what was replied to, and thereby constructs a string of related e-mails. Tagging, keywords from content, and other clues like *who*, *when*, *where*, and *history*, all could contribute to the construction of links. Additionally, as with Grosz & Sidner's (1986) model of discourse coherence, there is no attempt to model rhetorical strategies, only to pile the links into a stack, with the most recent on top.

Also, the provisional model for measuring the strength of topic shifts is simple and does not rely on recursive properties. Altogether, these considerations suggest that collaboration user interfaces could easily embody linkograph construction functionality, while behind-the-scenes discourse segmentation would be computationally trivial.

7.2 Limitations

7.2.1 Dependence on markup

It is a limitation of this research that the quality of linkograph-based automated segmentation of the discourse and retrieval of items depends on the quality of markup. The execution of this markup requires the coder to traverse the preceding discourse for every new item under consideration, so the effort of markup increases as the coder advances through the transcripts. Three things help mitigate the effort:

1. Transitive links are permitted, and the coder is familiar with how the transitive links are constructed. If the coder is confident that specifying a certain link will cause the system to collect further links that are intended by the coder, then the coder does not have find and name those further links.
2. Simple text search for keywords that come either from the item under consideration or from the coder's memory can quickly lead to sufficient links.
3. The coder's familiarity with the design discourse.

Human participation in linkograph construction can be assisted. Given heterogeneous organizations and document collections, human negotiation of linkograph construction would be necessary. It was mentioned that familiarity and keyword search help in reducing the effort of linkograph construction. A linkograph that is under construction can be used to help the coder to become more familiar with the discourse by providing structure that can be browsed. The coder then adds more structure, which further helps in future coding.

Collective intelligence (Surowiecki, 2004) might be applied to linkograph construction. As mentioned in the Chapter 5 *Research Methods*, the markup for this research took place sporadically over two years, and was reworked on occasion. The return to marking up after a hiatus, and the reworking of markup, rarely altered the existing markup. Rather, the tendency was to add more details; that is, to break groups into smaller pieces, and to specify the links between the smaller pieces. This implies that linkograph coding can be done, and redone, by different parties at different times. In other words, collective intelligence can be applied to linkograph markup, especially considering that a link is like the primitive and ubiquitous non-verbal gesture of pointing.

7.2.2 Applied to non-visual design only

Researchers in discourse analysis have been careful to point out that their results validly apply to only the kind of discourse that they examined; e.g., task oriented dialogs (Grosz, 1974), and spontaneous conversation (Reichman, 1981). As pointed out in Section 3.1 *The nature of design problems*, design discourse consistently exhibits certain characteristics (Goel & Pirolli, 1992) and follows a teleological process (Poole et al., 2000). Although the results here might be applicable in other areas, the results are not generalizable with confidence beyond design. Similarly, even within design, to increase confidence in the framework, it

would have to be tested with groups that have a different structure than with the current case study, such as distributed design. Furthermore, the designers in the case study proceeded entirely by conversation, with occasional recourse to text, such as detailed meeting notes derived from the audio transcripts, and template documents from the instructional designer. How visual elements might be handled analogously or consistently with the framework studied here is a matter for future research. For example, similar to how Storey et al. (2006) annotate source code – combining the notions of “social tagging” from social bookmarking and “waypoints” from geographical navigation to enhance navigation, coordination, and knowledge capture in software development – design drawings could be annotated with keywords that represent *distillates* (see below).

7.3 Distillates

One of the goals of this research was to supplement the strategies for incremental emergence of structured rationale (Shipman III & McCall, 1997) from captured design discourse. In that respect, some results are encouraging, though further research is needed to confirm this. To explain, one of the results of this research is that, over the course of enhancing reports about a design discourse, a writer will increasingly simplify the insertions, while the retrieved material becomes increasingly redundant. The redundant material can be *distilled* (see Section 3.6); that is, with respect to knowledge management, Ackerman & McDonald (2000) promote the notion of “*distillates*” that can replace the original raw information. After the collection of informal information, that information is collectively culled, organized, and distilled; selected material is concatenated, outlines are constructed, formal or informal classification terms are employed. Ackerman & McDonald also promote the preservation of context. The method used in this study of retrieving material includes three ways of preserving context: (1) the immediate context of the “calling text” (the current text that references distant items) is given, (2) the items that are retrieved are ordered, with the nearest in time being at the top of the list, and (3) for each item that is retrieved, if it was referred to in multiple places, the locations of those places are also ordered and listed, for easy perusal.

A distillate can be represented by as little as a single keyword. Every instance where some aspect of the distilled collection is inserted as relevant context could then be replaced by the keyword(s). The curious reader could hyper-link from the keyword to the distillate,

and perhaps from there explore the original documents. That is, the issues at the heart of the design effort would be increasingly abstracted from the time-based narrative development, and summarized.

For example, in the close description of the seventh meeting, the links (5.076 5.105) associated with the first instance of *calling text* (9.052: “Re Norman book: require students to read it in its entirety in the 1st 4 weeks, because it is all over the place.”) caused text to be gathered from units 5.04805, 5.058, 5.074, 5.076, 5.085, and 5.105. Other units where portions of these links had also been used included 5.09, 5.095, 5.11, 5.114, 5.124, 5.135, 5.136, 5.139, 5.14, 6.17102, 7.109031, 7.125, 8.032, and 8.185. Context inserted at these units could simply comprise the keyword “Norman,” which could hyper-link to the following summary that the text of these units (both the links and where they appeared) altogether warrants:

Keyword: NORMAN: The Norman text can be used to present many of the big ideas about design from the draft syllabus; these ideas can be fleshed out by means of supplemental course materials. There would have to be a dialogue between Norman’s book and Lawson’s book. Norman takes a dated design perspective that begs the course’s credibility; this would have to be carefully framed in the course. The Norman book is located in objects, in products, which is good early on for students. The usefulness of this book for design thinking is when its terminology maps to the big ideas of the syllabus. This book is useful at saying there is such a thing as a conceptual model, and here is an example of one, and then we can go on. Chapter six maps to many of the big ideas. Chapter six talks about the complexity of an audience, and maps to the big ideas that design satisfies its audience, and that good design can find new audiences. Under the theme of manipulating ideas, Norman discusses the principle of constraints, which maps to the big idea that design invites inquiry. Norman talks about aesthetics toward the end, which maps to the big idea of joy of use. It is important to cover Norman’s concept of knowledge in the head and knowledge in the world.

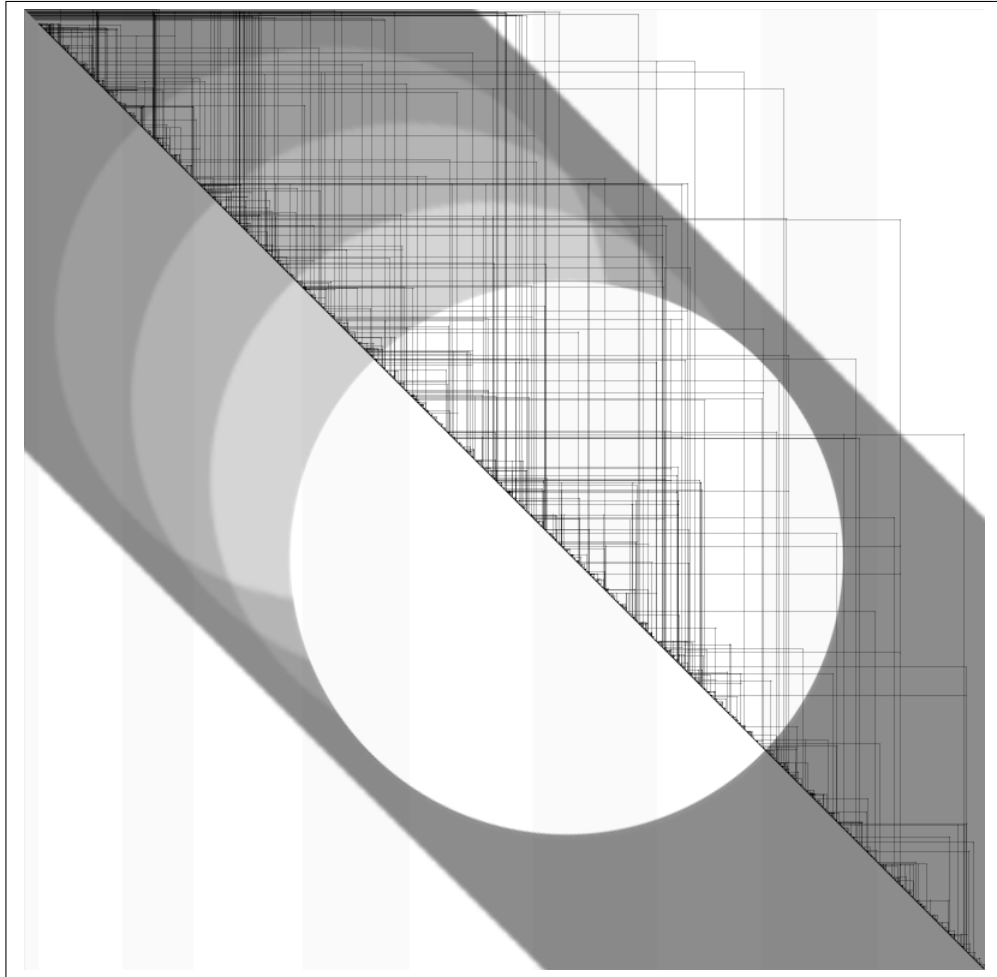
It can be argued that distillates, such as the one presented here, would have a positive effect on design decision making. In Section 3.2, several strategies to reduce the effect of bias in group decision making were presented. It was argued that, from the point of view of

support for the strategies by common Web 2.0 functionality, some of the strategies subsume other ones, leaving (1) “Provide access to informational records during discussion” – a distillate is already prepared for presentation, which makes it easy for it to be retrieved and made available during discussion, (2) “Promote more thorough discussions” – the distillates gather details that might otherwise be forgotten and thereby increase the likelihood of their presence during discussion, and (3) “Group members know how to access information that is distributed in the group” – because distillates can be represented by keywords, it is easy for group members to find the information. It should be noted that keywords can include the names of people, job titles, and the like, meaning that access to distillates includes support for *transactive memory* (Moreland et al., 1996) – knowing who knows what. Altogether, it can be argued that, barring usability issues, there is sufficient confidence in distillates, as produced and represented here, to warrant researching their production and use in design.

7.3.1 Text Retrieved for Distillates

The text that was retrieved for the sake of writing distillates became increasingly redundant as the design effort matured. The method that was used in this research to screen out redundant items was extremely simple, while it is expected that very sophisticated means to handle such redundancy are available. With respect to using the linkograph itself to help screen redundancy, a visual examination of it suggests a potential way to screen out redundant links. As the links become larger, their density appears to drop quickly around a certain size. See Figure 7.1. That is, references to distant prior conversation are sparse. This tentative observation is consistent with Grosz & Sidner’s (1986) claim that the attentional state – an abstraction of the focus of attention of the discourse participants – “serves to summarize information from previous utterances crucial for processing subsequent ones, thus obviating the need for keeping a complete history of the discourse” (p. 177). Perhaps information from beyond the drop-off zone has been summarized and is thereby not necessary to collect. The effect might be called *discourse curvature*.

Figure 7.1: Discourse curvature: As the links become larger, their density appears to drop quickly around a certain size, indicated by the circle radius. The multiple fading circles indicate the forward momentum of the discourse, with the fading off of references that are beyond the circle radius.



7.4 Influence: Decisions and concerns

Linkographs have been used to study how and when ideas are influential in design (Goldschmidt & Tatsa, 2005). Influential design moves exhibit relatively more linking, even if they are not adopted in the final design. For example, in this case study, the notion of student teams designing midterm exams for the course was very influential because

5.041	0 < 25
5.04805	0 < 25
5.058	0 < 26
<u>5.076</u>	3 < 24
5.11	5 > 0
5.114	4 > 0
5.124	5 > 1
5.135	4 > 0
5.139	5 > 0
5.14	4 > 0
6.17102	12 > 0
7.109031	5 > 0
7.125	4 > 0
8.032	17 > 11
8.185	19 > 1
9.0001	25 > 2
9.052	5 > 2
9.057	24 > 5
9.06505	25 > 1
9.07004	20 > 0
9.075	16 > 1
9.083	29 > 1
9.085	27 > 1
9.11	26 > 0
9.11304	25 > 0
9.145	30 > 0
9.17	30 > 0
11.17001	20 > 0
3.05301	0 < 15
3.05903	0 < 24
4.102	0 < 15
4.126	1 < 22
5.03602	0 < 13
5.03603	0 < 19
5.03604	2 < 21
5.041	0 < 25
5.04805	0 < 25
5.058	0 < 26
5.076	3 < 24
6.09701	0 < 18
6.15001	1 < 16
6.16901	0 < 16
7.00404	0 < 18
7.06	4 < 14
7.066	4 < 15
<u>8.032</u>	17 > 11
8.185	19 > 1
9.0001	25 > 2
9.057	24 > 5
9.06505	25 > 1
9.07004	20 > 0
9.083	29 > 1
9.085	27 > 1
9.11	26 > 0
9.11304	25 > 0
9.145	30 > 0
9.17	30 > 0

Table 7.1: Influential moments: Decisions and concerns. The links here are transitive, and filtered to only accept *deep* links. The decision (underscored unit in left table) is early in the list, while the ongoing concern (underscored in right table) is late in the list. Nevertheless, both occur where the backward links begin to exceed the forward links.

it integrated several major concerns (activation of the design concepts through activities, transparency, the instructional plan of building up a toolbox of concepts that would be used later). Discussion of the midterm brought together a lot of context. Nevertheless, the idea was defeated, because consideration of how to prepare – build the toolbox to enable the students – indicated that it would overwhelm other possible activities and be too demanding for first year students. In a sense, the midterm idea *fostered dissent* (one of the bias mitigation strategies – see Section 3.2) because it forced debating factions to produce more evidence in favor of their respective positions.

There are indications that transitive linking traits can be used to locate pivotal moments in the discourse. In this case, not for “influence” *per se*, but for places that might yield rich material from which to build distillates (which may amount to the same thing). The two units that are discussed here were initially selected because the researcher noticed their relatively high number of forward links during the process of annotating the thick description with distillates, and thereby marked them as “INFLUENTIAL.” The unit 5.076 “We are in agreement that we can go to Norman for higher level ideas...” is a group decision. Although there was much discussion and growing agreement, this explicit expression was a point to refer to. Unit 8.032 “Re Instructional Design Process: Shared assumptions: terms, activities, assignments, content...” is a concern that remained pertinent through out the design process, though had moments of clear expression and implementation. Similar to Goldshmidt & Tatta’s indication of units that have a relatively high link count within a topic segment, the units considered here both had a higher count than the other links along the chain of transitive links within the same meeting,¹ as can be seen in Table 7.1. Further, it can be seen that the units in question (underlined and bold in the table) happen at a transition between the backward links being less than forward links, to being greater than the forward links. Another observation of the two points is that the decision occurs early in the chain, while the expression of concern occurs at further than midpoint. Observations of only two points are not significant. Nevertheless, these observations are evocative enough to warrant future research.

¹Here the “even more indirect” links are ignored

7.5 Implications for design research

The method of segmenting design discourse that was tested in this study may provide a non-subjective way to aggregate low level design moves to coarser levels of resolution. To explain, Goldschmidt & Talsa (2005) talk about being interested in links among very small units of thought at the cognitive level, yet also talk about establishing, at a coarser level, links between ideas or decisions. Similarly, about linkograph analysis of design, Goldschmidt & Weil (1998) say “A solution and its rationale are constructed of many small fragments of information (*their size is a matter of definition, relative to the grain of the investigator’s analysis* [emphasis mine]) that must be in agreement with one another” (p. 90). In this study, the transcripts themselves represent a level of aggregation that was judged to be consumable by the members of the design team. For example, the transcripts include the sentence “Explains to R the team’s idea of the students team design of an exam on the big ideas as their midterm,” which aggregates several minutes of conversation. The transcripts were automatically divided into numbered phrases, then the coder was free to group one or more units together as a design move. In this study, the design moves were comparable to the “very small units of thought at the cognitive level,” not withstanding that they occasionally comprised several units. Overall, the framing of a design move is largely subjective.

However, the discourse segmentation is not subjective. One of the results of this research is that the segmentation threshold, plus the *skip three segments* rule for filtering links, resulted in spans that were comparable in size to the high-level topic paragraphs in the close reading (median of five segments in a paragraph). These paragraphs are similar to the units based on subject matter, from which design moves are parsed, as described by Goldschmidt & Weil. This connection suggests that future research could explore the potential relation between automatic segmentation and units that are based on subject matter, likely within the context of distributed linkograph construction, in which the coders are only aware of local portions of the overall design effort and therefore are not equipped with a comprehensive taxonomy of subject matter.

On a more broad note, this research combines two areas of design research that heretofore were not combined: design rationale, and linkograph modeling.

7.6 Summary

Given a scenario in which incremental formalization of captured design discourse is human-driven, but computer assisted and possibly distributed, initially the human would not have to categorize any of (1) the subject material at hand, (2) the predicate (the link), nor (3) the object material. Subsequently, the human(s) would distill (select from and rewrite) material that is offered by the system that is likely relevant to current places in the discourse. The system could indicate places in the discourse that may yield rich material for distillation construction. Upon construction of a distillate, the system could mark the places in the discourse from which it was constructed. The mark could comprise one or more keywords (either formal or informal) that the human applies to the distillate.

7.6.1 Future research

Several topics for future research were introduced. Here they are discussed in terms of what kind of experimental designs they might entail.

Study of the *construction of distillates* would make use of canned design discourses that have already been marked up with the linkograph framework. Participatory design would be used to develop an interface for (1) discovering source material for distillates, and (2) writing distillates. A heuristic usability evaluation (Nielsen, 1995) of the interface may suffice.

Computer assistance of human-driven linkograph construction would be independently studied using several canned linkographs. Participant linkograph markup would be compared with canned markup, based on some model for assessing similarity of linkographs. Participants would make use of (1) system recommendation of links, including (1a) display of transitive links; (2) search, including (2a) recommended search terms; and (3) browsing of the emerging structure by means of emerging distillates (using the interface for discovering source material for distillates). Correlation of the strategies with effectiveness would be triangulated with post-test interviews.

Evaluation of the system in a collaborative context (Neale et al., 2004) would likely commence with heuristic evaluation (see Gutwin & Greenberg (2000) for collaboration oriented heuristics). An ideal scenario for a subsequent case study would be a design organization that already uses a collaboration system that can be easily modified to support incremental formalization, as laid out in this research. The features would have to be introduced in such a way that they do not interfere with existing work, and do not commit the system to states

that cannot be backed out of (undone); that is, the features should slip easily into existing work practices and not endanger any work that is done.

Evaluation of the framework for use in design research as a non-subjective way to divide a design discourse into topic units might proceed by running the framework on existing design research linkograph data and comparing the automatic segmentation with the human segmentation. Considerations would include ascertaining over what span of discourse should measures like the mean and median of topic shift measurements be taken, whether there are methods to select a threshold (should it be constant, a function of other properties, or user-driven with appropriate system feedback), and whether there are better ways to perform the measurements. Similar to using non-subjective topic units, recommendation strategies for identifying source material for constructing distillates might be run on existing linkograph data that has been used to identify influential ideas, and compared. Different strategies for combining discourse, distillates and design artifacts could be explored.

Chapter 8

Conclusion

In May 2009, Google unveiled a tool for communication and collaboration called *Google Wave*.¹ Its open protocol enables anyone to build a *wave* server and interoperate with other wave providers, thus fostering an ecology of collaboration that steps beyond Google's already free services that are empowered by more than 450,000 servers in at least 25 locations world wide (Markoff & Hansell, 2006). With such ability to hold distributed collaborative design conversations comes the need for new designers to get to the heart of conversations that might include huge numbers of entries. The goal of this work was to show that linkography is a viable candidate to help make that kind of discovery possible. Being that a linkograph is associated with the structure of a discourse, it was not surprising to find that, apparently, *shallow* links to correspond with *local coherence*, and that *deep* links to correspond with *global coherence* – the coherence between topical segments of discourse (Grosz & Sidner, 1986; Grosz et al., 1995). A model was empirically derived to mark segmentation based on a measure of local linking, and the resulting segmentation was used to distinguish deep links, and to gather transitive deep links into sets. This work provides evidence that the gathered transitive deep links provide relevant context for local statements. The results suggest (not show) that a simple extension of the gathering process enables gathering topics that tend to be collocated in conversation. There is a possibility for new designers to quickly get to the heart of mediated conversations without having to browse through masses of items.

¹<http://wave.google.com/> Google I/O Developer Conference, May 27–28, 2009, San Francisco, <http://code.google.com/events/io/>

Not only is a link a simple, fundamental and ubiquitous metaphor (Lakoff & Johnson, 1980), but the act of linking does not require a global understanding of the discourse, when transitive links enable nearby links to draw in distant material. Also, the overall linkograph can be constructed piecemeal and by different people, because revision tends to add more detail, rather than make topological changes. Altogether, the construction of a linkograph can be distributed, while only loosely collaborative, and thereby can be driven by collective intelligence. Collaboration can include machines that both automatically construct links, like Gmail's *conversations*, and recommend links. Linkograph construction and the writing of *distillates* (Ackerman & McDonald, 2000) are mutually supportive, which aids the ease and effectiveness of both the construction process and discovery. Linkography might play a role in the *incremental formalization* (Shipman III & McCall, 1994) of captured design conversation, most likely in the context of web services.

Concerning the research methods, both close reading and reflection on the process of doing the qualitative exercises that were undertaken in this work were invaluable. The turning point in this work came with purposeful close reading of the transcripts after they had been marked up according to the linkograph framework. The act of linking made me feel that there is a rich and unexplored territory of linking patterns at the local level. Despite these intuitions, only with the hands-on act of describing the behavior of linking within human-designated topic segments, on a link-by-link basis, did the pattern emerge which was later used as the basis for segmenting discourse. This pattern was unexpected, even though, in retrospect, it is embarrassingly simple. Up until that point, the notion of predicting topic shift locations was looking evermore disconcertingly complex. In a similar vein, it was the hands-on act of constructing a linkograph for a daunting eleven meetings of sentence-by-sentence conversation, entailing coder behavior like stalling, cutting corners, fatigue, fixing, that it became apparent that linkograph construction is amenable to a collective intelligence approach, because the linkograph only moves toward being more true to the discourse structure. It was not planned that the coder's behavior would reveal something about the subject. Similarly, the lessons learned from constructing hundreds of distillates were not part of the research plan, but rather came by reflecting on the process.

A general limitation in this work is that here validity ultimately depends on subjective agreement with the researcher's judgments (the full chain of evidence is supplied by including the marked-up transcripts and close reading in the appendixes in order to make that possible). For future research to reduce the subjective aspect, the following things would

need to be considered: The model was developed by (1) using a human coder to parse a protocol (record of a *think aloud* design process) into topic shifts, (2) to note the linking behavior within each segment, (3) note common attributes in the linking behavior across all the segments, and (4) iterate a mathematical representation of the common attributes on the protocol in order to balance the representation against the protocol. This model development phase could be elaborated into a full scale study, in which (1) several human coders mark the topic shifts in several different canned protocols with linkographs that satisfy the researchers; (2) standard terminology for describing linking behavior is developed, probably by means of a modified grounded theory approach, and completed with a quantitative evaluation; (3) several coders describe the linking behavior over several protocol samples, with commonalities found by correlation rather than subjective observation; and (4) proposed models are iteratively balanced against several protocols (this last stage is particularly expensive because every item must be examined every time for whether it should be considered, and whether it is a false positive or false negative). The last stage could become a research project in which a method for dynamically balancing a model is sought.

This work was exploratory, it raises more questions than it answers, and opens the door on a whole research program.

Appendix A

Linking Behavior in Topic Segments

This appendix is a record of three stages in the development a model for predicting the locations of topic shifts in linkographs, as explained in Chapter 4. Concerning the design protocol that is used herein, the researcher participated in two meetings about a potential university course. The purpose of the initial meeting was to “Establish a mutual understanding between [the main stakeholders] about the nature of the design course, its design, delivery and role in research.” The first meeting had four participants, and the second meeting had five participants. Both meetings each lasted about one hour. The researcher took detailed handwritten notes of these preliminary meetings; the paraphrased and typed notes were sent to the meeting participants. The sent notes comprise the transcripts upon which subsequent analysis was performed. The transcripts were divided into numbered phrases, based on periods, colons, and semicolons.

The three stages proceeded as follows: (1) The researcher performed a linkograph markup of the transcripts. The links were typed into the transcripts. The following is an example: “{1.022 1.023}.” The digits before the decimal indicate the meeting number, and the digits after the decimal indicate the linear ordering of the design moves within that meeting. (2) Then the researcher marked in the transcripts where he thought topic shifts had occurred. Wherever the coder thought a topic shift occurred, he typed “-t{” into the transcripts. (3) Finally, the researcher closely read the transcripts, and, for each topic segment, noted the linking behavior within that segment. That is, at the end of each segment,

each link that had appeared in that segment was respectively described with statements like: links to head; links to before head; links to before previous head; links to previous statement; links to between this and head . . .

A.1 Coded Transcripts With Description

*1.001

Design Course: Meeting Notes: 19 Dec 2006.

*1.002

Present: D, JF, JF, R.

*1.003

PURPOSE OF MEETING.

*1.004

Establish a mutual understanding between JF, JF and R about the nature of the design course, its design, delivery and role in research.

*1.005

MEETING (edited and paraphrased).

newhead: new meeting

*1.006

t{ } SCOPE. {1.004}

*1.007

JF: The design course will go for approval as a “breadth” course for spring 2008. {1.006} *i*{JF}

*1.00701

It will be paired with an intensive writing course. {1.006} *i*{JF}

*1.00702

The students will come from [this university school], Communication, Business, Kinesiology, Applied Science, and perhaps Computer Science. {1.006} *i*{JF}

*1.00703

Half will not have decided on a major. {1.00702} *i*{JF} *1.00704

200-300 students are expected. {1.00702}

*1.008

R and JM: It is an export course, and should be scalable for delivery to 800 students.

{1.006}

newhead: links to x; no previous head; title

links to head

links to head

links to head

links between this and head [transitive = links to head]

links between this and head [transitive = links to head]

links to head

*1.009

.t{} SYLLABUS. {1.004 1.007}

*1.01

JM: Need a tight, well laid out syllabus by Jan 15–week by week. {1.007} _i{JM} _o{i}

newhead: links to between this and head [links to head], links to before head 0; title

*1.011

.t{} APPROVAL. {1.007 1.009}

*1.012

JF: It is not a [this university school] course; 1.01201 one phase is [this university school] approval, while [a program at this school] gives the real approval. _i{JF}

*1.013

R: Explanation to [this university school] should be proactive in showing how the design course is different. _i{R}

*1.01301

All prior courses are micro, while the design course is macro. {1.013} _i{R}

*1.014

JM: [this university school] needs to see the design course as different in order to accept it. {1.013}

newhead: links to head, links to before head; title

0

links between this and head [0]

links between this and head [0]

*1.015

t{ } LEVEL OF DIFFICULTY. {1.006}

*1.016

JM: (re: macro) The level of abstraction risks being too difficult for first year students.

i{JM} *o*{2 3 4 6} {1.015 1.01301}

*1.017

JF: They will have been in for one semester. {1.016} *i*{JF}

newhead: links to before previous head; title

links to head-links to previous statement, links to before head [links between this and head [0]]

links to previous statement

*1.018

R: *t*{ } (re: content: design problem) Community involvement is concrete. {1.016}

i{R}

*1.019

JM: We are designing how to mix concrete with abstraction. {1.016} *i*{JM}

newhead: links to between this and head

links to previous statement

*1.02

t{ } ADVISORY GROUP. {1.004}

*1.021

R: The design stakeholders will comprise circles of groups around a core group. *i*{R}

o{i a} *p*{1.02}

*1.022

JM: We have to be aware of our capacity to incorporate large numbers of ideas. {1.021} $_i\{JM\} _o\{i\}$

*1.023

R: (re: generality of design concepts) Design is always interdisciplinary; {1.021} $_i\{R\}$

*1.02301

1.

some potential advisers have taught design effectively; {1.022} $_i\{R\}$

*1.02302

they are strong sources of domain expertise, are good people and work easily. {1.022 1.023} $_i\{R\} _o\{3\}$

*1.02303

We should establish the right advisory group, say with an engineering perspective; {1.021 1.023} $_i\{R\}$

*1.02304

[a designer and teacher] may commit a few hours of talk. {1.021 1.02302} $_i\{R\}$

*1.024

R: The advisers will seek to build communication with each other, and to improve their own design courses. {1.021} $_i\{R\} _o\{a\}$

*1.025

R: The advisory group will include: [a design teacher from a different school]; 1.02501 someone from [a university] electrical or mechanical or design [an art and design school]. {1.021} $_i\{R\}$

*1.026

JF: It may also include [a teacher at the school]. {1.021} $_i\{JF\}$
newhead: title; links to before previous head

links to head

links to previous statement

links to previous link=x

links to between this and x

links to between this and x, (inks to between this and x)=(links to previous link=y)

links to x, links to between this and y

links to x

links to x

links to x

*1.027

.t{} FOCUS. {1.006}

*1.028

JM: Students to get variety. *.i{JF} {1.007 1.00703 1.008 1.023} -o{i}*

*1.029

R: Focus only on the user is too narrow; 1.02901 the learners should be encouraged to understand all stakeholders in a design problem. *.i{R}*

newhead: title; links to before previous head

links to before previous head; ”; ”; links to before head

0

*1.03

.t{} RESOURCES. -p{1.004}

*1.031

R: There are external resources as well as [this university school]’s–to support D and provide collaboration applications. *.i{R} -p{1.03}*

newhead: title; links to before previous head

links to head

*1.032

.t{} IP. {1.004}

*1.033

R: All (the stakeholders) own the IP. *i*{R} {1.032}

newhead: title; links to before previous head=first

links to head

*1.034

.t{} ROLES. *p*{1.004}

*1.035

JF: C will be the team leader and project manager; *i*{JF} *p*{1.034}

*1.03501

JF will direct. *i*{JF} *p*{1.034}

*1.036

R (after some discussion): D's role as a participant observer will be to facilitate communication. *p*{1.031 1.034}

*1.03601

D will travel to interview [a design teacher from a different school] about his design course. *p*{1.036} *R*}

*1.037

R: R will be a domain expert. *p*{1.034}

*1.038

R: (re: need to find someone to teach the course) We should check with [a teacher at the school]. *i*{R} *p*{1.03 1.034}

*1.03801

Persons who are experienced in teaching design are hard to find. {1.038} *i*{R}

*1.039

JM: (re: teacher) The teacher must not be a graduate student. {1.038} *i*{JM}

newhead: title; links to before previous head=first

links to head

links to head

links to head; links to before head

links to previous statement

links to head

links to head; links to before head

links to previous statement

links to previous link=x

*1.04

_t{} PLACE. _p{1.03}

*1.041

(After some discussion) [a program at this school] will get a room that provides visibility to public, and functionality as a war room and research lab. *_p{1.04}*

newhead: title: links to before previous head: not top

links to head

*1.042

_t{} TODO. _p{1.004}

*1.043

JF to set up next meeting with C (done). *_p{1.035 1.042}*

*1.044

R to solicit for advisory group members. *{1.021} _o{i} _p{1.042}*

*1.045

newhead: title; links to top

links to head; links to before previous head

links to head; links to before previous head

*2.001

Design Course Meeting Notes 070110.

*2.002

Present: C, D, JF, R.

*2.003

PURPOSE OF MEETING.

Talk about Design Course syllabus. _p{1.01}

*2.004

ACTION ITEMS.

C: first draft of course proposal.

*2.004001

R: (1) get book on stories of design development from [teacher 1 at the school];

*2.00401

(2) initiate contact with [teacher 2 at the school];

*2.00402

(3) Make overtures to [a designer and teacher].

*2.00403

D: meeting notes.

*2.00404

Someone (re: development team): to put out a job add.

newhead: new meeting

*2.005

_t{} Design course to be presented to [this university school] UCC [5 teachers at the school] next Wednesday. {1.007}

*2.006

Concerns about the presentation are:.

(1) The design concentration is a big change, while some faculty are biased toward their current way of doing things. {2.005} *2.00601

(2) Design faculty are far apart in their ideas, which are all valuable and should be respected. _{i}

*2.00602

(3) Maintain that the design course will include a broad range of ideas; _{i}

*2.00603

no single idea will enjoy hegemony. {2.00602} _{i}

*2.007

The [another school at this university] design course feeds into one of the [a program at this school] design courses.

Re: strong coordination with [another school at this university]: good ideas about design from engineering; {2.00603}

*2.00701

healthy for students to be exposed to an engineering design voice. {2.007}

newhead: link to previous meeting

link to head

0

0

0

link to between this and head

link to previous statement

*2.008

R.:

.t{} Big Ideas about design:. i{} o{i}

*2.008001

Design is all around us. {2.008} i{}R}

*2.00801

Coming up with design ideas and testing them is never done alone. {2.008} i{}R}

*2.00802

Design requires more expertise than resides in any one person's head. {2.008} i{}R}

*2.00803

Part of testing and understanding designs is the recognition of the need to connect with people and use them. {2.008} i{}R}

*2.00804

There is never a single end user. {2.008} i{}R}

*2.00805

Rarely does a design problem have a clear end user. {2.008} i{}R}

*2.00806

A successful design satisfies all of the stakeholders and users—it is like a chain. 2.00807
An example is the cell phone. {2.008} i{}R}

*2.00808

Any design is received by multiple parties. {2.008} i{}R}

*2.00809

A design is made by doing; 2.0081 it requires a lot of skill and development of skill.
{2.008 1.016} i{}R}

*2.00811

Good designers are not egotistically biased—the work is the work; 2.00812 lots of good ideas are generated and ruthlessly criticized, which improves the design and testing cycle.
{2.008} i{}R}

*2.00813

Design is a process. {2.008} i{}R}

*2.00814

Historical precedent in design is extremely important. {2.008} _i{R}
newhead: statement of topic (kind of title)
link to head
link to head
link to head
link to head
link to head
link to head
link to head
link to head
link to head; link to previous meeting
link to head
link to head
link to head

*2.00815

_t{} Note: This entails that design is domain specific (has artefact classes), which poses a tricky problem for a course for first year students; 2.00816 few of them will have even chosen a domain. {2.00814} _i{R}

*2.00817

A finesse for this is the community design project; {2.00816} _o{i}

*2.00818

the design solutions that students come out with will inherently cross domains. 2.00819 Example, the bus shelter. {2.00817} _i{R} _o{i}

*2.0082

The quality of the artefact is less important than understanding the context and process. {2.00809 2.00815 }

*2.00821

(Contrast this with the graphics and communications course. {2.0082} _i{R} _o{i a}

*2.00822

).

newhead: links to previous statement

links to previous statement's link

links to previous statement

links to between this and head

links to head; links to before head

links to previous statement

*2.01

.t{} C'S CONCERNS:

C: Need to understand the nature of the design course as a first year course: what the information looks like; {1.016}

*2.01001

level of language; {2.01}

*2.01002

determination of audience. {2.01}

*2.011

C: The design course should be introductory, foundational, survey-like–multi-disciplinary, cross-disciplinary, taste of complexity of design. {2.01 2.00602 1.016}

*2.01101

Note: Guest speakers will help convey these qualities. {2.011} .i{C}

*2.012

C: As in critical thinking and writing, arguments are built around the perspectives of multiple stakeholders. {2.011 1.029 2.00808} .i{C}

*2.013

C: The design course should be reflective and reflexive. .i{C}

*2.01301

Why does design matter to me, my community, other people, the world. .i{C} {2.013}
.o{i}

*2.014

C: Many of the ideas should be scaffolded. {2.01 1.016} .i{C} .o{s i a} *2.01401

The value is in the ideas and in the processes of capturing and conceptualizing them, more than in the produced artifacts. {2.013 2.0082} \cdot {C}

newhead: links to previous meeting

links to previous statement (head)

links to head (previous link)

links to head; links to before previous head; links to previous meeting

links to previous statement

links to previous link; links to previous meeting; links to before previous head

0

links to previous statement x

links to head; links to previous meeting

links to x; links to before head

*2.015

\cdot {t} Discussion:.

In a first year course, the paradox is that students get to ideas by doing things. {2.011 2.01 2.008} \cdot {R}

*2.01501

Also, it is particularly satisfying for first years to do things. {2.015}

*2.01502

The validity and scope of ideas is understood through application. {2.015}

*2.01503

Later, abstract process is taught by hanging it off the application. {2.015}

newhead: title

links to before head; links to before previous head (a former head)

links to head

links to head

links to head

*2.016

$_t\}$ C: We want to draw the students attention to the instructional design of the course.
 $_i\{C\}$ {2.013}

*2.017

Discussion:.

Students in an early design course can become better aware of what they are doing by explicitly talking about and naming their “compositional strategies.” $_i\{R\}$ {2.015}

*2.01701

Their criterion for criticizing designs is based on these ideas. $_i\{R\}$ {2.017}

*2.01702

They make concrete and simple things around the ideas. $_i\{R\}$ {2.017}

newhead: links to before head

links to before head

links to previous statement's link=x

links to previous link x

*2.018

$_t\}$ C: We need to establish objectives: what are the abilities and skills, wrapped around learning the design principles. $_i\{C\}$ {2.017}

*2.019

Discussion:.

There are two distinct kinds of principle: (1) concerning the structure of the design enterprise; $_i\{R\}$ {2.008 2.017}

*2.01901

and (2) compositional ideas that can be immediately used to generate and test design ideas. $_i\{R\}$ {2.017}

*2.01902

We need to evaluate and clarify our terminology. {2.018 2.019 2.01901}

newhead: links to x

links to x; links to before previous head

links to x

links to head; links to between this and head (a title); links to previous statement

*2.02

t One possible objective is that a group of designers should be self-conscious about when to commit to an idea and how much to commit, to have some sort of process around that. *D* {2.018}

*2.02001

An established way to accomplish this in early design education is to immediately push for commitment to a design idea, and then shortly thereafter pull the rug out from under, forcing them to do it in another way. *R* {2.02}

newhead: links to previous head

links to previous statement

*2.021

t C: Do not want to offer packaged ideas of what design is. *C* {2.022 2.019 2.01901 2.016}

*2.02101

Students will try to package ideas, but will not be able to. *R* {2.021}

*2.022

Discussion: The course will fail if the ideas of design are packaged. *C* {2.021}

*2.02201

Success will mean that students question whether: this process is good enough; *C* {2.022}

*2.02202

do I understand the stakeholders; {2.02201} *C*

*2.02203

is this the best design; {2.02201} *C*

*2.02204

do I know enough; {2.02201} *C* *2.02205

do I have the right expertise at the table. {2.02201} *i*{C}

*2.02206

This kind of intellectual toughness is an important outcome. {2.02201} *i*{C}

newhead: links to before head (a title)

links to head

links to head

links to previous statement

links to previous statement

links to previous statement's link=x

links to x

links to x

links to x

*2.023

Other important outcomes are: *t*{ } {2.02201}

*2.023001

the habit or ethos of engaging with peers; {2.023}

*2.02301

the study habit of design work being out in the open. {2.023}

*2.02302

(This is a short come of design schools in the digital age—the work used to be on the walls—shared. 2.02303 We need a digital repository with big displays to promote awareness.

2.02304). {2.02301} *t*{ } *i*{R}

newhead: links to x

links to head

links to head

*2.024

Students should begin to see the relevance of design in their own lives; *t*{ } *i*{C} {2.022 2.015 2.01301}

*2.02401

to see themselves as designers – “am I a designer?” This should be answered in the affirmative as much as possible. {2.024} *i*{C}

*2.02402

People know something about design because they live with designed features. {2.024}

*2.025

PRAMATICS.

newhead: links to before previous head; links to before previous head; links to before previous head

links to head

links to head

*2.026

ROLES. *t*{ } *p*{2.003}

*2.027

C–Project Manager. *p*{1.035}

*2.028

D–Facilitate Communication; *o*{ } *p*{1.03601}

*2.02801

will be available throughout project, can contribute skills in assembling SCORM learning objects, and building 3D digital learning objects, technical writing, HTML/JSP/CSS/JavaScript/XML/RDF/OWL/Ruby on Rails. {2.028}

newhead: links to meeting head

links to previous meeting

links to previous meeting

links to previous statement

*2.029

TEXT BOOKS: *t*{ } {2.011 2.003} *2.029001

“The Design of Everyday Things” is good in its accessibility to first year students, but care must be taken to balance its emphasis on the end user against another book that conveys a more holistic message by means of stories about how particular things were designed.

{2.029}

*2.02901

There are about 40 such books. {2.029001}

*2.02902

[a teacher in the school] has one, which is from an engineering perspective— a good thing.
i{R} {2.029001}

newhead: links to meeting head; links to before previous head

links to head

links to previous statement

links to previous statement's link = x

*2.03

t{ } TEAM: Need development team to start soon on concept mapping, breaking down objectives—the instructional design process. {1.007 }

*2.03001

Need to put out a job ad. {2.03}

*2.031

Note: No person should be singled out; 2.03101 rather all should be invited. {2.031}
newhead: links to previous meeting

links to head

links to previous statement

*2.03102

There will be no hegemony of a single idea. *t*{ } {2.029 1.01301 1.028 1.02901 2.00603 2.011 2.021}

*2.03103

In order to avoid the struggling with too many opinions, 2 or 3 people will be responsible for the general plan, and then will receive suggestions from the invitees. *p*{2.014 2.03102}

*2.03104

Present the design course as: structured around big ideas; {2.008}

*2.03105

an introduction to design in which understanding context is more important than the quality of the produced artifacts; {2.013 2.01401 2.0082}

*2.03106

the design course aims for first year [school in the university] students, but also aims outside at [the university] and beyond. {1.008}

*2.03107

Then brainstorm about the big ideas. $_{-o}\{s\ i\} \text{ }_{-p}\{\}$

newhead: links to previous head; links to previous meeting; links to previous meeting; links to previous meeting; links to before previous head; links to before previous head; links to before previous head

links to head; links before previous head

links to before previous head

links to previous meeting

0

*2.03108

The actual doing will be by people we hire. {2.03107} $_{-p}\{\}$ $_{-t}\{\}$

*2.03109

Would like to identify potential teachers for the design course. {2.03108}

*2.032

(Discussion about potential teachers.

*2.03201

).

newhead: links to previous statement

links to head

0

*2.033

OTHER REQUIREMENTS. $_t\{\}$ {2.003}

*2.034

The design course should be a stand alone course. {2.011 2.03106}

*2.03401

Although it is linked with the Communications and Teamwork course, the link can be one-way. {1.00701} $_o\{a\}$

*2.035

We must have the ability to teach the design course outside of [a program at this school]– a multi-campus format, not tied to limiting formats and structures. {2.034}

newhead: links to before previous head

links to before previous head; links to before previous head

links to previous meeting

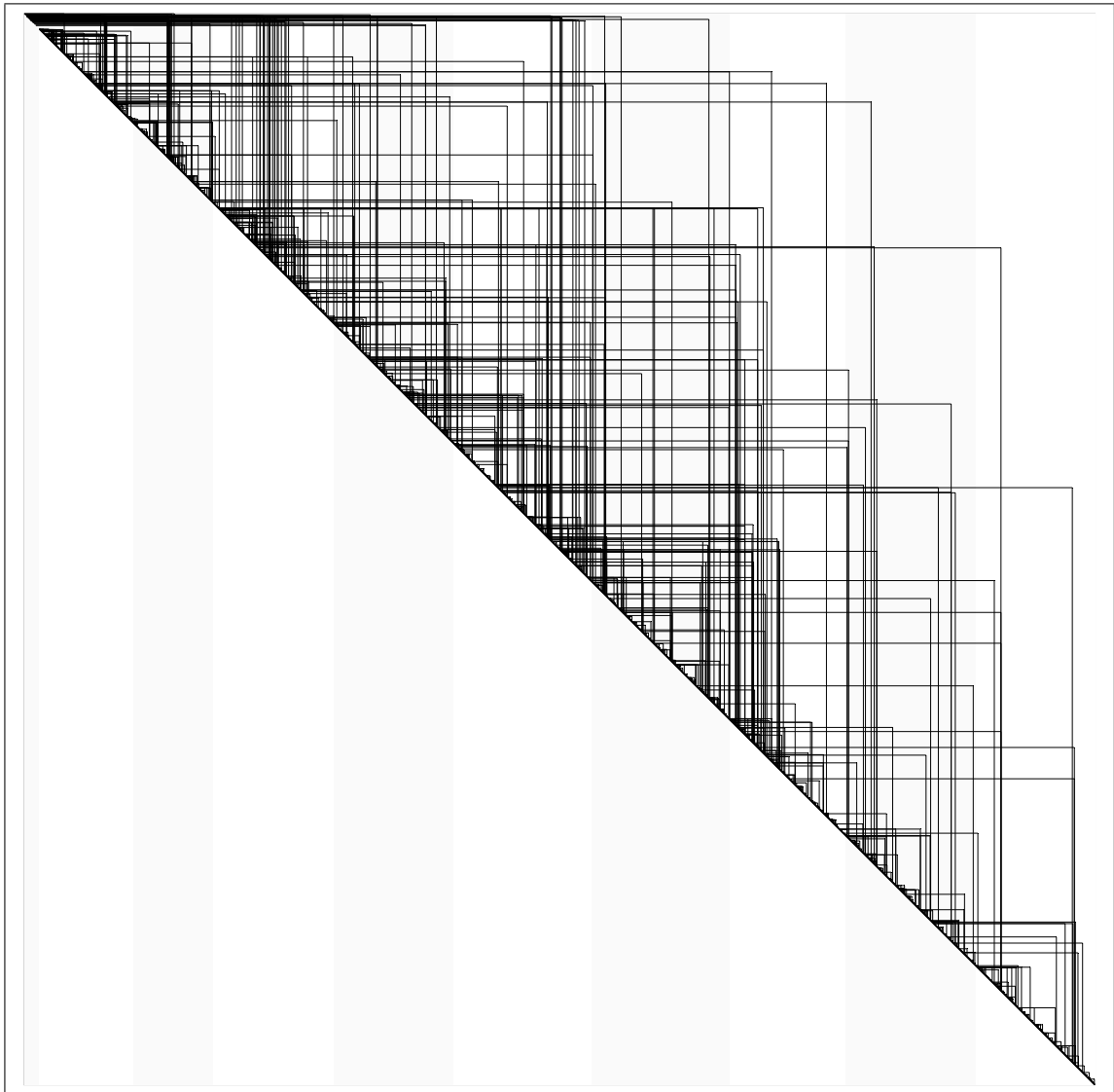
links to previous statement

Appendix B

Linkograph of Nine Meetings

The wide vertical bands in the background represent the nine meetings. The narrow band on the left represents the syllabus that served as a kind of requirements document.

Figure B.1: Linkograph of nine meetings



Appendix C

Thick Description

This appendix comprises the thick description of the transcripts – 44 paragraphs of description. The paragraphs are annotated with “distillates,”¹ which were constructed from retrieved text (see Appendix D) as per paragraph scope.² It begins with a section on how to read the formatting, followed by the syllabus that served as a requirements document (with a couple of emails), followed by the paragraphs as per meeting.

C.1 How to read the enhanced description

The description of a meeting is broken into paragraphs that follow the high-level topics. Every statement includes references to the pertinent transcript unit numbers, like as follows [1.234]³ ←[There may be contextual information paraphrased from the automatically collected links that is pertinent to this location in the description. What the arrow points to, i.e., “1.234,” has a correlate in the system-gathered text following this paragraph. These inserts are grayed so the reader can instantly distinguish them from the main text. These visual devices stand in for what a user interface might handle differently]. As indicated in

¹Distillate: Information that is culled, organized (concatenate, outlined, classified), and distilled. A distillate can replace the original information.

²Paragraph scope: The swath of transcript units delimited by the first and last referenced unit identification numbers from a thick-description paragraph.

³Singular reference: A reference in a thick-description paragraph, in which the reference is a stand-alone reference. Nonsingular reference: A reference in a thick-description paragraph, in which the reference is the head of a contiguous sequence of references.

Section 4.7, the automated method of sectioning the transcripts does a poor job of indicating single units [1.235] as significant, and a better job at indicating the start of a sequence of units [1.3–1.5] ←[1.4: (*INFLUENTIAL*) What the arrow points to may fall *within* the reference sequence. In this case, the number is indicated. Also, if this number or sequence has numerous *forward links*, this is taken to indicate that the reference is influential on the future of the design process. Sometimes the distillate writer may choose to use the system-offered material to investigate → (*other places that also used the same link*)], so care was taken to differentiate non-singular from singular references. Following each paragraph, there is a block quote of automatically-collected links that are relevant to the paragraph at hand, from which the inserted distillates were derived. . .

Scope: The first and last reference numbers that are indicated in the paragraph.

All references: The reference numbers that are indicated in the paragraph.

Singular references: The singular reference numbers that are indicated in the paragraph.

C.2 The Draft Syllabus

C.2.1 The Introductory E-Mail

Hi team,

Here is a second draft of the Design Course Syllabus. Here are the strategies at work:

1. I have created 4 primary questions to generate ideas for the syllabus and categorized R's Big Ideas within them. I used D's draft of the ideas from the meeting notes, as they were much more detailed than my own. This strategy is simply a method to support the development of a syllabus. The big ideas are not ranked and they do not reflect a weekly schedule of course material (although they can).

2. I have purposely avoided the use of terms like “principles” or “canon” or “rules”. After our discussion on Wednesday, I was confused about my own use of the word principles and wondered where it came from. I started reading Norman again and there it was - Principles. If Design of Everyday Things is our course text, we must be aware that the author often refers to “design principles” and states specifics like visibility is a fundamental principle of design.

3. The work is wordy and descriptive. This is purposeful, to allow you to edit, remove, reword as you like.

4. I have a meeting with JF at 2:30 to work on the next draft. Any revisions or suggestions are welcome.

Best

C

C.2.2 Syllabus & Course Objectives Draft 2

Course Description:

[course number] is a breadth course that explores the role design and designer play in the world around us.

Big Ideas explored in the course:

Why Does Design Matter?

- Design is all around us: the course explores how design facilitates our understanding of the world around us (how design helps us better understand the world around us/design helps us make meaning).
- Design is social: the course explores how design is used to facilitate communication with others/Audience (design is out in the open, design helps us communicate more effectively with others in our homes, workplaces and community/ how design better helps us understand each other/how design helps us agree on meanings).
- Design is historical: the course explores the importance of precedent in design (how examples, models, patterns or standards) reflect learning and critical thinking.

Who Does Design?

- Design enables understanding: the course explores how designers (from different professions, backgrounds, disciplines) use design to visualize and make sense of the world they see and experience.

- Design invites inquiry: this course explores how designers use design to visualize and to manipulate ideas under consideration/ how design is used as a tool in their own practice/discipline.

How Does Design Happen?

- Design is a process: this course explores how the making of artifacts (ideas, words, physical materials, virtual images) facilitates the development of ideas (how designers must generate ideas and test them/ utilize an iterative design and testing cycle).
- Design is made by doing: this course explores how the making of artifacts requires skill and development of skill.
- Design is collaborative: the course explores the idea that design requires more expertise than resides in any one person's head and that part of testing and understanding designs is the recognition of the need to connect and collaborate with others. The design and testing cycle is improved by the generation and critical evaluation of many ideas.

How Is Design Evaluated?

- Design satisfies its Audience: the course explores the complexity of the design audience and how successful design satisfies all stakeholders and users (rarely a single end user)/how the work succeeds in the world.
- Design puts Ethos before Ego: the course explores how good designs are measured by the quality of ideas they provoke and invoke rather than the ego of the designer.
- Design begs Joy of Use: the course explores how good designs are measured by how they contribute to the quality of life for users (pleasure, safety, knowledge, etc.) and their communities.

Course Objectives:

Students will:

- Explore the role design and designers in the world around them.
- Interrogate the term design the contextual nature of its meanings.

- Explore the social implications of design.
- Examine the nature of the relationship between designer and audience
- Carry out design exercises that attempt to help them see the world through others eyes
- Carry our exercises that employ ones own experience and knowledge as tools of observation and experimentation
- Employ iterative design practice strategies to individual projects.
- Engage is collaborative design practice.
- Explore project management skills.

Resources:

Ideas have been borrowed from

MIT: Introduction to Design Inquiry, Open Course Software: Retrieved January 11, 2007 from <http://ocw.mit.edu/OcwWeb/Architecture/4-273Introduction-to-Design-InquiryFall2001/Syllabus/index.htm>

C.2.3 An E-Mail Reply

C

This is wonderful!

There is another big idea that I would like to see in the course. Actually it is a complex of ideas.

Design is economic. Design makes a difference to organizations and countries. Those that value design tend to do better than those that do not. Design can help solve large problems. But it is always embedded in larger processes, such as development, policy and politics. It is a crucial part of the way in which societies change. It is not a sole cause (like some Modernists thought).

best

R

C.3 Team Meeting One

Note See Figure 6.6.

C.3.1 Paragraph 1

The agenda [3.0040101–3.0040112] of the first team meeting (number three in the transcripts) was to (1) introduce team members to each other – what each would bring to the team, their course development experience, and their design experience; (2) overview, explain and discuss the course outline so far – to explore what the team thought course could look like; and (3) discuss the course objectives and the learning objectives.

The team introduced themselves [3.01–3.0230903]. G was a graduate student with a background in industrial design, and some research design, but limited course development [3.011–3.012041]. J was a Masters student with a lot of experience in course design and teaching; J was interested in applying cultural models to interaction [3.013–3.01402]. B was faculty with a computer and electrical engineering background, with interests in software design and user-centered design [3.015–3.0160101]. D was a PhD student with a background in support for standards in distance education, and a focus on *social bookmarking* and design of shared terminology; D’s team role, as a participant/observer researcher under R, was to facilitate communication [3.017–3.0181301]. At this point, C clarified to the team that R’s group and other colleagues in the school would provide feedback about the subject matter of design, and whether the teaching method was consistent with the subject matter [3.019–3.02103].⁴ C, the project manager, designed the school’s writing courses, and taught critical and creative thinking, as well as business writing [3.022–3.0230903].

Scope: 3.01, 3.0230903.

All references: 3.01, 3.011, 3.013, 3.015, 3.017, 3.019, 3.022.

Singular references: None.

Retrieved Text: None.

⁴Prior discussion about the advisory group occurred in the exploratory meetings, but these references are omitted because, at this point, the intended advisory group was new information to design team. It happens that the advisory group was never formed.

C.3.2 Paragraph 2

Concerning the overview [3.025–3.061], C handed out the syllabus while explaining that the course was approved [3.02501], but the team was not committed to the syllabus nor its titles [3.02504] ← [Draft syllabus approved]. They were committed to using *The Design of Everyday Things* by Norman, and would also examine other texts [3.026–3.02602]. *Experiential learning* was one of C’s goals for this course [3.02603] ← [Agenda: Design experience; Course Objectives/Learning Outcomes]. C launched the discussion of the syllabus and potential texts with “*One of the goals for this course is that our design is transparent; we want them to see that this course was designed with a set of objectives, and the activities are designed in a way for you to have an experience, but also be able to use the principles that you’re learning to be able to think about what it is that you’ve done*” [3.02605]. Discussion of the potential books included how well they might contribute given the central design problem of the course – that novice design students want to make *things*, while the course is about ways of thinking [3.02903–3.02911]. After touching on the nature of the course package [3.03–3.032] ← [Repository for course], the video *Deep Dive* as a resource came up, which spurred discussion on how to shelve the team’s useful ideas [3.037–3.042]. C solicited further interesting readings from the team [3.043–3.045], and touched on concurrent courses as resources to support concepts like “teamwork” [3.046–3.04701, 3.061] ← [Agenda: Explore]. C pointed out that a certain constraint was that the students would execute a design process around a community artifact, like the local commuter train station [3.048–3.04815] ← [Agenda: Introductions]. The team discussed the potential process and outcomes of this [3.049–3.061] ← [Give the student a flavor of design as it applies to the faculty of applied science; In the course, explore the big ideas about design]. C reminded the team that they were not married to the syllabus; they could collapse points, or remove points [3.05702], and introduced the instructional design concept that the beginning of the course could comprise a “toolkit that is unpacked” [3.05903]. J mentioned getting the students to “*see that they are simultaneously participating in a number of communities*” [3.06].

Scope: 3.025, 3.061.

All references: 3.025, 3.026, 3.02603, 3.02605, 3.02903, 3.03, 3.037, 3.043, 3.046, 3.061, 3.048, 3.049, 3.05702, 3.05903.

Singular references: 3.02603, 3.02605, 3.05702, 3.05903, 3.06, 3.061.

Retrieved Text: Appendix section D.2.1.

C.3.3 Paragraph 3

C moved the topic on to “ideas about what we think we would like to achieve” [3.062–3.09502] ←[Course Objectives/Learning Outcomes→(desired outcomes; experiential learning)]. The members in turn presented their current thoughts about the course [3.065–3.09502]. G proposed the umbrella concept of “design is all around us,” which would be integrated into every topic [3.065–3.069] ←[Syllabus: Design is all around us; Design enables understanding; Design is historical; Design is social; Design is collaborative; Design is made by doing; Design is a process; Design invites inquiry]. G organized the syllabus concepts into three portions: understanding the problem [3.068], design process [3.0680201], and design evaluation [3.0680601] ←[Syllabus: Design begs Joy of Use; Design puts Ethos before Ego; Design satisfies its Audience]. J sought to impose the metaphor “design as recipes” [3.07]. There was mention of the iterative and multi-disciplinary nature of design, entailing different perspectives and the need for negotiation [3.075–3.081]. B pointed out the different models of software development [3.082]. D wanted to see a contrast of different ways of design thinking, like agile development versus the Rational Unified Process; and exploration oriented versus solution oriented [3.087] ←[Design as Recipes]. C wanted the students to experience different ways of looking at problems [3.094]. In an attempt to address how these goals could be achieved with 300 students in one term, C suggested that the team select only disciplines “that we can touch . . . We can’t cover everybody” [3.09502].

Scope: 3.062–3.09502.

All references: 3.062, 3.065, 3.068, 3.0680201, 3.0680601, 3.07, 3.075, 3.082, 3.087, 3.094, 3.09502.

Singular references: 3.068, 3.0680201, 3.0680601, 3.07, 3.082, 3.087, 3.094, 3.09502.

Retrieved text: Appendix section D.2.2.

C.3.4 Paragraph 4

C gave the team members the assignment to “Explore your view of design in relation to the proposed syllabus . . . Mess up the syllabus” [3.096] ←[Agenda]. The meeting wrapped

up with C explaining that the team would gain an instructional designer, and the kind of support that would bring [3.098–3.118] ←[Course set up as weekly face to face, course material online]. Issues around placing the developing content in a moodle (a free and open source e-learning software platform) were discussed [3.10401–3.118].

Scope: 3.096–3.118.

All references: 3.096, 3.098, 3.10401.

Singular references: 3.096.

Retrieved text: Appendix section D.2.3.

Field Note: For this meeting’s notes, D (the researcher) selected passages from the transcripts (from an audio recording), and condensed them – they were excessively long for meeting notes, and not organized appropriately for members to easily see action items and track shelved concepts.

C.4 Team Meeting Two

Note See Figure 6.7.

The agenda for team meeting two (number four in the transcripts) included (1) updates on the instructional designer, and a shared space to put documents; (2) a visit by the program head to discuss and clarify the role of R and R’s research group, as well as D’s ethics responsibilities concerning recording the meetings,⁵ and team member compensation; (3) textbooks; (4) how the members see the course – each to discuss the syllabus through his or her lens – find overlaps, intersections, and differences between the different views; (5) begin to establish course and learning outcomes – what the team wants the students to learn and do.

⁵One or more team members had privately expressed discomfort to the project manager about the meetings being recorded for research, and especially that they had entered the project without knowing beforehand that their consent to be recorded would be asked of them. The project manager was also nervous about disrupting spontaneity and team spirit. The project manager apologized to the team, considering that the research aspect had been agreed on during the formative meetings. Also, the researcher had negotiated with the ethics committee to permit all the participants to own the data. That is, they each could request the data from the researcher for their own analysis, if they so chose. Curiously, not one accepted the offer.

C.4.1 Paragraph 5

After discussion of (1) resources [4.049–4.054] ←[Agenda: Instructional design support; Repository], and (2) the stance that records of the design meetings would serve as research data [4.055–4.068],⁶ the general sense of the course was discussed [4.0681–4.07201] ←[Thirteen weeks to “fit them with a lens” about design thinking; different kinds of design thinking – like to see a contrast; the design process; a cultural model of a remix environment] ; that it was to be student centered as opposed to faculty centered [4.0681], and that it would be a kind of survey course [4.07101], and that it would not be too constrained, meaning the teachers in their individual domains would be able to fill in their own details [4.07102–4.07201].⁷

Scope: 4.049–4.07201.

All references: 4.049, 4.055, 4.0681, 4.07101, 4.07102.

Singular references: 4.0681, 4.07101.

Retrieved text: Appendix section D.3.1.

C.4.2 Paragraph 6

Then the respective members spoke about their sense of the course [4.077–4.164]. G again promoted having an umbrella concept: *Design is all around us* [4.081–4.10205]. G showed a PowerPoint with a course layout that included parallel time lines of technology and design movements, and respectively devoted weeks to design thinking, design process, and design evaluation. In response, C reiterated the earlier stated intention for the course to be more of a skeleton that the individual instructors would fill out [4.093], while G’s presentation was “a snapshot of you as a designer, so we have an understanding of your perspective and the kind of resources that you are going to bring” [4.096].

⁶Clarification of compensation came at the end of the meeting. The program was under funding pressure, and team members would not be compensated. Because of this, one of the team members soon withdrew both participation and also resources that that member had authored and originally offered.

⁷Later on, when the course was first delivered, and while the researcher served as a teacher’s assistant, the teachers involved did not have enough time to create their own detailed lectures, so quality suffered. There were also version control problems, and no postmortem.

Scope: 4.077–4.164.

All references: 4.077, 4.081, 4.093, 4.096.

Singular references: 4.077, 4.081.

Retrieved text: Appendix section D.3.2.

C.4.3 Paragraph 7

B [4.103–4.118] ←[Models of software development; Syllabus: Design is made by doing; Design is a process; Design is social; Who does design?; How does design happen?; Design is collaborative; How is design evaluated?] described some adjustments to the order and scheduling of the big ideas about design that were stated in the syllabus. B also introduced software development concepts of design, such as object oriented design, design patterns, component frameworks, and standards. To the concept of *Design is collaborative* B added quality assurance. G proposed to consolidate the weeks that are devoted to design process, and portray design process from just one discipline, to avoid confusion [4.119]. At this point, C tried to pull discussion back to a much higher more general level, and lauded the entrance of words like “principles,” “frameworks,” “models,” and “categories” [4.121–4.12107]. The team discussed the concept of a toolkit of core concepts to be pulled out before the final project [4.122–4.128] ←[Explore your view of design in relation to the proposed syllabus; Four hours of class time; Unpacking the toolkit; Desired outcomes]. C appreciated how B kept the same front end and back end of the course, but the middle queries how different designers see design [4.129].

Scope: 4.103–4.129.

All references: 4.103, 4.119, 4.121, 4.122.

Singular references: 4.119, 4.121.

Retrieved text: Appendix section D.3.3.

C.4.4 Paragraph 8

J [4.136–4.13801] ←[How do you see the course?] color coded the original syllabus according to the recipe metaphor, showing “ingredients,” “mixes,” and “processes.” C affirmed J’s book-ending of the syllabus with broad concepts, with the narrow concepts in the middle [4.144–4.148]. B suggested that this was synonymous with the three categories: “design,” “analysis,” and “evaluation” [4.149].

Scope: 4.136–4.149.

All references: 4.136, 4.144, 4.149.

Singular references: 4.149.

Retrieved text: Appendix section D.3.4.

C.4.5 Paragraph 9

D [4.153–4.161] ←[Want the students to be self conscious about design thinking; Like to see a contrast of different kinds of design thinking; Interrogate the term “design”] spoke about having general thoughts that did not coincide nicely with the syllabus; that design is a kind of shared representation between different communities, so there is a process of discovery and negotiation [4.15301–4.156]. D agreed with an earlier remark by C that design is a writing process [4.15601–4.15602]. D also mentioned that when people have articulated the problem to a level of detail sufficient to know how to solve it, then at that point the design process is over [4.157–4.158]. D wanted the students to be self conscious that there are different kinds of design thinking in different situations [4.15801–4.15805]; the desired level of detail before handing the design off to another party can vary; not every industry can afford the luxury of exploring alternatives. Articulating a design problem includes being aware of the dependencies in the solution process [4.16–4.16005]. D mentioned the issue that design requires domain skill [4.159–4.15902]. J and C agreed, but moved the topic of skill to the kind of skills the students would walk away with, and returned the conversation to the toolkit [4.162–4.164].

Scope: 4.153–4.164.

All references: 4.153, 4.15301, 4.15601, 4.157, 4.15801, 4.159, 4.16, 4.162.

Singular references: 4.15601.

Retrieved text: Appendix section D.3.5.

C.4.6 Paragraph 10

The meeting wrapped up with the members being assigned to critically read *The Design of Everyday Things*, and map it to the course. [4.17–4.172]

Scope: 4.17–4.172.

All references: 4.17.

Singular references: None.

Retrieved text: Appendix section D.3.6.

Field note: The meeting notes [4.003] for this meeting still quoted from the transcripts, but instead of following the flow of the meeting itself, they were organized into the following categories: action items, issues, mapping (ideas that map to the course or to each other), perspectives (team members points of view), resources, and shelved ideas.

Field note: Although the project manager – C – promoted team spirit, C was also responsible to get the job done on time. C maintained a tight communication loop with the head of the program and also with others within the program. C was prepared to exercise veto, execute unilateral decisions, and impose C’s vision on the course. For example, during a discussion with G about students potentially researching and presenting different areas of design, as a way to approach the survey nature of the course, C mentioned that this was to be a critical thinking class; critical thinking was C’s area of expertise and teaching within the program. When B mentioned the possibility of “getting into programming and programming languages,” C (reasonably) said “there will be none of that.” Also, C had opened the first meeting by stating one of the goals of the course was to be transparent; in the meeting notes for the second exploratory meeting, it was C and only C who brought up this goal, though it can be assumed that this goal was supported by the program.

C.5 Team Meeting Three

Note See Figure 6.8.

C.5.1 Paragraph 11

The main goal of team meeting three (number five in the transcripts) was to decide how to use the required book *The Design of Everyday Things*, by Norman [4.17]. But first, after a brief discussion of how to handle the team's accumulating notes (including that key ideas from strong notes can be copied and pasted into the instructional design template) [5.03–5.035] ←[Agenda: Ethics responsibilities], the design format was introduced; that is, an instructional design template was to be filled in [5.036–5.03702]. It would layout the categories for the overall objectives, and also the weekly objectives [5.03601–5.03603]. Upon completion of filling in the slots, the design would be complete. As somewhat decided in the previous meeting, the first eight weeks would comprise building the toolkit, and the final four weeks would comprise putting the toolkit into action [5.03604] ←[(*INFLUENTIAL*) Instructional design: Objectives, toolkit: What are the core ideas? Class time of four hours can be broken up]. The templates were a means to achieve a common understanding of the kind of information that the team was expected to produce [5.03605].

Scope: 5.03–5.03702.

All references: 5.03, 5.036, 5.03601, 5.03604, 5.03605.

Singular references: 5.036, 5.03604, 5.03605.

Retrieved text: Appendix section D.4.1.

C.5.2 Paragraph 12

The initial discussion of *The Design of Everyday Things* widened, then converged on agreement that its concepts could open discussion of concepts, but would require additional material to follow through [5.038–5.076] ←[5.039: Umbrella concept: Design is all around us – 5.04403: Syllabus: Design is historical – 5.05301: Who Does Design? →(combination of weeks 5 and 6; is not a necessary question) – 5.06701: Should be clear about the language, the terminology, and limitations of the book – 5.076: (*INFLUENTIAL*)]. The attempt to

apply the book to the course helped articulate a problematic issue – the book is about handleable objects only, while the course tries to reveal kinds of design-process thinking that are widely applicable, even in the design of systems [5.04805, 5.05402–5.055]. Not only did the required reading fall short, but students would need help in how to critically understand the book in terms of the course objectives [5.051, 5.05503].

Scope: 5.038–5.076.

All references: 5.038, 5.04805, 5.05402, 5.051, 5.05503.

Singular references: 5.04805, 5.05402, 5.051, 5.05503.

Retrieved text: Appendix section D.4.2.

C.5.3 Paragraph 13

Concepts from the text were selected and deployed with respect to the syllabus [5.07801–5.13903] ←[5.07801: Difficult fit between Norman and the course; Can use Norman text as a way of opening a discussion about the everydayness of design, use his ideas as umbrella ideas; syllabus: Design is all around us – 5.08103 Syllabus: Design is social → (*You can tweak how you want somebody to be engaged; The historical aspects to design; Design thinking: meta, breadth, understand problem*) – 5.082: Norman text: The “everydayness” of it is incredibly useful for students – 5.088: Syllabus: Design is historical → (*How do we address this text critically?; He doesn’t talk about precedent; This is a thinking course; Design thinking: meta, breadth, understand problem*) – 5.09: Want the templates up ahead of time, so we all have the same understanding of the kind of information we are looking for; The Norman text is useful at saying there is such a thing as a conceptual model; In designing a business process, where does the idea of affordance come in?; Weekly template – 5.09301: Syllabus: Design is collaborative → (*Quality assurance; Bringing people in to talk about their design process*) – 5.095: The Norman text reads out of date; The Norman text separates engineers from designers – 5.1: Syllabus: How Does Design Happen? – 5.108: Re: Usability: What is the process that a team would go through to explore or address an issue of say visibility?; Syllabus: Design is a process → (*Bringing people in to talk about their design process*) – 5.11: Syllabus: Design satisfies its Audience; Re: moving beyond the object: The Norman text is located in objects – 5.111: Syllabus: Design puts ethos before ego – 5.116: The conceptual

model; Transparency; syllabus: Design enables understanding → (*You can tweak how you want somebody to be engaged*); The Norman text doesn't address every principle in detail – 5.124: Syllabus: Design invites inquiry; Ours might have an element of research, because it is a critical thinking class; We will create a project that we know they can do ... they are putting their critical thinking skills to work – 5.13003 The Norman text is dated – 5.136: Are Norman's terms mappable to other terms?; Be very clear about the language, the terminology, and limitations of the Norman book – 5.13601: Mental models in chap 3, conceptual models in chap 1 of the Norman text – 5.139: Syllabus: Design begs Joy of Use – 5.13903: Unpacking the core ideas from the “toolkit”; class time]. The team had associated syllabus concepts with weeks, and used week numbers to refer to concepts. Passages from the book were associated with weeks/concepts. Passages that were associated with many concepts (particularly Chapter Six [5.086, 5.105–5.107, 5.113]) were slated to be read at the beginning of the course, and then referred to as needed. The book's dated point of view about design needed to be framed for the students [5.135]. Its usefulness was deemed to be where its terminology mapped to the syllabus concepts and critical thinking concepts [5.136–5.13801].

Scope: 5.07801–5.13903.

All references: 5.07801, 5.086, 5.105, 5.113, 5.135, 5.136.

Singular references: 5.086, 5.113, 5.135.

Retrieved text: Appendix section D.4.3.

C.5.4 Paragraph 14

During a discussion of how to cover the concept of “knowledge in the head versus knowledge in the world” [5.14–5.162] ←[5.14: We are in agreement that we can go to Norman for higher level ideas; Norman book: dated, located in objects which is good early on for students, touches on some principles that are useful in this course], J proposed giving the examples of writing an exam as opposed to writing a paper [5.144], which cued C to mention the goal that the course be transparent – the students to recognize that the course itself is a designed thing [5.145–5.14503] ←[5.145: The conceptual model; transparency that the course is designed; Norman does't address every principle – 5.14502: The angle that we are

taking in this course is all about the thinking; Ours might have an element of research; we will create a project that we know they can do]. J suggested that, as an exam, the students could design an exam that deals with the course material [5.15, 5.156]. This caused some excitement because it was a brave move toward the goal of transparency, and inspired a number of ideas. ←[5.15809: Toolkit]

Scope: 5.14–5.162.

All references: 5.14, 5.144, 5.145, 5.15, 5.156.

Singular references: 5.144, 5.15, 5.156.

Retrieved text: Appendix section D.4.4.

C.5.5 Paragraph 15

After a couple of summarizing statements about their first pass at handling the Norman text [5.163–5.165], C wrapped up the meeting with discussion of the upcoming goal of dumping content into the template, and of further possible texts [5.16501–5.171] ←[Want the templates up ahead of time, so we all have the same understanding of the kind of information we are looking for; Design is historical; Why does design matter?].

Scope: 5.163–5.171.

All references: 5.163, 5.16501.

Singular references: None.

Retrieved text: Appendix section D.4.5.

Field note In team meeting three, handling of a somewhat modular aspect of the design (how to use the required text *The Design of Everyday Things*) was taken to a fairly detailed phase. Doing this caused the central problematic issue (deliver a conceptual course about design thinking to students who only expect to make things) to be articulated in conversation. Realization of how convergence of transparency and awareness of design thinking might be achieved inspired a rapid-fire exploration of that solution path. In particular, the notion that the students could be made aware that the course itself is designed (the notion

of *transparency*) by having student teams design midterm exams for the course was tempered by the instructional design strategy of unpacking a *toolbox* of concepts in a scaffolded fashion, and thereby *front-loading* all the skills that would need to be practiced.

C.6 Team Meeting Four

Note See Figure 6.9.

C.6.1 Paragraph 16

The agenda items for the fourth team meeting (number six in the transcripts) were (1) JF would brief the team about recent press releases about the course, (2) S would introduce the course development template, and (3) the team would discuss the usefulness of books by Lawson and Aspelund in relation to the syllabus big ideas [6.0030101–6.0030501].

After C – the project manager – expressed the concern that the “reporter’s spin” might inappropriately influence the course design [6.056–6.05606], the team discussed an article that expanded the notion of who designers are [6.057–6.079] ←[6.05703: Who Does Design?; Design is all around us – 6.061: Week 1 is mostly about introducing students to the syllabus, introduced to all the big ideas in the first week; Mock up the first two weeks; Want the templates up ahead of time, so we all have the same understanding; Toolkit].⁸ They felt that the article would support an introduction to the interdisciplinary nature of design thinking [6.062–6.06201]. The question arose of how to both incorporate ever more ideas, especially with growing support for the course, and make students aware that the course itself was, in principle, an unfinished design – a conversation [6.066–6.07801] ←[6.06901: Transparency – 6.06903: We can use Norman as a way of opening a discussion – 6.071: Students to feel that what they are doing is meaningful to them; The contentious issue is what community?].

Scope: 6.057–6.079.

All references: 6.056, 6.057, 6.062, 6.066.

Singular references: 6.056, 6.062.

⁸The article was *Are Designers The Enemy Of Design?*, which was posted on www.BusinessWeek.com by Bruce Nussbaum on March 18 2007.

Retrieved text: Appendix section D.5.1.

C.6.2 Paragraph 17

This high-level discussion was shelved by C in order to introduce the course template that was assembled by S – an instructional design consultant [6.08–6.083]. The team was to fill in the template [6.08301–6.08701] ←[The weeks may be divided amongst the team]. The project manager and the instructional designer would together focus on the early part of the course, because the program had well-defined requirements based on the nature of its students and the demands of the other courses that they take [6.091].

Scope: 6.08–6.091.

All references: 6.08, 6.08301, 6.091.

Singular references: 6.091.

Retrieved text: Appendix section D.5.2.

C.6.3 Paragraph 18

After C successfully elicited the team’s agreement to go ahead with the course template [6.089], they discussed potentially mining *The Design Process* by Karl Aspelund for ideas about activities for the students to do [6.095–6.11804] ←[6.10007: Wouldn’t it be cool to have a design kaleidoscope that we could point at the different people and see different kinds of design – 6.10102: Design is made by doing; Design is historical; Why Does Design Matter?; A design is made by doing – 6.10601: This course may be different than other kinds of design course]. The main course-design problem with activities would be to make students aware of the design thinking aspect while maintaining the pleasure of doing things. When the team began to propose specific activities, C declared “We’re not there yet,” meaning that the higher level concepts still had to be related to each other, and that each activity would have to be carefully “front loaded,” and tabled the discussion of activities [6.11804].

Scope: 6.089–6.11804.

All references: 6.089, 6.095, 6.11804.

Singular references: 6.089, 6.11804.

Retrieved text: Appendix section D.5.3.

C.6.4 Paragraph 19

The arrival of JF turned discussion to the recent press releases about the course [6.119–6.149]. The final part of the course was to consist of a team-based design project with the nearby commuter train station as the subject. Hence it was dubbed the *community project*. The station had recently received political attention because of the murder of a boy there by other teenagers. As a result, the community project received more attention in the press than it would have otherwise. The proposed course and the attention it was receiving was seen as “an opportunity to turn the . . . program around” [6.12007]. The issue was “If we don’t have students in this program this fall, we’re probably toast,” while “One of the things that can happen is that you lose any support that you had initially” [6.12007]. Nevertheless, there were indications that the university’s outlook was consistent with the direction in which this program had been heading for several years [6.12015]. An article had appeared in the university press (6.119). Then, because the municipal press noticed the community project, due to JF’s attendance at a luncheon where the mayor spoke, JF wound up in a radio interview that introduced the community project with a reminder about the murder. JF also met with some newspaper reporters [6.121–6.12106]. C considered JF’s portrayal of the community project to be a big constraint on what the team might design [6.123] ←[6.122: Constraint: Final Project; Big [program in this school] idea about community building and being of service]. Potential involvement of the mayor and other municipal stakeholders was seen as positive [6.1231–6.12311]. Concerning the nature of the individual student projects, C wanted them to emphasize the kind of activities leading the proposed solution, over and above the solution itself [6.12403–6.1251, 6.14002, 6.14802]. It was agreed that there should be an exhibition (6.12511, 6.141–6.143).⁹ The team talked about how the community project might iterate in the future [6.12701–6.132] ←[6.128: Design proposal as a way of probing a problem; This course is framed as a kind of discussion about design . . . students to see their communities, or the everyday things that they use, differently – 6.131: Explore the

⁹With the first delivery of this course, the teachers were not able to cope with managing the large cohort to coordinate with the city. Furthermore, since physical models were displayed with no one to guard them, the exhibition lasted less than one day.

role design and designers in the world around them]. The issue of managing coordination of a large cohort of students (400) with the city was recognized – all the teams could not, say, interview the police [6.133–6.138]. They agreed to go ahead with the community project [6.139]. The community-facing and exhibition nature of the project emphasized that it would need to be visually appealing and persuasive [6.143–6.14802] ←[6.144: Any activity that we do will have to be framed carefully and front loaded – 6.14802: Carry out design exercises that attempt to help them see the world through others’ eyes; Examine the nature of the relationship between designer and audience].

Scope: 6.119–6.149.

All references: 6.119, 6.12007, 6.12007, 6.12015, 6.121, 6.123, 6.1231, 6.12403, 6.14002, 6.14802, 6.12511, 6.141, 6.12701, 6.133, 6.139.

Singular references: 6.12007, 6.12007, 6.12015, 6.123, 6.14002, 6.14802, 6.12511, 6.139.

Retrieved text: Appendix section D.5.4.

C.6.5 Paragraph 20

After JF’s departure, the team discussed what they liked about *How Designers Think* by Bryan Lawson, and how it might fit with the course [6.15001–6.181] ←[6.15001: (INFLUENTIAL)]. They liked that Lawson discussed about process, gave an open-ended definition of design, discussed similarities and differences in different design situations, gave models of design, and was quick to say that design is non-sequential [6.15001–6.1551] ←[6.15506: “model” is a transferable term, a big ticket term]. The conversation shifted to what kind of activities could be done [6.15511–6.164] ←[6.15511: Going to have to front load it, and be very careful about how we frame it – 6.16: We want students to reflect back on what they are doing, we want them to start noticing everyday design problems and bring that into a discussion; Design is historical; Students to feel that what they are doing is meaningful to them], including that “reflection *in action*” (Schön, 1983) would be difficult to get across in an activity. The team felt that it fit well enough to become a textbook, to be used in conjunction with *The Design of Everyday Things* [6.16901–6.172] ←[6.17015: What other kinds of conceptual models are there? – 6.17102: The usefulness of *Design Thinking* is when that terminology maps to the course; Critical thinking; Constraints; Norman for higher level

ideas; Are Norman's terms mappable to other terms?; Norman reads out of date, undermine our credibility?; Norman located in objects, touches on some principles that are useful in this course; Should be clear about the language, the terminology, and limitations of the Norman book; Ours might have an element of research; They are putting their critical thinking skills to work; Design invites inquiry]. The team liked how Lawson both defines design as a kind of conversation, and leaves the definition open for further conversation. What was lacking in the Lawson book was sufficient real-world examples, the design of intangible things, and precedent. The meeting ended with discussion of how "precedent" might be the subject of some student activities [6.17302–6.181] ←[6.17302: The only thing that-s incomplete at this point is design is historical, the idea of precedent – 6.175: Design as recipes – 6.177: Answering questions with as much visual material as possible].

Scope: 6.15001–6.181.

All references: 6.15001, 6.15001, 6.15511, 6.16901, 6.17302.

Singular references: None.

Retrieved text: Appendix section D.5.5.

Field note The meeting notes were organized into the following categories: action items, agreements, team values, general issues, final project, potential reading material for the course, ideas, and tabled ideas.

C.7 Team Meeting Five

Note See Figure 6.10.

C.7.1 Paragraph 21

The agenda for team meeting five [7.003–7.00411] included (1) the instructional design related items of changes to the course delivery system, student profile information, and course outline and objectives, (2) matching ideas from the Lawson text to the big ideas in the syllabus, (3) discussing a mock up of unit one, and (4) discussing the next meeting and strategy for designing weekly unit outlines. Also, organization of the team's online materials would be discussed.

An opening consideration of the nature and capabilities of the expected students [7.034–7.03504] ←[Support for instructional design; How do we think about the term “skill,” look at transferable skill as a distinction that we can make in terms of design, the process becomes a transferable skill] gave way to remarks about the breadth of the course to have offerings to other campuses and even to high schools [7.037–7.046], until C pulled the trend back onto the profile of first year university students and their expected short attention span and need for fun, engagement, and the kind of digital space that might support engagement [7.047–7.05901]. C expressed the desire to put the team’s design documents into the same digital space [7.05]. Along this topic, the team discussed an available online college repository [7.052–7.05202, 7.054–7.055], an online gallery with curatorial facilities [7.05203–7.05204], social bookmarking and tagging [7.05207, 7.057–7.05706], an XML template for uploading and displaying content [7.05802–7.0581], and a conceptual template for teaching design with online support [7.05811–7.05901].

Scope: 7.034–7.05901.

All references: 7.034, 7.037, 7.047, 7.05, 7.052, 7.054, 7.05203, 7.05207, 7.057, 7.05802, 7.05811.

Singular references: 7.05, 7.052, 7.054, 7.05207, 7.057.

Retrieved text: Appendix section D.6.1.

C.7.2 Paragraph 22

The team felt that *Design Thinking* by Lawson was “good to go, despite being a little advanced” [7.06] ←[(*INFLUENTIAL*) Pick out areas of the Lawson text that match up or are appropriate to the big ideas on the syllabus; Contrast and compare Norman with Lawson; The Lawson text draws upon the central moving figures in the discourse of design]. The conceptual abstraction of the text begged the issue of needing student activities to bring the concepts alive [7.061–7.06504] ←[7.06105: The students need interesting things to do; Design is made by doing; Design is historical; 7.063: Wouldn’t it be cool to have a design kaleidoscope that we could point at the different people and see different kinds of design], a goal being for students to “link making with critique through language” [7.064] and “develop designer’s eyes” [7.06504]. Being that activities were to be driven by scaffolded concepts

in the conceptual toolkit, conversation shifted to the toolkit [7.066–7.07001] ←[7.06801: We are creating good community thinkers; The quality of the artefact is less important than understanding the context and process] and how “understanding the problem is an important part of the overall design process” [7.06901].

Scope: 7.06–7.07001.

All references: 7.06, 7.061, 7.064, 7.06504, 7.066, 7.06901.

Singular references: 7.06, 7.064, 7.06504, 7.06901.

Retrieved text: Appendix section D.6.2.

C.7.3 Paragraph 23

Discussion returned to the need for a repository to put current team materials and future student materials [7.071–7.094] ←[7.071: This course has already been set up as weekly and face to face, but all of the course material is going to be online; Where the course is going to live, since we don’t have a course management system]. There was no objection to the notion that information security was unnecessary at this point [7.074], and that the bulletin board like repository that was offered by the online college would be only a temporary solution [7.08001]. The rationale to be able to recall and display student work to the community was touched on [7.086–7.08901] ←[7.08701: Lacking in [a program in the school] is that we don’t have stuff to show – 7.08703: The final thing is going to be a demo and a proposal; Don’t worry about the crit in the design, just get them thinking about their ideas], but which technology could satisfy the need was as yet undetermined [7.08902–7.091] ←[7.08904: Very visual projects; This is not a prototyping class, but what if, given what you know to date, you have something at the end of the day that shows that you went through a particular kind of process].

Scope: 7.071–7.094.

All references: 7.071, 7.074, 7.08001, 7.086, 7.08902.

Singular references: 7.074, 7.08001.

Retrieved text: Appendix section D.6.3.

C.7.4 Paragraph 24

Discussion of the Lawson text’s suitability for the course [7.095–7.132] ←[7.095: Pick out areas that match up or are appropriate to the big ideas on the syllabus] opened with “What parts are strong?” [7.098–7.108], resulting in the ideas to omit the creative thinking part [7.098], focus on process [7.099], and focus on models of design [7.1–7.108], including the notion of constraints [7.106]. Concerning mapping the Lawson text [7.109–7.12305] ←[7.10903: Toolkit: every week contributes to final project, scaffolded; The first 8 weeks we are building a toolkit, and the last 4 weeks we are putting the tool kit into action – 7.109031: The Norman text reads out of date, is located in objects – 7.113: What do we mean by design in this course? – 7.117: It’s often better if the learning objectives for the week or the learning objectives for the activity are done first as a sample provided and we talk about them, or they are done as a group, rather than sending somebody off] to the syllabus big ideas and the upcoming learning objectives to be scaffolded over the weekly units, the current goal was to find practices that students could learn early and continue to use [7.10903]. This meant deciding how integrate the Norman and Lawson reading materials [7.109031–7.11], which, in turn meant deciding what “design” would mean in this course [7.111], and then combining the big ideas [7.112–7.11301]. It was suggested that the Lawson material was too conceptual for first year students, entailing the need to, not only find the big ideas in the Lawson material, but also bring interest visual examples and rich exercises into play [7.115–7.119]. Some limitations and advantages of the Norman text were discussed [7.12–7.129] ←[7.126: Like to see a contrast of different kinds of design thinking; Design thinking comes from various different disciplines – 7.128: An exercise might be: here’s a reading, design an exam; We want the design of the course to be transparent; This course will also have to provide conceptual models for reading and understanding this course; The goal is for students to have critical thinking tools that they can use in any area that they go in to; Trade off between knowledge in the head and knowledge in the world] – despite being about affordances only [7.12], it served to show the ubiquity of design, and was useful for at least three units [7.123–7.12305]. ←[7.131: Would like students to henceforth (after this course) see exams differently]

Scope: 7.095–7.132.

All references: 7.098, 7.098, 7.099, 7.1, 7.106, 7.109, 7.10903, 7.109031, 7.111, 7.112, 7.115, 7.12, 7.123.

Singular references: 7.098, 7.099, 7.106, 7.10903, 7.111.

Retrieved text: Appendix section D.6.4.

C.7.5 Paragraph 25

The team then mapped Lawson text to the weekly units (the syllabus big ideas about design were roughly associated with the units) [7.133–7.16302]. The act of mapping clarified that some of the units should be grouped together; that is cover conceptually-related ground: “What is design?” (unit one) was related to “Design is all around us” (unit two) [7.133–7.135]; “Design is social” (unit three) leads to “Design is historical” (unit four) [7.136–7.13801]; there was a shift after unit four into “Design enables understanding” (unit five), which was lumped together with “Design invites inquiry” (unit six) [7.139–7.1461] ←[7.141: Big ideas not combined/collapsed in syllabus as yet, but that is what will happen; Syllabus “big ideas” – 7.144: Would leave out the creative thinking – 7.1461: The goal is for students to have critical thinking tools that they can use in any area that they go in to → (*Would like students to henceforth (after this course) see exams differently*); like to see a contrast of different kinds of design thinking → (*want the students to be self-conscious about design thinking; Not about any one kind of designer expertise*); Use of the Norman book is not set in stone despite that it was passed by the Senate]; “Process” (unit seven) and “Collaboration” (unit eight) were needed to move into teamwork toward the final project [7.147–7.14902] ←[7.147: The students don’t come up with a product, they use their critical thinking to come up with proposals, suggestions – 7.148: Syllabus: Design is collaborative], while “Design is made by doing” was seen as a general principal throughout all the material and could be build into the evaluation [7.14702–7.1471]. There are many design disciplines, and “disciplinary expertise” is the main driver of collaboration – one discipline could be featured in each unit. Also, concerning disciplinary expertise, in the final project, the students would write about the different stakeholders [7.15–7.156]. More thought was needed concerning how to break all this down into tangible skills, such as the “primary eight things that you need to do as a team to make this successful” [7.15701–7.15901] ←[The first 8 weeks are set up as a toolkit, some kind of critical thinking tool or process that they can learn each

week and be evaluated on, and then apply those to the larger project]. The importance of assessment had to be addressed with an eye on the workload of doing assessment, and no new concepts would be taught during the week devoted to evaluation [7.161–7.16302] ←[7.162: Syllabus: How Is Design Evaluated? – 7.16301: What we have to understand is that we have one class of 48 students that is working on this problem, and then we multiply it by 6, or more, hopefully 8 max].

Scope: 7.133–7.16302.

All references: 7.133, 7.136, 7.139, 7.147, 7.14702, 7.15, 7.15701, 7.161.

Singular references: None.

Retrieved text: Appendix section D.6.5.

C.7.6 Paragraph 26

The plan for the next meeting was to re-examine portions of both the Lawson and Norman texts toward applying the material to unit one [7.165–7.16503] ←[7.16601: First pass on the first unit and describing the learner, work on course template; The weeks may be divided amongst the team]. The meeting notes would be put into an online repository [7.166–7.167].

Scope: 7.165–7.167.

All references: 7.165, 7.166.

Singular references: None.

Retrieved text: Appendix section D.6.6.

C.8 Team Meeting Six

Note See Figure 6.11.

C.8.1 Paragraph 27

Team meeting six commenced with discussion about the instructional design process [8.032–8.063] ←[8.032: (*INFLUENTIAL*) Weeks 1-8: toolkit: every week contributes to final project, scaffolded; re the Lawson book, good to go, despite the book being a little advanced; Go to Norman for higher level ideas; The first 8 weeks we are building a toolkit, and the last 4 weeks we are putting the tool kit into action; Have a weekly template, that has the big idea, the title, the object for that week is, what that assignment or activity for that week might be, and what the objectives for the assignment are; Might have an element of research; They are putting their critical thinking skills to work; The Norman book is useful at saying there is such a thing as a conceptual model]. Reiteration of the proposal to deliver the syllabus big ideas about design as a “toolbox” in the first eight weeks, for the “toolbox” to be used in the remainder of the course [8.036–8.03603], spurred discussion of whether the notion would be kept of “book-ending” the course, in which there is a broad introduction, the teacher’s particular focus during the body of the course, then the students form their own perceptions at the end [8.037–8.04802] ←[8.037: The lens at the beginning is wide, the lens at the end is wide, but who is looking through the lens is different – 8.04602: Those designs that mediate couples, as opposed to other social units: car seats, breakfast nooks, tables for 2, ichtat, text message – 8.04801: Unit 3 (design is social) – 8.04802: Unit 5 (design enables understanding)]. The “book-ending” could be implicit in the existing design [8.048–8.04802]. It was reiterated that the instructional stance would include student reflection, activity flow from individual to institution to community, and assessment on ideas rather than artifacts [8.049–8.053] ←[8.049: Want students to reflect back on what they are doing . . . want them to notice everyday design problems and bring that into a discussion; Want them to feel that what they are doing is meaningful to them; A designer is usually in a conversation with the client and the design representation – 8.05002: They can look at the difference between an assignment and an exam, what makes an exam an exam – 8.053: All of the tools revolve around asking critical questions; The goal is for students to have critical thinking tools that they can use in any area that they go in to; Like to see a contrast of different kinds of design thinking]. How to place focus on the concept of design over the thing designed was discussed [8.055–8.063].

Scope: 8.032–8.063.

All references: 8.032, 8.036, 8.037, 8.048, 8.049, 8.055.

Singular references: None.

Retrieved text: Appendix section D.7.1.

C.8.2 Paragraph 28

The instructional need to inspire the concept of design through concrete student activities [8.06] meant that this issue had to be deferred until after further groundwork was laid, such as clarifying the first learning unit [8.06301–8.12904]. The team clarified what was going to be covered in unit one [8.065–8.12904], starting with the objectives [8.067–8.07] ←[8.06704: Next week we can work on unit 1, collaboratively – 8.06706: Read Lawson ch 1 and 2 and Norman 1, 2 and 6 for unit 1 for next week – 8.06906: Looking at concrete ways of demonstrating communication], such as developing the course introduction [8.06704], introducing terminology (constraints and affordances) [8.06706], introducing the communication aspect of design [8.06905], while adhering to the widening of context from individual to social to historical [8.068–8.07]. A wall-board was set up with units one to eight from left to right, and concepts, readings, workshops, skills & knowledge, and activities (workshop, assignment) from top to bottom [8.071] ←[8.071: Re Instructional Design Process: shared assumptions, terms, activities, assignments, content]. There was tentative discussion about activities for units three and four [8.073–8.07412] ←[8.073: Unit 3 (design is social) – 8.074: Unit 4 (design is historical)] before returning to concentrate on unit one [8.075–8.12904]. Although the concept category was briefly mentioned [8.07501], discussion commenced with “reading” [8.076–8.08101] before returning to a high level summary of the goals [8.082–8.08208]. The need to introduce a generalized notion of design quickly led to discussion common traits in design thinking [8.08208–8.095] ←[8.094: re Design Process: discussion of a particular process, their framework: the stages of inspiration, identification, conceptualization, exploration and refinement, definition and modelling, communication and production], such as *argument* [8.089], and *integration* [8.091], and design as the end artefact [8.095], as well as the difficulty of defining design apart from the artefact [8.096–8.09705] ←[8.096: One is about the artifact, and the other is about play with the idea as it goes forward, they are 2 sides of the same coin]. The team discussed the activity of students analyzing things at home, but in terms of Buchanan’s categories of symbolic and visual communications, material objects,

activities and organized services, and complex systems or environments [8.097–8.10505]. Again they returned to the broad categories [8.106–8.12904]: “reading” [8.10601–8.108], “skills & knowledge” [8.10802–8.10805] ←[8.10802: Objectives are to be consistent, and are to scaffold → (*Would like us to find practices that we learn early on and we continue to use, fine tune or develop so that we get to the team project*) – 8.10805: Transparent, meaningful], and “activities” centered on the home [8.10807–8.12904] ←[8.10807: Weekly template]. On member belabored whether the home was an appropriate subject [8.115–8.12904].

Scope: 8.06301–8.12904.

All references: 8.06, 8.06301, 8.065, 8.06706, 8.06905, 8.068, 8.071, 8.073, 8.075, 8.07501, 8.076, 8.082, 8.08208, 8.089, 8.091, 8.095, 8.096, 8.097, 8.106, 8.10601, 8.10802, 8.10807, 8.115.

Singular references: 8.06, 8.06706, 8.06905, 8.071, 8.07501, 8.089, 8.091, 8.095.

Retrieved text: Appendix section D.7.2.

C.8.3 Paragraph 29

Conversation turned to filling in decisions about the first four units in a course outline that the instructional designer had sent around [8.13–8.215] ←[8.13: Set wall board with units 1-8 left to right. . . – 8.13101: We get knowledge, put that back in process and design something else with the new knowledge – 8.132: Outline for developing weekly course objectives, assignment objectives and assignments]. (The instructional designer had been copying down the notes from the wall board [8.133], and the project manager was building a bibliography [8.134]. Also, each team member was to give a book report on one of the design books [8.13401].) They discussed the terminology of the course goal, changing it from “Understand how design thinking strategies can be used to gather and process information and solve problems” to “Learn and apply design thinking strategies and processes to interrogate the role of design in their everyday lives” [8.138–8.154]. Then they tackled the learning outcomes [8.155–8.184]. Decision on some terminology was deferred [8.155–8.159], while there was agreement [8.16–8.175] on the need for demonstration by students, via some written or visual product [8.164], that they both understand the strategies and also applied them. There was concern that “thinking strategies” were mentioned, but “problems” were not

[8.172–8.173]. It was agreed that the students would be able to “reflect on and articulate role of self as designer” [8.176] ←[General course flow and learning outcomes]. The outcome “Adapt design thinking strategies to situations outside of the course” was removed because it was not measurable [8.178–8.18001]. “Engaging collaborative processes to complete an iterative design project” was changed to “Apply collaborative and teamwork strategies to an iterative design process” [8.181–8.18101]. Potential activities for the first four units were discussed [8.185–8.215] ←[8.185: Toolkit, Lawson text accepted, Norman text accepted]. The student collaboration in the final activity spurred discussion about the relation between “collaboration” and “social” (the concept for unit three) [8.187–8.191] ←[8.187: Unit 8: getting the teams ready to do the team project, already collaborating – 8.18702: Unit 3 (design is social) – 8.19: Unit 7 (process and collaboration) – 8.191: Unit 1 me, unit 2 me in my home, unit 3 neighborhood]. Discussion of examples that embody various ideas of design (as communication, as a medium, as a process) helped the team propose activities (“design a set of instructions using signs” [8.2], “design a social space that requires mediated audience” [8.20006]) [8.19102–8.205] ←[8.193: The unit topics get bigger; Should distinguish between the design process (Lawson unit 3) and the design artifact (unit 10) – 8.19502: For example, we agree on the stop lights, these are everyday objects that were designed with the bigger understanding of the social implication of everybody has to agree or else there-s chaos or danger – 8.20004: Find some kind of sign to communicate an idea]. With respect to unit four (design is historical), they discussed examples of precedence, evolution, and trends in design [8.206–8.215] ←[8.206: Precedent, how would you show that in an interesting way in class or what is an interesting activity – 8.207: Historical: president generates knowledge; Unit 4 (design is historical), *What Designers Know* has chapter 8 on precedent – 8.213: Argument is the central theme that cuts across many technical methodologies employed in each design profession].

Scope: 8.13–8.215.

All references: 8.13, 8.133, 8.134, 8.13401, 8.138, 8.155, 8.16, 8.172, 8.176, 8.178, 8.181, 8.185, 8.187, 8.2, 8.20006, 8.19102, 8.206.

Singular references: 8.133, 8.134, 8.13401, 8.172, 8.176, 8.2, 8.20006.

Retrieved text: Appendix section D.7.3.

C.8.4 Paragraph 30

The meeting finalized with a mention that there was nothing yet on unit two [8.216], that the category “skills” was still empty [8.21701–8.218], and for people to collect any new newspaper articles about the train station (the subject of the final activity) [8.219] ←[General course flow and learning outcomes; They don’t come up with a product, they use their critical thinking to come up with proposals, suggestions].

Scope: 8.21701–8.219.

All references: 8.216, 8.21701, 8.219.

Singular references: 8.216, 8.219.

Retrieved text: Appendix section D.7.4.

Field note The researcher did not attend this meeting; it was recorded for him by the project manager. Although R had participated in the proposal of this course (responsible for most of the big ideas about design in the syllabus), he was not a team member. Because of an association between R and the researcher, the project manager had thought that the researcher had, on his own, invited R to the meeting, and was thereby perceived as disruptive. There was tension between R and JF (the head of the program that was responsible for this course); the program was not necessarily secure within the university, possibly in competition with R for university resources, and the researcher was perceived as being not independent of R. However, the researcher and the project manager met and clarified that R had simply dropped in, because he felt that it was his duty to do so, as an advisor to the design of this course, and had not been brought in by the researcher. The researcher continued with the team in the next meeting.

C.9 Team Meeting Seven

Note See Figure 6.12

C.9.1 Paragraph 31

For team meeting seven [9.0001–9.2], some members were to review and report on potential readings for the course [9.0002–9.0006], and then continue the instructional design work on units one to four [9.0007–9.0009].

Scope: 9.0001–9.0009.

All references: 9.0001, 9.0002, 9.0007.

Singular references: None.

Retrieved text: None.

C.9.2 Paragraph 32

The meeting opened with discussion about the deployment of reading material [9.052–9.082]. The Norman text would have to be read in the first four weeks, because its concepts were scattered with respect to the syllabus [9.052–9.053] ←[9.052: Chapter 6 of the Norman book is a big chapter for us – 9.053: Norman will influence our terminology even if we don't subscribe to his terminology; The usefulness of this book for design thinking is when that terminology maps]. A book about the affordances that people unconsciously use, plus “the shopping cart video” were discussed [9.054–9.056] ←[9.054: About the resource books, whether or not they are all included for the students, they are good for the teacher to have]. The project manager was working on what the students would have to do to get ready for the midterm (each team designs a midterm exam for this course, and each is evaluated on how well they evaluate the exam designs by other teams), and realized the scope of how it would have to be integrated into every week beforehand [9.057] ←[Re Instructional Design Process: shared assumptions, terms, activities, assignments, content; Would like students to henceforth (after this course) see exams differently . . . students team design of an exam on the big ideas as their midterm; Weeks 1-8: toolkit, every week contributes to final project, scaffolded; The Lawson book, good to go; The course to be transparent; We will create a project that we know they can do, they are putting their critical thinking skills to work]. Despite putting a lot of the reading toward the beginning, it was argued that the amount of reading was normal for university [9.06–9.064] ←[9.061: If you are going to be in a critical

thinking course, you have to read]. The deployment of the Lawson text was discussed [9.065–9.07802] ←[9.06502: Individually we can go in more specifically and interrogate the material – 9.068: What does the designer do that others don’t?; The goal of the book is to explain to a lay audience about the ubiquitous presence of design, what kinds of questions does the designed object beg – 9.07001: Unit 8 getting the teams ready to do the team project]. It was agreed that the readings would take place in the first eight weeks, leaving the remainder for review [9.075]. The team needed to obtain as much information as possible about the subject of the final project (the local commuter train station), because of the large number of students and their inexperience with that kind of research [9.079–9.082] ←[9.07901: As soon as you say the word “community” there are so many groups that we will have to liaise with, even before the students do it, it’s going to be a big design problem for us to do that].

Scope: 9.052–9.082.

All references: 9.052, 9.054, 9.06, 9.065, 9.075, 9.079.

Singular references: 9.054, 9.075.

Retrieved text: Appendix section D.8.1.

Discussion This is meeting seven out of nine. The design effort has moved from divergent exploration to convergence on implementation of solutions. It is noticeable in this stage that the automated retrieval of relevant context obtains the same things over and over. For example, during the early stages of the meeting, when the participants debated about the Norman text, it was important over the duration of the debate to understand the previous things that had been said about the Norman text. But now, every time the Norman text is even distantly relevant, the retrieval gets the whole list of what was said. At this point, the (researcher in the role of) writer tends to represent all the familiar details about the Norman text with a single keyword: “Norman.”

C.9.3 Paragraph 33

After mention that in this meeting team members will choose units to work on individually [9.083–9.08302] ← [9.083: A weekly template, that has the big idea, the title, the object for that week is, what that assignment or activity for that week might be, and what the

objectives for that are; Instructional Design Process: shared assumptions: terms, activities, assignments, content; Individually we can go in more specifically and interrogate the material], plus the showing of a potential video resource [9.084], discussion turned to introducing the students to different kinds of designers by the midterm [9.085–9.089] ← [9.085: Would like students to henceforth (after this course) see exams differently; This course will also have to provide conceptual models for reading and understanding this course, it has to be that transparent; the objective there is that the students would have to realize that they as designers would have to ask certain kinds of questions] – support of which required that students be introduced to the instructional designer first off [9.088] ← [They can look at the difference between an assignment and an exam, what makes an exam an exam] – all the while moving from private in unit one to the world community in unit eight [9.08501] ← [Design is social]. The video was rejected because the students would not get its underlying ideas nor its witty, clever banter (which was perceived as irritating) [9.09–9.091].

Scope: 9.083–9.091.

All references: 9.083, 9.084, 9.085, 9.088, 9.08501, 9.09.

Singular references: 9.083, 9.084, 9.088, 9.08501, 9.09.

Retrieved text: Appendix section D.8.2.

C.9.4 Paragraph 34

A review of Moggridge’s *Designing Interactions* was given [9.092–9.10705] ← [9.09303: Team members should bring interesting readings to the group]. It was felt that students could relate to the videos – “put a face to the ideas” [9.094]. The portraits of the different designers would give students an idea of how different designers might approach the same problem [9.102]. The portraits could serve as examples of concepts [9.103] ← [Examples will be sought while doing the individual units; What’s lacking for me are real world examples] – Google page rank an example of *design is social*, Bruce Sterling’s *Future of Cities* an example of *design is historical* . . . The interrelatedness of the big ideas was mentioned [9.108–9.109], but assignments could clarify the concepts [9.11–9.11303] ← [9.11: Every step of the way the students should rehearse some aspect of the midterm, so when they get to the midterm it is just another performance – 9.113: Unit 1: What do we think students can do, given the

2 texts that we are agreeing on, and our own experience?]. However, the assignments also had to prepare the students for the proposed midterm, that they design a midterm exam for this course, and be evaluated on their critiques of other’s exam designs – there was fairly detailed discussion about the midterm idea [9.11304–9.144]← [9.11504: workshop: work on their assessment of the exam, this is what they are graded on – 9.129: There is a language to design; Also we should be getting into terms like “affordances” and “constraints” – 9.161: Basic instructional design strategy phases: analysis, design, development, implementation, evaluation, this is a model students can use].

Scope: 9.092–9.144.

All references: 9.092, 9.094, 9.102, 9.103, 9.108, 9.11, 9.11304.

Singular references: 9.094, 9.102, 9.103, 9.108.

Retrieved text: Appendix section D.8.3.

C.9.5 Paragraph 35

The learning units were to be divided amongst the team [9.145–9.19508] and designed in sufficient detail, particularly the assignments [9.14703], to satisfy an upcoming review, which spurred a discussion of the early units, focusing on the assignments [9.149–9.169] ← [9.149: Continue instructional design work on Units 1 to Unit 4 – 9.161: Basic instructional design strategy phases: analysis, design, development, implementation, evaluation, this is a model students can use]. The subject presenting the different points of view of different designers came up [9.17–9.18001] ← [9.17: Giving students a sense of how different designers would approach the same problem; We are going for snapshots of different designers and looking at the process they use to achieve different outcomes – 9.176: The idea is for students to feel that what they are doing is meaningful to them or their [program in this school] community]. There was enough to go ahead with actually building the course [9.181–9.18203], and units were divided amongst the team, with discussion of what details and format were expected [9.183–9.19508].

Scope: 9.145–9.19508.

All references: 9.145, 9.14703, 9.149, 9.17, 9.181, 9.183.

Singular references: 9.14703.

Retrieved text: Appendix section D.8.4.

C.9.6 Paragraph 36

The meeting wrapped up with mention of structuring the team information like the course structure [9.196–9.2].

Scope: 9.196–9.2.

All references: 9.196,9.2.

Singular references: None.

Retrieved text: None.

C.10 Team Meeting Eight

Note See Figure 6.13

C.10.1 Paragraph 37

The agenda of team meeting eight [10.001–10.26] was to provide details for learning units four through eight, plus the final project. A new team member (K) participated in this meeting.

Concerning unit seven [10.055–10.085] (units seven and eight were bundled together under the concepts *process and collaboration*), after a presentation of updated readings [10.055–10.05601], possible activities around the concept *reverse design* were discussed [10.057–10.08001] ← [10.057: designing requires that you choose an object and trace its progress back through the stages – 10.07301: Snapshots of different designers and looking at the process they use to achieve different outcomes – 10.079: I think we should be minimal, because they are not just concepts to memorize, they are concepts to feel, they have to practice the design in order to perform their exam and project – 10.07901: The ideas here can be lived by the students, for example a couple of design games]. To avoid becoming too abstract for inexperienced first year students, the exercise would be grounded in examples

and delivered as multiple choice [10.076–10.0771]. It was mentioned that unit eight was to be a synthesis of all previous units [10.081]. Unit seven would highlight the difference between *reflection on action* and *reflection in action* [10.082–10.08303] ← [10.082: Shoen’s example of reflection in action was, I think, a tight rope walker – 10.08406: Like to see a contrast of different kinds of design thinking].

Scope: 10.055–10.085.

All references: 10.055, 10.057, 10.076, 10.081, 10.082.

Singular references: 10.081.

Retrieved text: Appendix section D.9.1.

C.10.2 Paragraph 38

With respect to unit eight [10.086–10.126], the team debated the concepts of *process* [10.086–10.10901], including “feedback” [10.088–10.08901] ← [The core information: visibility, conceptual models, good mapping, and feedback], “acting/reacting” [10.09], “abstraction” [10.091–10.09201], and “solution probes the problem together with agile development” [10.093–10.107]. After touching on a time block in unit seven concerning the design process for that unit’s featured designer [10.111] ← [B bought the 20 min shopping cart video], the team discussed “formality vs. pragmatism” in the design process [10.112–10.12], touching on documentation [10.115], foresight [10.116], and returning to “agility vs. planning” [10.117–10.12]. The video of the design of a shopping cart was proposed to illustrate process [10.121–10.126], even though it was to be shown earlier in the course – students could provide more sophisticated answers about it the second time around [10.124].

Scope: 10.086–10.126.

All references: 10.086, 10.088, 10.09, 10.091, 10.093, 10.111, 10.112, 10.115, 10.116, 10.117, 10.121, 10.124.

Singular references: 10.09, 10.111, 10.115, 10.116, 10.124.

Retrieved text: Appendix section D.9.2.

C.10.3 Paragraph 39

Units five and six (design enables understanding, design invites inquiry) [10.127–10.187] ← [10.12902: Unit 8 is a synthesis of all previous] had the overall objective to “understand the nature of design problems” [10.13]. Unit five included the concepts “Designers search for design problems,” “The solution probes the problem,” “Crisis or failure creates opportunities for design,” and “Designers ask questions” [10.131–10.141]. Examples of and activities for the concepts were provided [10.142–10.172]. The issue came up that the examples generate big sprawling questions that could lead discussion away from the design process [10.156–10.163]. The unit six [10.173–10.187] ← [10.181: If we continue of moving from private to the world community (unit 8), the course is about them, their awareness of and relationship to design, why should they care; Course activities will flow from individual, to institutional to community; Design is social] concepts comprised the notions of *constraint* from both the Norman and the Lawson literature [10.174], including “planning for the future” [10.182–10.183]. An aspect of the overall object was to show that one problem can be articulated in terms of different constraints [10.17801]. Examples and activities that illustrate constraints were discussed [10.172, 10.184–10.187].

Scope: 10.127–10.187.

All references: 10.127, 10.13, 10.131, 10.142, 10.156, 10.173, 10.174, 10.182, 10.17801, 10.172, 10.184.

Singular references: 10.13, 10.174, 10.17801, 10.172.

Retrieved text: Appendix section D.9.3.

C.10.4 Paragraph 40

Finally, they discussed the “community project” [10.188–10.22]. It was to include a design competition – an exhibition of posters that were thematic conceptual responses (“mutation,” “sharing,” and “mobility” to perceived issues around the local commuter train station [10.189–10.19205]. Assessment would be based on both student archival documentation and output [10.19205]. The documentation process was discussed [10.193–10.208]. There were concerns about requiring the documentation to be *blogged* [10.193–10.206] ← [10.198: You want to engage the students in the first year in active, doing courses]. The review of posters

was discussed [10.209–10.221]. The main hall could hold quite a number, so the driver behind a selective competition was to inspire quality [10.213–10.216], and perhaps community exposure by inviting stakeholders in the train station, such as the mayor [10.217–10.22] ← [10.217: Project product: visual representation and recommendations, professional, juried, top presented at mayor’s office; A critical thinking idea is: who are the stakeholders, we have the everyday user, the mall, the police, the mayor’s office; We are creating good community thinkers].

Scope: 10.188–10.22.

All references: 10.189, 10.19205, 10.193, 10.209, 10.213, 10.217.

Singular references: 10.19205.

Retrieved text: Appendix section D.9.4.

C.10.5 Paragraph 41

The meeting wrapped up with agreement about the themes and exhibition [10.221–10.228] ← [10.22301: How has the image of this space been constructed in the news. What are the things that we know have happened. What are the things in this space that may or may not be a threat to safety], and some discussion about whether the project was structured enough [10.229–10.26]; i.e., frequency and specification of student reports [10.23–10.235], timing of presentations [10.236, 10.249–10.25], when to introduce the project [10.237–10.244] ← [10.239: Students brainstorm about public transportation irritants, identifying failures that could be grounds for redesign – 10.24: Developers pump women’s emancipation angle of washing machine, likely in search of new problems], and the logistics of poster printing [10.251–10.26] ← [10.257: Overall learning outcomes: adapt design thinking strategies to situations outside of the course].

Scope: 10.221–10.26.

All references: 10.221, 10.229, 10.23, 10.236, 10.249, 10.237, 10.251.

Singular references: 10.236.

Retrieved text: Appendix section D.9.5.

C.11 Team Meeting Nine

Note See Figure 6.14

C.11.1 Paragraph 42

The agenda for team meeting nine [11.001–11.197] was to provide details for learning units four, six, and eight, the final project, and to discuss a site for content, if it was not to be in WebCT [11.078]. But the meeting began with an announcement of the date for a “show and tell” to the program to obtain criticism and approval [11.008], plus a discussion of using WebCT [11.01–11.077] ← [11.039: The material for the folders can be looked at by someone toward answering the question: how could a repository support material of this kind? – 11.049: They have workshops, so outside should be reading; Complete component in workshop]. The issues touched on with respect to WebCT were customizing the look and feel [11.014, 11.019–11.021], getting content in and out and using WebCT as a repository [11.014–11.048], relation with face to face workshops [11.049–11.054], the scope of making announcements [11.055–11.06], setting up a “sandbox” environment [11.061], linking to content and navigation problems [11.063–11.072].

Scope: 11.001–11.078.

All references: 11.001, 11.078, 11.008, 11.01, 11.014, 11.019, 11.049, 11.055, 11.061, 11.063.

Singular references: 11.078, 11.008, 11.014, 11.061.

Retrieved text: Appendix section D.10.1.

C.11.2 Paragraph 43

Apple’s iWeb [11.08–11.083] ← [11.083: Date for show and tell: June 28] and JotSpot [11.084–11.097] (Google Sites, as of Feb 2008) were discussed as alternate content delivery technologies. JotSpot could be licensed for local servers, overcoming the Patriot Act limitations [11.084]. The administration was committed to WebCT [11.091], and the use of

other delivery methods would have to be consistent and grounded, and therefore warranted a separate discussion with the program head [11.088–11.089].

Scope: 11.08–11.097.

All references: 11.08, 11.084, 11.091, 11.088.

Singular references: 11.091.

Retrieved text: Appendix section D.10.2.

C.11.3 Paragraph 44

Work on unit eight was presented and then given feedback [11.103–11.136]. Its concepts comprised: guiding principles; the brief, the primary generator; generation of alternatives, parallel lines of thought; negotiation, framing [11.103]. Its *designer de jour* was the graphic designer [11.103]. The feedback included a discussion about the need to teach about prototyping, because it was a necessary concept for the assignment, yet there was only one week in which to teach about it [11.121–11.12502]. There was a discussion about scenario based design vs. design as conversation [11.126–11.134, 11.136]. Prototyping, as step in the design process, was felt to lead into unit nine (the beginning of the final project) [11.133–11.13503].

Scope: 11.103–11.136.

All references: 11.103, 11.121, 11.126, 11.136, 11.133.

Singular references: 11.136.

Retrieved text: Appendix section D.10.3.

C.11.4 Paragraph 45

Work on the final project was presented and then given feedback [11.137–11.197]. Judges had to be found to choose winning designs [11.138–11.141, 11.16–11.16102] ← [11.138: Before poster: internal competition, play-offs, 70+ teams]. The number of students per team had to be balanced against there being an unmanageable number of teams [11.142–11.146]. The students would need criteria by which to give feedback to each other [11.149–11.154,

11.162–11.16701] ← [11.16701: You want to engage the students in the first year in active, doing courses → (*red-flagging getting them to step back from process*)]. **How much freedom** the students could take in their interpretation had to be settled [11.155–11.159, 11.168–11.197] ← [11.155: Mutation: build the city over the city, transform, Sharing: re-format some space via fashion, engineering etc., Mobility: networks of mobility, network as forum for designing something new, as a catalyst for intensity, urbanity, commerce, or joy – 11.17001: Every element has to be front loaded – 11.172: People asked to respond to issue theme environment space function – 11.176: Introduce the project early on – 11.182: Terry Winograd metaphors of interaction with digital environments: manipulation = manipulation, mobility = locomotion, sharing = communication].

Scope: 11.137–11.197.

All references: 11.137, 11.138, 11.16, 11.142, 11.149, 11.162, 11.155, 11.168.

Singular references: None.

Retrieved text: Appendix section D.10.4.

Appendix D

Text Retrieved From Transcripts

This appendix includes text that was automatically retrieved from the transcripts, based on the paragraph scope.¹ It begins with a description on how to read the formatting of the retrieved text.

D.1 How to Read the Formatting of the Retrieved Text

A section of retrieved text stands for an imaginary dynamic user interface that the reader/distillate writer can use to explore the overall discourse. The annotations in the thick-description paragraphs would link to the respective information that is represented here.²

- (1.233) This is the unit number and text that the *calling text* immediately links to. This text is grayed out because it is adjunct to the reference (“1.234”), but provides context and is relevant enough that the user interface should make it available to the reader/distillate-writer. Any automatically collected text is, at a certain word count, ... [truncated]

(1.234) The calling text is the transcript material that a portion of the thick chunk was based on, and that contains links whose text is retrieved. The calling text is bolded, and its unit number is underlined, in order to indicate that this is the link between the reference in the thick chunk and the items that the system retrieved. This acts as a heading for the link

¹Paragraph scope: The swath of transcript units delimited by the first and last referenced transcript unit identification numbers from a thick-description paragraph.

²Thick-description paragraph: A close description of a section of transcripts that adheres to a high-level topic. Each statement is supported by references to transcript unit numbers. See Appendix C.

text that follows. As with everything else, a dynamic user interface would have more succinct methods of presentation.

← (0.5) This is the unit number and text of a direct link. [appeared before 1 times, at 0.333]

←← (0.4) This is the unit number and text of an indirect link.

←←N (0.3) This is the unit number and text of an even more indirect link.

→ (5.13903 5.15809 6.061 ... These are unit numbers that directly refer to the calling text. All direct and indirect forward links are minimized and grayed out in this presentation in order to conserve space and simplify reading. It is left to the reader/distillate-writer to peruse in that direction if desired. The reader/distillate-writer might scan the text by means of a simple rollover or some such device, and pursue interesting text by clicking on the link.)

→→ (7.066 7.10903 7.113 ... These are unit numbers that indirectly refer to the calling text)

N→→ (9.057 9.06505 9.07004 ... These are unit numbers that even more directly refer to the calling text)

- Context links based on the next (1.4) piece of calling text follow.

D.2 Design Meeting One

D.2.1 Paragraph Scope 2, 3.025–3.061

See Appendix section C.3.2.

- (3.02501) (Approved syllabus handed out) Course approved up to, but not including, the highest level—that should not be a problem.*3.02502 The program has been approved.*3.02503 The course is Design Thinking, and we-re ... [truncated]

(3.02504) We-re not married to the syllabus. *3.02505 This is to meet the needs of getting it approved.*3.02506 We are not married to these titles.*3.02507 What we have here is a series ... [truncated]

←← (2.138) [emailed attachment]C. [a university school] ReVis: Design Course Jan. 11, 2007[course number] Design Matters: Syllabus and Course Objectives Draft 2

←←N (2.136) [email]Hi D,The first draft of the design course proposal went to the committee, but twomembers had concerns about language (the use of certain terminology) andabout the clarity of objectives and learning ... [truncated]

←←N (2.027) C–Project Manager.

→→ (3.05702)

- (3.025) C: Like to put out a few questions and get ideas about what course could look like.
(3.026) Texts:
 ← (3.0040104) c. Design Experience.
- (3.02602) Ordered copies of -What Designers Know and How Designers Think-, as well as -The Design Process—talking about how designers use concept maps—it has concrete activities, so we may want to use ... [truncated]
(3.02603) Experiential learning: one of C-s goals for this course is that the assignments are memorable.*3.02604 Did we create an interesting experience for them, what would that look like.
 ← (3.0040110) 5. Course Objectives/Learning Outcomes.
 N→→ (3.02911)
- (3.031) B affirms the course package that can deal with the assignments in the project.
(3.032) C: Because we-re a spring course, but the goal is to have everything in Moodle and ready to go by the Fall.
 ← (3.00502) Also to talk about where the course is going to live, since we don-t have a CMS;*3.00503 we are going to be using a Moodle, so all [program in this school] folks are learning Moodle.
- **(3.046) Design Thinking: 3 themes: Design, technology, community.**
 ← (3.0040108) 3. Explore what we know about the course.
- (3.048) Constraint: Final Project (published in order to get approval for the course): Big [program in this school] idea about community building and being of service;*3.04801 team project where students will examine ... [truncated]
(3.04808) they may be in teams where they are looking through a particular designer lens, and we have wide class discussion where people coming from a particular design lens will speak—that-s all ... [truncated]
 ← (3.009) (1) Introductions: background, design lens, if you-ve worked on courses before, own sense of design thinking is at this point
- (3.053) There has been some discussion about whether first year students can do a project of this scale.
(3.054) C: Has not seen a model for a course like this, so perhaps we are generating something new.*3.05401 It will be a kind of collage of sorts.
 ← (3.0040104) [redundant]
 N→→ (3.05903)
- (3.054) C: Has not seen a model for a course like this, so perhaps we are generating something new.*3.05401 It will be a kind of collage of sorts.
(3.057) C: What kind of outcomes do we want. *3.05701 Does it matter to us that students leave and they feel like they have solved some kind of

puzzle, or really in ... [truncated]

← (3.0040110) [redundant]

N→→ (4.126 5.03604)

- (3.057) C: What kind of outcomes do we want. *3.05701 Does it matter to us that students leave and they feel like they have solved some kind of puzzle, or really in ... [truncated]

(3.05702) Not married to the syllabus;*3.05703 if we feel its too ambitious we can collapse material or take stuff out.

← (3.02504) We-re not married to the syllabus. *3.02505 This is to meet the needs of getting it approved.*3.02506 We are not married to these titles.*3.02507 What we have here is a series of big ideas, which were given to C by many colleagues, about what are the big ideas of design.*3.02508 That-s ... [truncated]

←← (2.138) [redundant]

- (3.057) [redundant]

(3.058) B: Its a breadth course, wide in scope;*3.05801 want to attract as many FTEs and numbers.*3.05802 that-s a guide or constraint: maintaining the breadth.

← (3.01602) Want to give the student a flavour of design as it applies to F.A.S. (<http://fas>).

- (3.059) C: We have more than enough big ideas. *3.05901 There are some ideas, like How is Design Evaluated;*3.05902 that is what is going to be running in the final weeks as ... [truncated]

← (2.13802) Big Ideas explored in the course:

D.2.2 Paragraph Scope 3, 3.06–3.09502

See Appendix section C.3.3

- (3.062) **IDEAS ABOUT WHAT WE THINK WE WOULD LIKE TO ACHIEVE.**

← (3.0040110) 5. Course Objectives/Learning Outcomes. [appeared before 2 times, at 3.057 3.02603]

→→ (3.081 3.082 3.087 4.07102 4.103 4.135 4.161 7.126 7.1461 8.053 10.08406)

N→→ (3.078)

- (3.064) B: We have 4 themes here.

(3.062) IDEAS ABOUT WHAT WE THINK WE WOULD LIKE TO ACHIEVE.

(3.065) G:.*3.066 Umbrella of this whole course: Design is all around us. *3.06601 This is integrated into every topic.*3.06602 Some of the topics are so integrated with the other weeks that its ... [truncated]

← (2.1380202) Design is all around us: the course explores how design facilitates our understanding of the world around us (how design helps us better understand the world around us/design helps us make meaning).

←←N (2.008001) Design is all around us.

→→ (4.082 5.039)

- (3.065) G:*3.066 Umbrella of this whole course: Design is all around us. *3.06601 This is integrated into every topic.*3.06602 Some of the topics are so integrated with the other weeks that its ... [truncated]

(3.068) 1. Design thinking: meta, breadth: understand problem;*3.06802 ideas 1-4 (from syllabus).

← (2.13802051) Design enables understanding: the course explores how designers (from different professions, backgrounds, disciplines) use design to visualize and make sense of the world they see and experience.

← (2.1380204) Design is historical: the course explores the importance of precedent in design (how examples, models, patterns or standards) reflect learning and critical thinking.

← (2.1380203) Design is social: the course explores how design is used to facilitate communication with others/Audience (design is out in the open, design helps us communicate more effectively with others in our homes, workplaces and community/ how design better helps us understand each other/how design helps us agree on meanings).

← (2.1380202) [redundant]

- (3.065) [redundant]

(3.0680201) Design processes: done through examples and bringing people in to talk about it: problem solve;*3.0680302 ideas 5-8;*3.0680403 collaboration could be part of that, and also through out the whole theme of ... [truncated]

← (2.1380209) Design is collaborative: the course explores the idea that design requires more expertise than resides in any one person-s head and that part of testing and understanding designs is the recognition of the need to connect and collaborate with others. The design and testing cycle is improved by the generation and ... [truncated]

← (2.1380208) Design is made by doing: this course explores how the making of artefacts requires skill and development of skill.

← (2.13802071) Design is a process: this course explores how the making of artefacts (ideas, words, physical materials, virtual images) facilitates the development of ideas (how designers must generate ideas and test them/ utilize an iterative design and testing cycle).

← (2.1380206) Design invites inquiry: this course explores how designers use design to visualize and to manipulate ideas under consideration/ how design is used as a tool in their own practice/discipline.

- (3.065) [redundant]

(3.0680504) **-Who is a Designer?- is not a necessary question.**

← (2.1380205) Who Does Design?

- (3.065) [redundant]

(3.0680601) **3. Design evaluation: project: evaluate solution;*3.0680702 ideas 10-13. Based on process and examples, what are the things you look for, so they will know the things that they have to consider. ... [truncated]**

← (2.1380213) Design begs Joy of Use: the course explores how good designs are measured by how they contribute to the quality of life for users (pleasure, safety, knowledge, etc.) and their communities.

← (2.1380212) Design puts Ethos before Ego: the course explores how good designs are measured by the quality of ideas they provoke and invoke rather than the ego of the designer.

← (2.1380211) Design satisfies its Audience: the course explores the complexity of the design audience and how successful design satisfies all stakeholders and users (rarely a single end user)/how the work succeeds in the world.
- (3.065) [redundant]

(3.069) **Design matters means design thinking;*3.06901 design is all around us and that is why is does matter.**

← (2.1380202) [redundant]
- (3.08) G: But its critical to understand that everybody has been trained differently, so everybody has to negotiate how to solve a problem.

(3.079) J: Multiple disciplines looking in the same general direction but with different lenses or perspectives.

(3.081) **C: It is important to understand that we are not all going to have the same understanding of the process, and is doesn-t mean that the umbrella is going to be ... [truncated]**

← (3.062) [redundant]

←← (3.0040110) [redundant]
- (3.082) **B:.*3.083 Software development.*3.0840101 1. Design thinking: capture the user requirements, understanding the problem, what am I trying to build;*3.0840202 project spec.s.*3.0840401 2. Design process: the development itself, the spiral model, the ... [truncated]**

← (3.062) [redundant]

←← (3.0040110) [redundant]

→→ (4.103 4.135)
- (3.078) G: I see the ingredients as the design process;*3.07801 design thinking comes from various different disciplines.*3.07802 If an engineer, industrial designer, and architect—we all come from a different design thinking;*3.07803 how ... [truncated]

(3.087) D: *3.088 Agrees with G about design thinking;*3.08801 like to see a contrast of different kinds of design thinking. *3.08802 E.g., a team might exercise discipline in postponing evaluation of all ... [truncated]

← (3.062) [redundant]

←← (3.0040110) [redundant]

←←N (3.07) J: *3.071 Design as Recipes.*3.072 1. Design thinking: What ingredients and tools do we have available.*3.0720201 2. Design process: What recipes and combinations can we make use of.*3.0720301 3. Design evaluation: Does ... [truncated]

→→ (4.07102 4.161 7.126 7.1461 8.053 10.08406)

N→→ (3.09502)

D.2.3 Paragraph Scope 4, 3.096–3.118

See Appendix section C.3.4

- (3.096) (ASSIGNMENT) Explore your view of design in relation to the proposed syllabus and to bring your results to our meeting. *3.09701 How we see.*3.09702 Mess up the syllabus.

← (3.00901) 2) For this meeting there are not going to be any definitive answers about anything, I would like us to get to know each other a little bit and explore what we think this course could look like, before we start jumping into objects and things like that.

← (3.0040110) 5. Course Objectives/Learning Outcomes. [appeared before 6 times, at 3.087 3.082 3.081 3.062 3.057 3.02603]

→→ (4.123)

- (3.098) (Learning and Instructional Design Centre ([org associated with the school] [http://newsite.\[org associated with the school\]./\[org associated with the school\]](http://newsite.[org associated with the school]./[org associated with the school])])

← (3.0040111) 6. [org associated with the school] Support 1:15-2:00 (Cy and V).

- (3.098) (Learning and Instructional Design Centre ([org associated with the school] [http://newsite.\[org associated with the school\]./\[org associated with the school\]](http://newsite.[org associated with the school]./[org associated with the school])])

(3.102) C: This course has already been set up as weekly and face to face.*3.10201 But all of the course material is going to be online.*3.10202 Part of our process is going ... [truncated]

← (3.00502) Also to talk about where the course is going to live, since we don-t have a CMS;*3.00503 we are going to be using a Moodle, so all [program in this school] folks are learning Moodle. [appeared before 1 times, at 3.032]

← (3.0040111) [redundant]

←←N (1.035) C will be the team leader and project manager;
 →→ (7.071)

D.3 Design Meeting Two

D.3.1 Paragraph Scope 5, 4.049–4.07201

See Appendix section C.4.1

- (4.048) 1. Team Management: Updates.
 (4.049) **S: [an organization associated with the school] instructional designer (10 hours per week). *4.05 –10 hours for both courses, but we are getting all the 10 hours presently.**
 ← (3.37002) 1. S – LIDC instructional designer (10 hours per week)
- (4.048) [redundant]
 (4.052) **Research Server Space (see Agenda above):**
 ← (3.37003) 2. Research Server Space Here is the information you need to log onto the [] server space. Server name: ftp://[] For guest/shared account use the server name plus Username: guest Password: guest
- (4.07101) Which indicates how surveyish the course has to be.
 (4.07102) **Not about any one kind of designer expertise, because we could jam up every section with who is going to teach this.**
 ← (3.09502) Part of our job is how do we fit them with a lens. *3.09503 Its only a 13 week course. *3.09504 We have to think about how do we do that. *3.09505 How do you get 300 kids in the course to get that. *3.09506 JF wanted the students to have a taste of ... [truncated]
 ← (3.094) C: We know there are different kinds of design thinking depending on the context. *3.09401 There are different ways of talking about how design happens, so we're working with metaphors right now. *3.095 There are different ways of talking about, of seeing. *3.09501 This is the core we need to get across to students, ... [truncated]
 ← (3.087) D: *3.088 Agrees with G about design thinking; *3.08801 like to see a contrast of different kinds of design thinking. *3.08802 E.g., a team might exercise discipline in postponing evaluation of all the solutions until they feel the number of solutions has been exhausted, and then go into an evaluation. *3.089 In software ... [truncated]
 ← (3.078) G: I see the ingredients as the design process; *3.07801 design thinking comes from various different disciplines. *3.07802 If an engineer, industrial designer,

and architect—we all come from a different design thinking;*3.07803 how were we trained to problem solve.*3.07804 I see the design thinking as more of a problem solving topic.*3.07805 Then in ... [truncated]

← (3.01402) The one that J keyed in on is a cultural model of a remix environment where you-re taking building blocks and taking mixes, frames and perspectives of what you-re doing as a way to interact with digital culture or other types of cultural interactions. *3.01403 What is useful about that for ... [truncated]

←← (3.062) IDEAS ABOUT WHAT WE THINK WE WOULD LIKE TO ACHIEVE. [appeared before 3 times, at 3.087 3.082 3.081]

←← (3.0040110) 5. Course Objectives/Learning Outcomes. [appeared before 7 times, at 3.096 3.087 3.082 3.081 3.062 3.057 3.02603]

D.3.2 Paragraph Scope 6, 4.077–4.10205

See Appendix section C.4.2

- (4.077) 2. Design Activity: How do you see the course?. *4.078 What kind of lens you [each team member] use to see design;*4.07801 if you were to walk through the syllabus, what ... [truncated]
 - ← (4.001) Design Thinking: Meeting Notes: 26 Feb 2007.
 - (4.129 4.136 4.153)
- (4.077) 2. Design Activity: How do you see the course?. *4.078 What kind of lens you [each team member] use to see design;*4.07801 if you were to walk through the syllabus, what ... [truncated]
 - (4.08) a. Each team member will briefly discuss the course syllabus through his/her design lens.
 - ← (3.3701) 2. Design Activity: How do you see the course? 1. Each team member will briefly discuss the course syllabus through his/her design lense(s) 2. Where are the overlaps? Intersections? Differences?
- (4.081) G: PPT presentation.
 - (4.082) –Further pushed idea of Big Umbrella
 - ← (3.065) G:.*3.066 Umbrella of this whole course: Design is all around us. *3.06601 This is integrated into every topic.*3.06602 Some of the topics are so integrated with the other weeks that its hard to separate.*3.067 The big ideas overlap.
 - ←← (2.1380202) Design is all around us: the course explores how design facilitates our understanding of the world around us (how design helps us better understand the world around us/design helps us make ... [truncated] [appeared before 3 times, at 3.069 3.068 3.065]

D.3.3 Paragraph Scope 7, 4.103–4.129

See Appendix section C.4.3

- (4.077) 2. Design Activity: How do you see the course?. *4.078 What kind of lens you [each team member] use to see design;*4.07801 if you were to walk through the syllabus, what ... [truncated]
 - (4.103) **6 copies of thoughts.**
 - ← (3.082) B.*3.083 Software development.*3.0840101 1. Design thinking: capture the user requirements, understanding the problem, what am I trying to build;*3.0840202 project spec.s.*3.0840401 2. Design process: the development itself, the spiral model, the waterfall model.*3.0840502 Use requirements to do high level design, detailed design, coding of the functionality.*3.0840601 3. Design evaluation: testing, at ... [truncated]
 - ←← (3.062) IDEAS ABOUT WHAT WE THINK WE WOULD LIKE TO ACHIEVE. [appeared before 4 times, at 4.07102 3.087 3.082 3.081]
 - ←← (3.0040110) 5. Course Objectives/Learning Outcomes. [appeared before 8 times, at 4.07102 3.096 3.087 3.082 3.081 3.062 3.057 3.02603]
 - (4.135)
- (4.103) 6 copies of thoughts.
 - (4.104) **The KISS protocol [(-Keep It Simple, Stupid-) TNC provides direct computer to TNC communication using a simple protocol ...].*4.105 starting with original syllabus, keeping in mind the main ... [truncated]**
 - ← (2.1380208) Design is made by doing: this course explores how the making of artefacts requires skill and development of skill. [appeared before 1 times, at 3.0680201]
 - ← (2.13802071) Design is a process: this course explores how the making of artefacts (ideas, words, physical materials, virtual images) facilitates the development of ideas (how designers must generate ideas and test them/ utilize an iterative design and testing cycle). [appeared before 1 times, at 3.0680201]
 - ← (2.13801) Course Description: INTD120 is a breadth course that explores the role design and designer play in the world around us.
- (4.103) [redundant]
 - (4.107) **week 3 Design is Social: there is an element from the original syllabus, plus understanding people and introduction to cognitive psychology, and perception and mental models there, visual perception. *4.108 the ... [truncated]**
 - ← (2.1380203) Design is social: the course explores how design is used to facilitate communication with others/Audience (design is out in the open, design helps us communicate more effectively with others in our homes, workplaces and community/ how

design better helps us understand each other/how design helps us agree on meanings).
[appeared before 1 times, at 3.068]

- (4.103) [redundant]

(4.109) **Who is a designer, week 4: combination of weeks 5 and 6 from the original syllabus—Design enables understanding and invites inquiry.*4.10901 Kept main topics, just under one week.**
← (2.1380205) Who Does Design? [appeared before 1 times, at 3.0680504]
- (4.103) [redundant]

(4.11) **How Design is done, week 5: get into design as a process; *4.11001 software process—exploring different phases in that process, review the different models—the spiral model, the waterfall model, the iterative . . . [truncated]**
← (2.1380207) How Does Design Happen?
- (4.103) [redundant]

(4.111) **Week 6, Design is made by doing: present principles of software design, give examples—correctness, usability, reliability, utility, efficiency.*4.11101 In the original syllabus there is The Making of Artifacts Requires Skill, . . . [truncated]**
← (2.1380208) [redundant]
- (4.103) [redundant]

(4.113) **Design is collaborative: add quality assurance. *4.11301 You need different expertise, different personnel.*4.11302 Not only designing, testing, coding, and implementing, but also quality assurance.*4.11303 This is a collaborative endeavour.**
← (2.1380209) Design is collaborative: the course explores the idea that design requires more expertise than resides in any one person-s head and that part of testing and understanding designs is the recognition of the need to connect and collaborate with others. The design and testing cycle is improved by the generation and . . . [truncated]
[appeared before 1 times, at 3.0680201]
- (4.103) [redundant]

(4.114) **Design evaluation: keep week 10 description there; *4.11401 add explore the software testing usability strategies.*4.11402 There mare myriad techniques—could pick a couple of those.*4.115 11 and 12: keep the same;*4.11501 add . . . [truncated]**
← (2.138021) How Is Design Evaluated?
- (4.104) The KISS protocol [(-Keep It Simple, Stupid-) TNC provides direct computer to TNC communication using a simple protocol . . .].*4.105 starting with original syllabus, keeping in mind the main . . . [truncated]

(4.11601) **The guide is the breadth, otherwise we would get into programming and programming languages.**

← (2.13801) [redundant]

- (4.104) [redundant]

(4.12) **B: In the first syllabus I liked the beginning and the end: I changed the heart of the design process—weeks 5-8;**

←← (2.138) [emailed attachment]C. [a university school] ReVis: Design Course Jan. 11, 2007[course number] Design Matters: Syllabus and Course Objectives Draft 2 [appeared before 2 times, at 3.05702 3.02504]

- (4.122) G: It-s just that there are not very many weeks, and if you want them to work on that project—3 or 4 weeks to work on that project.

(4.104) [redundant]

(4.123) **C: But we already know that this is not the syllabus.**

← (3.096) (ASSIGNMENT) Explore your view of design in relation to the proposed syllabus and to bring your results to our meeting. *3.09701 How we see.*3.09702 Mess up the syllabus.

←← (3.00901) 2) For this meeting there are not going to be any definitive answers about anything, I would like us to get to know each other a little bit and explore what ... [truncated] [appeared before 1 times, at 3.096]

←← (3.0040110) [redundant]

- (4.125) G: I thinking all this should be taught before these last 4 weeks.

(4.126) **C: So we want to think about our toolkit.*4.12601 What are the core ideas;*4.12602 if we-re going to use terms like principles, frameworks, models, whatever;*4.12603 when we come to our weekly ... [truncated]**

← (3.05903) We have 4 hours of class time (does not mean the classes are 4 hours each), we have 4 hour blocks that can be broken up.*3.05904 We are very conscious unpacking the toolkit that comprises the beginning of the course.*3.05905 We may do more work-shopping and discussing—we are free to play ... [truncated]

←←N (4.122) [redundant]

←←N (3.057) C: What kind of outcomes do we want. *3.05701 Does it matter to us that students leave and they feel like they have solved some kind of puzzle, or really in ... [truncated]

→→ (5.03604 5.13903 5.15809 6.061 7.066 7.10903 7.113 7.159 8.032 8.185 9.0001 9.057 9.06505 9.07004 9.075 9.083 9.085 9.11 9.11304 9.145 9.17 11.17001)

- (4.11901) I see from week 5 to week 8 talking about software design.*4.11902 To give just an hour and a half overview of it.*4.11903 I think you can tell the whole story ... [truncated]

(4.129) **J. Appreciated how B kept the front end and back end of the course, but asked what would a software designer do for that middle section;*4.12901 what would a graphics person ... [truncated]**

← (4.077) [redundant]

←← (4.001) Design Thinking: Meeting Notes: 26 Feb 2007. [appeared before 1 times, at 4.077]

D.3.4 Paragraph Scope 8, 4.136–4.149

See Appendix section C.4.4

- (4.136) **J. Marked up C-s initial syllabus according to the 3 levels: three level object conceptual model talked about with recipe metaphor:**

← (4.077) 2. Design Activity: How do you see the course?. *4.078 What kind of lens you [each team member] use to see design;*4.07801 if you were to walk through the syllabus, what might your interpretations be. [appeared before 1 times, at 4.129]

←← (4.001) Design Thinking: Meeting Notes: 26 Feb 2007. [appeared before 2 times, at 4.129 4.077]

- (4.141) Each of those levels can have an aspect of design. *4.14101 You can design the end artefact, but you can also design the recipe.*4.14102 You can design the frame of view ... [truncated]

(4.14103) **you can tweak how you want somebody to be engaged in the environment, for different purposes or different audiences.**

← (3.07) J.:*3.071 Design as Recipes.*3.072 1. Design thinking: What ingredients and tools do we have available.*3.0720201 2. Design process: What recipes and combinations can we make use of.*3.0720301 3. Design evaluation: Does it taste good;*3.0720402 is it filling etc.?^{*}3.073 Tasting is a method of testing;*3.07301 filling is the evaluation of the test.*3.074 ... [truncated] [appeared before 1 times, at 3.087]

← (3.01402) The one that J keyed in on is a cultural model of a remix environment where you-re taking building blocks and taking mixes, frames and perspectives of what you-re doing as a way to interact with digital culture or other types of cultural interactions. *3.01403 What is useful about that for ... [truncated] [appeared before 1 times, at 4.07102]

← (2.13802051) Design enables understanding: the course explores how designers (from different professions, backgrounds, disciplines) use design to visualize and make sense of the world they see and experience. [appeared before 1 times, at 3.068]

← (2.1380203) Design is social: the course explores how design is used to facilitate communication with others/Audience (design is out in the open, design helps us communicate more effectively with others in our homes, workplaces and community/ how

design better helps us understand each other/how design helps us agree on meanings).
[appeared before 2 times, at 4.107 3.068]

D.3.5 Paragraph Scope 9, 4.153–4.164

See Appendix section C.4.5.

- (4.153) **D. General thoughts, having difficulty pulling the syllabus into;**
 ← (4.077) 2. Design Activity: How do you see the course?. *4.078 What kind of lens you [each team member] use to see design;*4.07801 if you were to walk through the syllabus, what might your interpretations be. [appeared before 1 times, at 4.136]
 ←← (4.001) Design Thinking: Meeting Notes: 26 Feb 2007. [appeared before 2 times, at 4.136 4.077]
- (4.153) D. General thoughts, having difficulty pulling the syllabus into;
 (4.161) **So I want the students to be self conscious about design thinking and what kind of a process is appropriate to the situation, so maybe we can create problems where different ... [truncated]**
 ← (3.087) D: *3.088 Agrees with G about design thinking;*3.08801 like to see a contrast of different kinds of design thinking. *3.08802 E.g., a team might exercise discipline in postponing evaluation of all the solutions until they feel the number of solutions has been exhausted, and then go into an evaluation.*3.089 In software ... [truncated] [appeared before 1 times, at 4.07102]
 ← (2.1380302) Interrogate the term -design- the contextual nature of its meanings.
 ←← (3.062) IDEAS ABOUT WHAT WE THINK WE WOULD LIKE TO ACHIEVE. [appeared before 5 times, at 4.103 4.07102 3.087 3.082 3.081]
 ←← (3.0040110) 5. Course Objectives/Learning Outcomes. [appeared before 9 times, at 4.103 4.07102 3.096 3.087 3.082 3.081 3.062 3.057 3.02603]
- (4.163) C: There-s learn and apply;*4.16301 transferring is more active.*4.16303 Every [a program at the school] course has a set of transferable skills.*4.16304 [D-s interpretation of C-s idea: transferring a skill is ... [truncated]
 (4.164) **C: this is were the idea of packaging the tool kit could be really helpful;*4.16401 because there-s a self-consciousness around your learning skills that you can apply elsewhere.**
 ← (3.05903) We have 4 hours of class time (does not mean the classes are 4 hours each), we have 4 hour blocks that can be broken up.*3.05904 We are very conscious unpacking the toolkit that comprises the beginning of the course.*3.05905 We may do more work-shopping and discussing—we are free to play ... [truncated]

D.3.6 Paragraph Scope 10, 4.17–4.172

See Appendix section C.4.6.

- (4.17) **Action: Read the Norman textbook (our official text) and note specifically where sections/chapters map onto major course ideas. *4.171 Also Try to map the ideas that came up today.**
 ← (3.37012) 4. Next Meeting Prep: 1. Next meeting in 2 weeks: Monday, March 12 11am-2pm 2. Action: Read the Norman textbook (our official text) and note specifically where sections/chapters map onto major course ideas.
 →→ (5.048)
- (4.172) **Action: Next week C will meet with S to create an outline for developing weekly course objectives, assignment objectives and assignments.**
 ← (3.37013) 1.Action: Next week C will meet with S to create an outline for developing weekly course objectives, assignment objectives and assignments.
 ←←N (3.37002) 1. S – LIDC instructional designer (10 hours per week) [appeared before 1 times, at 4.049]
 →→ (5.036 8.132)

D.4 Design Meeting Three

D.4.1 Paragraph Scope 11, 5.03–5.03702

See Appendix section C.5.1.

- (5.033) **Signing of consent forms.**
 ← (4.068) [re: agenda item -Ethics responsibilities with respect to D-s research and the use of a tape recorder in our sessions-.Research agenda, ethics approval, and consent forms discussed]
- (5.036) **C: Re: Review course instructional design strategy: met last week: the 2 ID people from both teams will work together so that we have something that all the teams can use. ... [truncated]**
 ← (4.172) Action: Next week C will meet with S to create an outline for developing weekly course objectives, assignment objectives and assignments.
 ←← (3.37013) 1.Action: Next week C will meet with S to create an outline for developing weekly course objectives, assignment objectives and assignments. [appeared before 1 times, at 4.172]

N→→ (5.03603 5.03604 5.03605 8.032 9.083)

- (5.03602) We will also have a weekly template, that has the big idea, the title, the object for that week is, what that assignment or activity for that week might be, and ... [truncated]

(5.03604) **The first 8 weeks we are building a toolkit, and the last 4 weeks we are putting the tool kit into action.**

← (4.126) C: So we want to think about our toolkit.*4.12601 What are the core ideas;*4.12602 if we-re going to use terms like principles, frameworks, models, whatever;*4.12603 when we come to our weekly material, we can think about what 1 or 2 tools do we want them to leave with, this week, from ... [truncated]

← (3.05903) We have 4 hours of class time (does not mean the classes are 4 hours each), we have 4 hour blocks that can be broken up.*3.05904 We are very conscious unpacking the toolkit that comprises the beginning of the course.*3.05905 We may do more work-shopping and discussing—we are free to play ... [truncated] [appeared before 2 times, at 4.164 4.126]

←←N (5.036) C: Re: Review course instructional design strategy: met last week: the 2 ID people from both teams will work together so that we have something that all the teams can use. ... [truncated]

←←N (3.057) C: What kind of outcomes do we want. *3.05701 Does it matter to us that students leave and they feel like they have solved some kind of puzzle, or really in ... [truncated] [appeared before 1 times, at 4.126]

→→ (5.13903 5.15809 6.061 7.066 7.10903 7.113 7.159 8.032 8.185 9.0001 9.057 9.06505 9.07004 9.075 9.083 9.085 9.11 9.11304 9.145 9.17 11.17001)

D.4.2 Paragraph Scope 12, 5.038–5.076

See Appendix section C.5.2.

- (5.038) D: Found the Norman book a bit of a stretch [to connect with the many of the big ideas]—rather we should obtain some gems to use.

(5.03606) Re: The Design of Everyday Things: The everydayness of it is incredibly useful for students.

(5.039) **C: Re: Norman book: It feels like a tool kit (B: user centred), but the tools are not necessarily clear.**

← (3.065) G: *3.066 Umbrella of this whole course: Design is all around us. *3.06601 This is integrated into every topic.*3.06602 Some of the topics are so integrated with the other weeks that its hard to separate.*3.067 The big ideas overlap. [appeared before 1 times, at 4.082]

←← (2.1380202) Design is all around us: the course explores how design facilitates our understanding of the world around us (how design helps us better understand

the world around us/design helps us make ... [truncated] [appeared before 4 times, at 4.082 3.069 3.068 3.065]

- (5.04403) **But how cog sci do we want to be? It-s not our job to get into it [cog sci].*5.04404 This is a thinking course, so we-re going to look at ways ... [truncated]**
 ← (2.1380204) Design is historical: the course explores the importance of precedent in design (how examples, models, patterns or standards) reflect learning and critical thinking. [appeared before 1 times, at 3.068]
- (5.047) B: [mentions some bits a pieces from the book that could fit, and the lightness of the language].
 (5.048) **C: This is first year readable.*5.04801 Other courses here are using this book as well.*5.04802 There are places that can map.**
 ← (4.17) Action: Read the Norman textbook (our official text) and note specifically where sections/chapters map onto major course ideas. *4.171 Also Try to map the ideas that came up today.
 ←← (3.37012) 4. Next Meeting Prep: 1. Next meeting in 2 weeks: Monday, March 12 11am-2pm 2. Action: Read the Norman textbook (our official text) and note specifically where sections/chapters map onto major ... [truncated] [appeared before 1 times, at 4.17]
- (5.046) C: Not everything fits.
 (5.04808) **He doesn-t talk about precedent.**
 ← (2.1380204) [redundant]
- (5.053) C: He says we need people in teams to bridge the differences, but still separates professional designers.
 (5.05301) **We need to be clear about what is a designer.**
 ← (2.1380205) Who Does Design? [appeared before 2 times, at 4.109 3.0680504]
- (5.055) C: I agree with you.*5.05501 The interest at a first year level is the concentration of things.*5.05502 What we need to get clear about is helping our students to read this ... [truncated]
 (5.05503) **How do we address this text critically.**
 ← (2.1380204) [redundant]
- (5.067) **C: The reading has to count, has to be appropriate for the course material.**
 ← (5.045) B: When I looked at the syllabus, it was an exercise how can I sprinkle some of these principles in some of the weeks-looking for a fit between Norman and the course, with variable success.
 N→→ (5.136)

- (5.067) C: The reading has to count, has to be appropriate for the course material.
(5.058) C: This book reads out of date.*5.05801 Does the dating of this book somehow undermine our credibility.
(5.06701) How married are we going to be to this terminology. *5.06702 Are Norman-s terms mappable to other terms?.
← (5.03608) Unless we are very clear about the language, the terminology, and limitations of the book—book will influence the delivery of the material.
←←N (5.057) B: Re: the separation of designers and engineers: The book was written in the late 80-s;*5.05701 he-s talking about the status-quo.
→→ (5.136 6.17102 9.053)
N→→ (5.07 5.076)
- (5.07) C: That-s a good question. *5.07001 That-s how we start thinking about these terms, though.*5.07002 Do they work across the board.
(5.071) D: I think some do and some don-t.
← (5.046) [redundant]
- **(5.073) C: Re: the idea of the conceptual model. *5.07301 But this course will also have to provide conceptual models for reading and understanding this course—it has to be that transparent. ... [truncated]**
← (5.043) B: He doesn-t address every principle in detail. *5.04301 He does for a couple, like the 7 stages of action.*5.04302 To go through an iterative process of applying constraints to decide whether the information structure is narrow and deep, or shallow and wide.
← (3.02605) One of the goals for this course is that our design is transparent;*3.02606 we want them to see that this course was designed with a set of objects, and the activities are designed in a way for you to have an experience but also be able to use the principles that ... [truncated]
←←N (5.042) C: He-s got them [usability design principles] at a higher level.
→→ (5.116 5.145 7.128 9.057 9.06505 9.085 9.11 9.11304 9.17)
- (5.074) D: This book is useful at saying there is such a thing as a conceptual model, and here is an example of one, and then we can go on.
(5.075) C: That-s what I appreciate about it.*5.07501 It gives us these umbrella points, and then we can decide where we focus the lens or develop it.
← (5.03902) We can use Norman as a way of opening a discussion about the everydayness of design. *5.03903 Use his ideas as umbrella ideas.*5.03904 Then find other ideas to talk about process.
- (5.074) [redundant]
(5.069) D: Let-s focus on affordances. (I love the idea of affordances, by the way.) In designing a business process, where does the idea of affordance come in?.

(5.076) C: We are in agreement that we can go to Norman for higher level ideas, and then we can begin to flush those ideas out with other kinds of readings or ... [truncated]

← (5.058) [redundant]

← (5.04805) Also moving beyond the object.*5.04806 [The Norman book] is located in objects, in products.*5.04807 Good early on for students to interrogate the things around them.

← (5.041) B: It does touch on some principles that are useful in this course—he talks about them in the first few pages of the book.

←←N (5.06701) How married are we going to be to this terminology. *5.06702 Are Norman-s terms mappable to other terms?.

←←N (5.057) [redundant]

←←N (5.047) [redundant]

←←N (5.04) D: It-s kind of a list of best practices or criteria that should be in an interface—stress on user interface.

→→ (5.11 5.114 5.124 5.135 5.139 5.14 6.17102 7.109031 7.125 8.032 8.185 9.0001 9.052 9.057 9.06505 9.07004 9.075 9.083 9.085 9.11 9.11304 9.145 9.17 11.17001)

D.4.3 Paragraph Scope 13, 5.07801–5.13903

See Appendix section C.5.3.

- (5.07801) Chapter 1 I see in week 2. *5.07802 Which maps to Design is all around us.
 - ← (5.045) B: When I looked at the syllabus, it was an exercise how can I sprinkle some of these principles in some of the weeks—looking for a fit between Norman and the course, with variable success. [appeared before 1 times, at 5.067]
 - ← (5.03902) We can use Norman as a way of opening a discussion about the everydayness of design. *5.03903 Use his ideas as umbrella ideas.*5.03904 Then find other ideas to talk about process. [appeared before 1 times, at 5.075]
 - ← (5.038) D: Found the Norman book a bit of a stretch [to connect with the many of the big ideas]—rather we should obtain some gems to use.
 - ← (2.1380202) Design is all around us: the course explores how design facilitates our understanding of the world around us (how design helps us better understand the world around us/design helps us make meaning). [appeared before 5 times, at 5.039 4.082 3.069 3.068 3.065]
- (5.081) D: For week 2, I also had a snippet from chapter 2, cultural constraints. *5.08101 Also marked down chapter 3—knowledge in the head and in the world.

(5.08103) **Chapter 6 also.**

← (2.1380203) Design is social: the course explores how design is used to facilitate communication with others/Audience (design is out in the open, design helps us communicate more effectively with others in our homes, workplaces and community/ how design better helps us understand each other/how design helps us agree on meanings). [appeared before 3 times, at 4.14103 4.107 3.068]

- (5.082) **C: That-s the thing about this book is its in bits an pieces.**

← (5.03606) Re: The Design of Everyday Things: The everydayness of it is incredibly useful for students.

← (2.1380202) [redundant]

- (5.086) C: Chapter 6 is coming up for all of us for near the beginning of the course.

(5.08601) **And chapter 1 as an introduction to the course.**

← (2.1380202) [redundant]

- (5.08601) And chapter 1 as an introduction to the course.

(5.087) **D: a snippet from chapter 2–cultural constraints, and chapter 3 Knowledge in the head and knowledge in the world–how social is that?.**

← (2.1380203) [redundant]

- (5.087) D: a snippet from chapter 2–cultural constraints, and chapter 3 Knowledge in the head and knowledge in the world–how social is that?.

(5.088) **C: I put down that chapter 3 should come near the beginning also, because we have to look at our own thinking habits–looking at the way we think, how do yo ... [truncated]**

← (2.1380204) Design is historical: the course explores the importance of precedent in design (how examples, models, patterns or standards) reflect learning and critical thinking. [appeared before 4 times, at 5.05503 5.04808 5.04403 3.068]

- (5.076) C: We are in agreement that we can go to Norman for higher level ideas, and then we can begin to flush those ideas out with other kinds of readings or ... [truncated]

(5.09) **C: S and I are going to mock up the first two weeks.**

← (5.03605) Want the templates up ahead of time, so we all have the same understanding of the kind of information we are looking for.

←←N (5.074) D: This book is useful at saying there is such a thing as a conceptual model, and here is an example of one, and then we can go on.

←←N (5.069) D: Let-s focus on affordances. (I love the idea of affordances, by the way.) In designing a business process, where does the idea of affordance come in?.

←←N (5.03602) We will also have a weekly template, that has the big idea, the title, the object for that week is, what that assignment or activity for that week might be, and ... [truncated]

→→ (6.061)

- (5.09101) We agree about certain kinds of designs so we can function together. *5.09102 When design is bad, when we misinterpret, that-s when we have problems.
 (5.09105) **I think that-s important in making the connection to your community. *5.09106 Design helps us become community members.**
 ← (2.1380203) [redundant]
- (5.093) [team looks up mention of standards in Norman] (C: Designers are not typical users-I like that idea.
 (5.09301) **D: I put that one in Design is collaborative, because you need to collaborate with other people who are not designers in order to complete the design).**
 ← (2.1380209) Design is collaborative: the course explores the idea that design requires more expertise than resides in any one person-s head and that part of testing and understanding designs is the recognition of the need to connect and collaborate with others. The design and testing cycle is improved by the generation and ... [truncated] [appeared before 2 times, at 4.113 3.0680201]
 N→→ (5.1)
- (5.092) D: We-re touching on the development of standards.
 (5.09403) **The idea of standards could be at the beginning of Design is Social—the difference between a pen working in your hand and knowing hot and cold, which, if you don-t know, ... [truncated]**
 ← (2.1380203) [redundant]
- (5.09105) I think that-s important in making the connection to your community. *5.09106 Design helps us become community members.
 (5.095) **C: Re: Norman cranky: he often talks about design as captive or constrained. *5.096 Parts of chapter 6 can go into Design is Social, but we need to open this discussion ... [truncated]**
 ← (5.058) C: This book reads out of date.*5.05801 Does the dating of this book somehow undermine our credibility. [appeared before 1 times, at 5.076]
 ← (5.051) C: One concern is his critical grouchiness.*5.05101 It-s good for a critical thinking course because we-re looking at the position that this writer is taking, but I have a concern about the general way he talks about design and designers—separates them from engineers and computer programmers.
- (5.099) Re: Collaborative: D: because designers are a special audience then the designer must collaborate with people who are not designers in order to complete the design. *5.09901 —That-s awfully oblique. ... [truncated]
 (5.1) **C: There-s a reference to teams, but there-s no discussion of teams. *5.10001 There-s reference to collaboration, but there-s no discussion of collaboration.**

← (5.046) C: Not everything fits. [appeared before 1 times, at 5.071]

← (5.045) [redundant]

← (2.1380209) [redundant]

←←N (5.09301) D: I put that one in Design is collaborative, because you need to collaborate with other people who are not designers in order to complete the design).

←←N (5.038) [redundant]

←←N (2.1380207) How Does Design Happen? [appeared before 1 times, at 4.11]

←←N (2.00801) Coming up with design ideas and testing them is never done alone.

→→ (5.13002)

- (5.1) C: There-s a reference to teams, but there-s no discussion of teams. *5.10001 There-s reference to collaboration, but there-s no discussion of collaboration.

(5.103) B: Permeating this notion that design is social or collaborative: you have to look at the designer, audience, and client.

← (2.1380209) [redundant]

← (2.1380203) [redundant]

- (5.076) [redundant]

(5.108) B: Re: Interaction: designers with peers within the team; *5.10801 user;*5.10802 client (C: that-s what we get out of Norman.*5.10803 What we-re missing is an exploration of team process).

← (5.04201) For example: usability—he-s talking about the importance of usability, or the importance of feedback. *5.04202 But what is the process that a team would go through to explore or address an issue of say visibility.

← (2.13802071) Design is a process: this course explores how the making of artefacts (ideas, words, physical materials, virtual images) facilitates the development of ideas (how designers must generate ideas and test them/ utilize an iterative design and testing cycle). [appeared before 2 times, at 4.104 3.0680201]

- (5.105) C: chapter 6 is a big chapter for us.

(5.11) C: Design satisfies its audience, chap 6 pp 161-2, talks about the complexity of an audience .

← (5.076) [redundant]

← (2.1380211) Design satisfies its Audience: the course explores the complexity of the design audience and how successful design satisfies all stakeholders and users (rarely a single end user)/how the work succeeds in the world. [appeared before 1 times, at 3.0680601]

←← (5.058) [redundant]

←← (5.04805) Also moving beyond the object.*5.04806 [The Norman book] is located in objects, in products.*5.04807 Good early on for students to interrogate the things around them. [appeared before 1 times, at 5.076]

←← (5.041) B: It does touch on some principles that are useful in this course—he talks about them in the first few pages of the book. [appeared before 1 times, at 5.076]

- (5.11) C: Design satisfies its audience, chap 6 pp 161-2, talks about the complexity of an audience .

(5.111) D: Re: Good designs are measured by the quality of the ideas they provoke: we-re touching on week 11.

← (2.1380212) Design puts Ethos before Ego: the course explores how good designs are measured by the quality of ideas they provoke and invoke rather than the ego of the designer. [appeared before 1 times, at 3.0680601]

- **(5.114) C: re: week 11: good design can find new audiences**

← (5.076) [redundant]

←← (5.058) [redundant]

←← (5.04805) [redundant]

←← (5.041) [redundant]

- (5.114) C: re: week 11: good design can find new audiences

(5.115) C: didn-t like: his discussion of the designer-s ego—paints too wide a view *5.11501 Many designers are faceless and nameless.*5.11502 Sometimes the successful outcome of a design is the way people ... [truncated]

← (2.1380212) [redundant]

- **(5.116) B: comments on weeks 5 and 6: 5: Design enables understanding. *5.11601 conceptual models may be covered here.**

← (5.07502) The idea of the conceptual model stood out for me—we are going to be showing them and using them.*5.07503 How does the conceptual model reflect the approach taken towards it.*5.07504 For me that maps, because we are going to be talking about process.

← (5.074) [redundant]

← (5.073) C: Re: the idea of the conceptual model. *5.07301 But this course will also have to provide conceptual models for reading and understanding this course—it has to be that transparent.

← (2.13802051) Design enables understanding: the course explores how designers (from different professions, backgrounds, disciplines) use design to visualize and make sense of the world they see and experience. [appeared before 2 times, at 4.14103 3.068]

←← (5.043) B: He doesn-t address every principle in detail. *5.04301 He does for a couple, like the 7 stages of action.*5.04302 To go through an iterative process of applying constraints to decide ... [truncated] [appeared before 1 times, at 5.073]

←← (3.02605) One of the goals for this course is that our design is transparent;*3.02606 we want them to see that this course was designed with a set of objects, and the activities ... [truncated] [appeared before 1 times, at 5.073]

- (5.124) **B: week 6 (design invites inquiry): under the theme of manipulating ideas, he discusses the principle of constraints, in the design you lead the user to do one action.**
 - ← (5.076) [redundant]
 - ← (2.1380206) Design invites inquiry: this course explores how designers use design to visualize and to manipulate ideas under consideration/ how design is used as a tool in their own practice/discipline. [appeared before 1 times, at 3.0680201]
 - ←← (5.058) [redundant]
 - ←← (5.04805) [redundant]
 - ←← (5.041) [redundant]
 - ←←N (5.074) [redundant]
 - ←←N (5.069) [redundant]
 - ←←N (2.1380205) Who Does Design? [appeared before 3 times, at 5.05301 4.109 3.0680504]
 - (6.17102)
- (5.124) B: week 6 (design invites inquiry): under the theme of manipulating ideas, he discusses the principle of constraints, in the design you lead the user to do one action.

(5.128) **C: the angle that we are taking in this course is all about the thinking; *5.12801 in other critical thinking classes we do mapping processes to help students how to write ... [truncated]**

 - ← (4.102) C: re: research activity: That sounds familiar, so that might be a nice point of integration to think about.*4.10201 Ours might have an element of research, because it is a critical thinking class;*4.10202 it-s helpful sometimes if they do kind of the same thing twice, to solidify that the process matters. ... [truncated]
 - ← (3.05301) C: believes we will create a project that we know they can do.*3.05302 They are putting their critical thinking skills to work, and learning, because they will be in their teams going through a process.
 - ←←N (4.099) G: team assignment: when I give teams an in-class project where they research online different movements, and then present in the next class, so everybody gets a survey.*4.1 C: That-s an ... [truncated]
 - (5.14502 6.17102)
 - N→→ (5.12809)
- (5.118) [J arrives]. J: Does he only use mental models when he is talking about faulty mental models?. *5.119 J: [quotes from Norman, then:] Conceptual models are a part of mental ... [truncated]
- (5.13) **C explains to J: Have agreed Norman has umbrella approach and terminology that we can use in general ways to thread into more specific topics for each week.**
 - ← (5.03902) [redundant]

N→→ (5.138)

- (5.13) C explains to J: Have agreed Norman has umbrella approach and terminology that we can use in general ways to thread into more specific topics for each week.

(5.13001) **One concern is it is a how to deal with little discussion of process, so we have to come out with other material.**

← (5.03902) [redundant]
- (5.13001) One concern is it is a how to deal with little discussion of process, so we have to come out with other material.

(5.13002) **The other is there is little discussion about teamwork.**

← (5.1) [redundant]

←← (5.046) [redundant]

←← (5.045) [redundant]

←← (2.1380209) [redundant]
- (5.13) [redundant]

(5.13003) **Talked about the datedness of the book.**

← (5.06) C: That-s what I thought. *5.06001 Re: telephones: our student-s are already here, but let-s place the book historically.*5.06002 This is an important book in terms of discussion of design, but it-s dated.
- (5.13) [redundant]

(5.133) **C: Concerned about Norman-s crustiness; *5.13301**

← (5.051) [redundant]
- (5.135) **C: we have to be conscious of how the past is framed.*5.13501 He-s talking from a particular design perspective.*5.13502 Let-s open it up a little bit.**

← (5.076) [redundant]

←← (5.058) [redundant]

←← (5.04805) [redundant]

←← (5.041) [redundant]
- (5.13) [redundant]

(5.136) **J: The usefulness of this book for design thinking is when that terminology maps;**

← (5.06701) How married are we going to be to this terminology. *5.06702 Are Norman-s terms mappable to other terms?. [appeared before 1 times, at 5.076]

←← (5.03608) Unless we are very clear about the language, the terminology, and limitations of the book–book will influence the delivery of the material. [appeared before 1 times, at 5.06701]

←←N (5.118) [redundant]

←←N (5.067) C: The reading has to count, has to be appropriate for the course material.

←←N (5.058) [redundant]

→→ (6.17102 9.053)

- (5.136) J: The usefulness of this book for design thinking is when that terminology maps; **(5.13601) talking about mental models; *5.13602 difference between mental model and conceptual model; *5.13603 are mental models an umbrella for conceptual models, affordances, constraints, mappings, that sort of thing?.**
← (5.117) C: mental models in chap 3, conceptual models in chap 1.
- **(5.139) C: He talks about aesthetics toward the end; *5.13901 week 12 (Joy of use). *5.13902 Lovely way to end the course, looking at what makes us feel good or safe, but it would ... [truncated]**
← (5.076) [redundant]
← (2.1380213) Design begs Joy of Use: the course explores how good designs are measured by how they contribute to the quality of life for users (pleasure, safety, knowledge, etc.) and their communities. [appeared before 1 times, at 3.0680601]
←← (5.058) [redundant]
←← (5.04805) [redundant]
←← (5.041) [redundant]
- (5.139) C: He talks about aesthetics toward the end; *5.13901 week 12 (Joy of use). *5.13902 Lovely way to end the course, looking at what makes us feel good or safe, but it would ... [truncated]
(5.13903) Week 1 is mostly about introducing students to the syllabus; *5.13904 they-re going to be introduced to all the big ideas in the first week. *5.13905 We can-t separate them. *5.13906 They-re all integrated. *5.13907 ... [truncated]
← (5.03604) The first 8 weeks we are building a toolkit, and the last 4 weeks we are putting the tool kit into action.
←← (4.126) C: So we want to think about our toolkit. *4.12601 What are the core ideas; *4.12602 if we-re going to use terms like principles, frameworks, models, whatever; *4.12603 when we come to our weekly ... [truncated] [appeared before 1 times, at 5.03604]
←← (3.05903) We have 4 hours of class time (does not mean the classes are 4 hours each), we have 4 hour blocks that can be broken up. *3.05904 We are very conscious unpacking ... [truncated] [appeared before 3 times, at 5.03604 4.164 4.126]
→→ (6.061)

D.4.4 Paragraph Scope 14, 5.14–5.162

See Appendix section C.5.4.

- (5.14) **J: (inquires whether we talked about Knowledge in the head and knowledge of the world) Thinking is situated in the environment and the things you are interacting with.**
 - ← (5.076) C: We are in agreement that we can go to Norman for higher level ideas, and then we can begin to flush those ideas out with other kinds of readings or supplemental course material. [appeared before 5 times, at 5.139 5.135 5.124 5.114 5.11]
 - ←← (5.058) C: This book reads out of date.*5.05801 Does the dating of this book somehow undermine our credibility. [appeared before 8 times, at 5.139 5.136 5.135 5.124 5.114 5.11 5.095 5.076]
 - ←← (5.04805) Also moving beyond the object.*5.04806 [The Norman book] is located in objects, in products.*5.04807 Good early on for students to interrogate the things around them. [appeared before 6 times, at 5.139 5.135 5.124 5.114 5.11 5.076]
 - ←← (5.041) B: It does touch on some principles that are useful in this course—he talks about them in the first few pages of the book. [appeared before 6 times, at 5.139 5.135 5.124 5.114 5.11 5.076]
- (5.144) J: the trade off between knowledge in the head and knowledge in the world, you could give them an example of writing an exam as opposed to writing a paper. ... [truncated]
 - (5.145) **C: we want the design of the course to be transparent.**
 - ← (5.073) C: Re: the idea of the conceptual model. *5.07301 But this course will also have to provide conceptual models for reading and understanding this course—it has to be that transparent. [appeared before 1 times, at 5.116]
 - ← (3.02605) One of the goals for this course is that our design is transparent;*3.02606 we want them to see that this course was designed with a set of objects, and the activities are designed in a way for you to have an experience but also be able to use the principles that ... [truncated] [appeared before 2 times, at 5.116 5.073]
 - ←← (5.043) B: He doesn't address every principle in detail. *5.04301 He does for a couple, like the 7 stages of action.*5.04302 To go through an iterative process of applying constraints to decide ... [truncated] [appeared before 2 times, at 5.116 5.073]
 - (7.128 9.057 9.06505 9.085 9.11 9.11304 9.17)
 - N→→ (5.15)
- (5.14501) They can look at the difference between an assignment and an exam—what makes an exam an exam.
 - (5.14502) **It-s because it has so many constraints on it.**
 - ← (5.128) C: the angle that we are taking in this course is all about the thinking; *5.12801 in other critical thinking classes we do mapping processes to help students

how to write an essay [and so on].*5.12802 [This] sets up that designers are critical thinkers;*5.12803 it-s doing all of the due diligence, ... [truncated]

←← (4.102) C: re: research activity: That sounds familiar, so that might be a nice point of integration to think about.*4.10201 Ours might have an element of research, because it is a critical ... [truncated] [appeared before 1 times, at 5.128]

←← (3.05301) C: believes we will create a project that we know they can do.*3.05302 They are putting their critical thinking skills to work, and learning, because they will be in their teams ... [truncated] [appeared before 1 times, at 5.128]

- (5.15808) That would be a midterm.

(5.15809) Because you can use the toolbox, and they-re already working in teams.

← (5.03604) The first 8 weeks we are building a toolkit, and the last 4 weeks we are putting the tool kit into action. [appeared before 1 times, at 5.13903]

←← (4.126) C: So we want to think about our toolkit.*4.12601 What are the core ideas;*4.12602 if we-re going to use terms like principles, frameworks, models, whatever;*4.12603 when we come to our weekly ... [truncated] [appeared before 2 times, at 5.13903 5.03604]

←← (3.05903) We have 4 hours of class time (does not mean the classes are 4 hours each), we have 4 hour blocks that can be broken up.*3.05904 We are very conscious unpacking ... [truncated] [appeared before 4 times, at 5.13903 5.03604 4.164 4.126]

D.4.5 Paragraph Scope 15, 5.163–5.171

See Appendix section C.5.5.

- **(5.163) C: We-ve done a pretty good first pass at Norman.**

← (5.07) C: That-s a good question. *5.07001 That-s how we start thinking about these terms, though.*5.07002 Do they work across the board.

- (5.165) C: Norman will influence our terminology even if we don-t subscribe to his terminology, so when we read other things we can say -those terms map. 5.163

(5.16501) S and I are working on a template, and a week one mock up

← (5.037) C: Template coming out for next large meeting.

←←N (5.03605) Want the templates up ahead of time, so we all have the same understanding of the kind of information we are looking for. [appeared before 1 times, at 5.09]

→→ (6.08702)

N→→ (5.1691 6.0030201)

- (5.163) C: We've done a pretty good first pass at Norman.
 (5.171) **C: the only thing that's incomplete at this point is design is historical, the idea of precedent.**
 ← (2.1380204) Design is historical: the course explores the importance of precedent in design (how examples, models, patterns or standards) reflect learning and critical thinking. [appeared before 5 times, at 5.088 5.05503 5.04808 5.04403 3.068]
 ←←N (2.1380201) Why Does Design Matter?
 →→ (6.17302)

D.5 Design Meeting Four

D.5.1 Paragraph Scope 16, 6.057–6.079

See Appendix section C.6.1.

- (6.05702) Sent out electronic copy of -Are Designers the Enemy of Design?- What is interesting is the discussion underneath it.
 (6.05703) **In a brief way it talks about the everydayness of design;*6.05704 people want to participate in the design of their lives.**
 ← (2.1380205) Who Does Design? [appeared before 4 times, at 5.124 5.05301 4.109 3.0680504]
 ← (2.1380202) Design is all around us: the course explores how design facilitates our understanding of the world around us (how design helps us better understand the world around us/design helps us make meaning). [appeared before 8 times, at 5.08601 5.082 5.07801 5.039 4.082 3.069 3.068 3.065]
- (6.06) J: That word -design- has gone beyond professional enclaves.*6.06001 How do we wrangle with that word beyond what somebody from a design profession would argue is design.
 (6.061) **C: Simply handing this to a student in the first week would indicate that this topic is appropriate for this time and place, because people are actually talking about it and ... [truncated]**
 ← (5.13903) Week 1 is mostly about introducing students to the syllabus;*5.13904 they're going to be introduced to all the big ideas in the first week.*5.13905 We can't separate them.*5.13906 They're all integrated.*5.13907 The idea of aesthetics would be introduced in week 1, but as they are nearing the end of the project ... [truncated]
 ← (5.09) C: S and I are going to mock up the first two weeks.
 ←← (5.03605) Want the templates up ahead of time, so we all have the same understanding of the kind of information we are looking for. [appeared before 2 times, at

5.16501 5.09]

←← (5.03604) The first 8 weeks we are building a toolkit, and the last 4 weeks we are putting the tool kit into action. [appeared before 2 times, at 5.15809 5.13903]

←← (4.126) C: So we want to think about our toolkit.*4.12601 What are the core ideas;*4.12602 if we-re going to use terms like principles, frameworks, models, whatever;*4.12603 when we come to our weekly ... [truncated] [appeared before 3 times, at 5.15809 5.13903 5.03604]

←← (3.05903) We have 4 hours of class time (does not mean the classes are 4 hours each), we have 4 hour blocks that can be broken up.*3.05904 We are very conscious unpacking ... [truncated] [appeared before 5 times, at 5.15809 5.13903 5.03604 4.164 4.126]

- (6.069) C: Again its this idea of design as a conversation.

(6.06901) **If we can articulate that with students;**

← (3.02605) One of the goals for this course is that our design is transparent;*3.02606 we want them to see that this course was designed with a set of objects, and the activities are designed in a way for you to have an experience but also be able to use the principles that ... [truncated] [appeared before 3 times, at 5.145 5.116 5.073]

- (6.06902) if that-s a goal for us-our next step after this is to set the objectives and goals-we-ve got this foundational stuff to work with-if design is a conversation, then how do ... [truncated]

(6.06903) **If this is about the everydayness of design, it-s like getting students to come to class every week with whatever they learn, or their content-their particular experiences, things they read in ... [truncated]**

← (5.03902) We can use Norman as a way of opening a discussion about the everydayness of design. *5.03903 Use his ideas as umbrella ideas.*5.03904 Then find other ideas to talk about process. [appeared before 4 times, at 5.13001 5.13 5.07801 5.075]

N→→ (8.049)

- (6.07) D: Who would the students be conversing with? That is, a designer is usually in a conversation with the client and the design representation.

(6.06903) If this is about the everydayness of design, it-s like getting students to come to class every week with whatever they learn, or their content-their particular experiences, things they read in ... [truncated]

(6.071) **C: If the course is a design, we actually want students to reflect back on what they are doing. *6.07101 If the course is also about design in the world, we ... [truncated]**

← (3.052) The idea is for students to feel that what they are doing is meaningful to them or their [program in this school] community, so [program in this school] is where we start.

←←N (6.06902) [redundant]

←←N (3.049) J: What-s going to be the contentious issue is -what community?-[this

municipality], [this university] [this municipality], [this university], [program in this school].

→→ (6.16 8.049 8.10805)

- (6.069) [redundant]

(6.07801) If we frame students as designers, what kinds of conversations can they have with the things that they use every day.

← (6.06) [redundant]

← (3.052) [redundant]

D.5.2 Paragraph Scope 17, 6.08–6.091

See Appendix section C.6.2.

- **(6.08) Course development template.**

← (6.0030201) 2. S will introduce us to our course development template.

←← (5.169) Upcoming goals: dump content into the template.

→→ (9.083 9.145)

- (6.08101) It-s not meant to be restrictive or tedious, but to help us get onto the same track of what we want learners to do a the end of it, what are ... [truncated]

(6.08301) You may want to work in a linear fashion, or drop things in as they come to you.

← (5.1691) The weeks may be divided amongst the team.*5.16911 Each puts their stuff in, and then hands it off to somebody else.*5.16912 At some point we go through them-what-s missing;*5.16913 what do we like.

← (5.169) [redundant]

N→→ (6.093)

- (6.08701) After this meeting, we will begin this process (of filling in the template).

(6.08702) C and S to mock up the introduction.

← (5.16501) S and I are working on a template, and a week one mock up

←← (5.037) C: Template coming out for next large meeting. [appeared before 1 times, at 5.16501]

D.5.3 Paragraph Scope 18, 6.089–6.11804

See Appendix section C.6.3.

- (6.095) **4. Usefulness off the Lawson and Aspelund texts in relation to syllabus big ideas.**
 - ← (6.0030401) 4. Team will discuss the usefulness off the Lawson and Aspelund texts in relation to syllabus big ideas.
 - ← (2.13802) Big Ideas explored in the course: [appeared before 1 times, at 3.059]
 - ←← (3.37008) 4. Text Books: 1. Lawson: How Designer-s Think - not in yet 2. Lawson: What Designer-s Know - not in yet 3. Aspelund: The Design Process - not in yet ... [truncated]
 - ←← (3.0040104) c. Design Experience. [appeared before 2 times, at 3.054 3.026]
 - ←←N (6.003) AGENDA ITEMS
 - (9.0001 9.06502 9.075 9.083 9.145 11.17001)
- (6.10006) They provide limited perspectives of design from particular individuals—fashion, art, architect, design director.
 - (6.10007) **What other perspectives can we get students to think about?.**
 - ← (4.142) C: Wouldn-t if be cool to have a design kaleidoscope that we could point at the different people and see different kinds of design.
- (6.10101) We don-t know how the students will specialize.
 - (6.10102) **Nevertheless, we are advised that the students need interesting things to do;*6.10103 they have to make stuff.*6.10104 Design is about making and doing, as well as about thinking.**
 - ← (2.1380208) Design is made by doing: this course explores how the making of artifacts requires skill and development of skill. [appeared before 3 times, at 4.111 4.104 3.0680201]
 - ← (2.1380204) Design is historical: the course explores the importance of precedent in design (how examples, models, patterns or standards) reflect learning and critical thinking. [appeared before 6 times, at 5.171 5.088 5.05503 5.04808 5.04403 3.068]
 - ←←N (2.1380201) Why Does Design Matter? [appeared before 1 times, at 5.171]
 - ←←N (2.00809) A design is made by doing; *2.0081 it requires a lot of skill and development of skill.
 - (7.06105)
- (6.106) C: There designs that we can ask them to do that reflect their thinking processes.
 - (6.10601) **One of the things we have to be aware of is evaluation.*6.10602 The evaluation is of critical thinking and how ideas are represented, and not necessarily whether it is good looking, ... [truncated]**
 - ← (5.12809) Which may be different in other kinds of design courses where they have to do stuff.

D.5.4 Paragraph Scope 19, 6.119–6.149

See Appendix section C.6.4.

- (6.119) 1. **Press releases about the course. *6.12 JF: Went to a [the local municipality] coordinating meeting, 3-4 weeks ago.*6.12001 [a teacher in the school] was there.*6.12002 Talked about redevelopment of [a . . . [truncated]**
 ← (6.0030101) 1. JF is going to briefly update the team on recent press releases about the course.
 N→→ (6.12106)
- (6.122) **The reporters get carried away. *6.12201 They have no idea what this kind of project would actually mean, how would you actually do it.*6.12202 They asked if the students are going . . . [truncated]**
 ← (3.048) Constraint: Final Project (published in order to get approval for the course): Big [program in this school] idea about community building and being of service;*3.04801 team project where students will examine a problem in the community.
- (6.12701) And we are only going to be able to do this one time. *6.12702 The project next year will have to be something different.
 (6.128) **D: Applying a bit of design thinking to this problem, the solutions that class would come up with probes the problem a bit deeper, and reveals more about the problem, which . . . [truncated]**
 ← (6.077) D: I really like the idea of a design proposal as a way of probing a problem;*6.07701 that you don-t really understand what the problem is, so you make a solution, and the solution fails half way, and reveals more about the problem, and you continue that way.
 ←←N (6.127) C: If we can agree that our project will look like that, then we can start saying that.
 ←←N (6.07502) If this course is framed as a kind of discussion about design–design in the world—I hope we get students to see their communities, or the everyday things that they use, differently, . . . [truncated]
 →→ (10.093)
- (6.12403) I know we can-t have 400 of them down there.
 (6.131) **C: They-re not -just- 18 to 24 year old kids, they-re -citizens-. *6.13101 Our job here is citizenship;*6.13102 it-s not just academia.*6.13103 We talk about personal responsibility and learning in [a . . . [truncated]**
 ← (2.1380301) Explore the role design and designers in the world around them.
- (6.14203) That-s why I-m pointing at these very visual projects;

(6.144) **C: When we start looking at the kinds of activities, that will be one of our questions: what does the thing look like, and how does it connect to something. ... [truncated]**

← (6.11601) Any activity that we do will have to be framed carefully and front loaded.

- (6.146) JF: I haven't asked her that specific question.*6.14601 I-m sure that she realizes that the minute you let these things loose you-re going to get ideas that are critical as well ... [truncated]

(6.147) **J: The surveillance camera thing is part of her pitch.**

← (6.12106) That- the one that really caught on. *6.12107 I got a phone call from [radio on the 14th, and I got invited to do a live 6 minute segment on the 4 o'clock On the [radio program] piece.*6.12108 Unfortunately the lead in to that was the 2 kids who killed ... [truncated]

- (6.14801) This is where we start talking about audience.

(6.14802) **You want to be persuasive. *6.14803 You-re not going to get what you want simply by slugging an idea;*6.14804 you have to logically present an argument—what are the pros, what are ... [truncated]**

← (2.1380305) Carry out design exercises that attempt to help them see the world through others- eyes

← (2.1380304) Examine the nature of the relationship between designer and audience

D.5.5 Paragraph Scope 20, 6.15001–6.181

See Appendix section C.6.5.

- (6.15001) **4. Usefulness of the Lawson text.**
 ← (6.09701) Contrast and compare with Lawson.
 ←←N (6.097) C: Norman is in - constraint.
 →→ (7.00411 7.06 8.032 8.185 9.0001 9.057 9.058 9.06502 9.06505 9.07004 9.083 9.085 9.11 9.11304 9.145 9.17)
- (6.155) C: What I liked (about chapter 3) is there-s attempt at defining design, but it never really happens because it-s too difficult, so you get these different components of the way ... [truncated]
 (6.15506) **What I get from the models;**
 ← (5.138) C: the key work for me is -model-, which is a transferable term, a big ticket term, to use in another class, or to use in your new discipline—I know what a model is, and I have an understanding that there are some models that come pre-packaged, and there are others ... [truncated]

- (6.1551) the analysis versus synthesis I thought was a good idea.
 (6.15511) **Re cool activities: designing instructions: could we have students use a design process model to design the instructions for a board game.**
 ← (6.116) C: If we find that that-s an activity that we want to do, and these are first year students, we-re going to have to front load it, and be very careful about how we frame it.
 N→→ (6.163)
- (6.158) D: I would like to amend that idea a little bit. *6.15801 That is to get them to attempt to follow a process in the design, but at the end write ... [truncated]
 (6.16) **C: That-s an idea that needs to be woven through everything that they do, that there should be some place of reflection.**
 ← (6.071) C: If the course is a design, we actually want students to reflect back on what they are doing. *6.07101 If the course is also about design in the world, we want them over time to start noticing everyday design problems and bring that into a discussion, but the conversation would ... [truncated]
 ← (2.1380204) Design is historical: the course explores the importance of precedent in design (how examples, models, patterns or standards) reflect learning and critical thinking. [appeared before 7 times, at 6.10102 5.171 5.088 5.05503 5.04808 5.04403 3.068]
 ←← (3.052) The idea is for students to feel that what they are doing is meaningful to them or their [program in this school] community, so [program in this school] is where we ... [truncated] [appeared before 2 times, at 6.07801 6.071]
- (6.161) D: It-s easy for us in this abstract thinking to for us to portray -reflection on action-, but it-s hard for us to think of things where they do -reflection in ... [truncated]
 (6.162) **C: That-s one of those ideas that we want to bullet and put for our larger objectives for our activities.*6.16201 And maybe not in the beginning, but once they have enough ... [truncated]**
 ← (6.116) [redundant]
- (6.17014) What-s missing for me is systems and intangible kinds of things—most of the discussion are around seeable things.
 (6.17015) **So do we need to look some other place for designing a system, something that you don-t necessarily see;*6.17016 or do we even care about experience design at this point. ... [truncated]**
 ← (5.07302) What other kinds of conceptual models are there? Compare the conceptual model for designing a teapot and designing a business system, or being a student a designing your on-line learning web space—would those models look the same? Or an experienced designer.
- (6.171) The question for B, for everybody to think about, the section on constraints, do you find that helpful.

(6.17102) We-re going to have to talk about constraints—pages 92-111.

← (5.136) J: The usefulness of this book for design thinking is when that terminology maps;

← (5.128) C: the angle that we are taking in this course is all about the thinking; *5.12801 in other critical thinking classes we do mapping processes to help students how to write an essay [and so on].*5.12802 [This] sets up that designers are critical thinkers;*5.12803 it-s doing all of the due diligence, ... [truncated] [appeared before 1 times, at 5.14502]

← (5.124) B: week 6 (design invites inquiry): under the theme of manipulating ideas, he discusses the principle of constraints, in the design you lead the user to do one action.

←← (5.076) C: We are in agreement that we can go to Norman for higher level ideas, and then we can begin to flush those ideas out with other kinds of readings or ... [truncated] [appeared before 6 times, at 5.14 5.139 5.135 5.124 5.114 5.11]

←← (5.06701) How married are we going to be to this terminology. *5.06702 Are Norman-s terms mappable to other terms?. [appeared before 2 times, at 5.136 5.076]

←← (5.058) C: This book reads out of date.*5.05801 Does the dating of this book somehow undermine our credibility. [appeared before 9 times, at 5.14 5.139 5.136 5.135 5.124 5.114 5.11 5.095 5.076]

←← (5.04805) Also moving beyond the object.*5.04806 [The Norman book] is located in objects, in products.*5.04807 Good early on for students to interrogate the things around them. [appeared before 7 times, at 5.14 5.139 5.135 5.124 5.114 5.11 5.076]

←← (5.041) B: It does touch on some principles that are useful in this course—he talks about them in the first few pages of the book. [appeared before 7 times, at 5.14 5.139 5.135 5.124 5.114 5.11 5.076]

←← (5.03608) Unless we are very clear about the language, the terminology, and limitations of the book—book will influence the delivery of the material. [appeared before 2 times, at 5.136 5.06701]

←← (4.102) C: re: research activity: That sounds familiar, so that might be a nice point of integration to think about.*4.10201 Ours might have an element of research, because it is a critical ... [truncated] [appeared before 2 times, at 5.14502 5.128]

←← (3.05301) C: believes we will create a project that we know they can do.*3.05302 They are putting their critical thinking skills to work, and learning, because they will be in their teams ... [truncated] [appeared before 2 times, at 5.14502 5.128]

←← (2.1380206) Design invites inquiry: this course explores how designers use design to visualize and to manipulate ideas under consideration/ how design is used as a tool in their own practice/discipline. [appeared before 2 times, at 5.124 3.0680201]

- (6.173) Can we agree to go back to this with the view of using this as text.

(6.17302) What-s missing is precedent.

← (5.171) C: the only thing that-s incomplete at this point is design is historical, the idea of precedent.

←← (2.1380204) [redundant]

N→→ (6.174 6.178)

- (6.174) D: He does talk a little bit about precedent with the fashion designers—HOW they go about designing, and I realize that how fashion designers do it is very similar to how ... [truncated]

(6.175) **J: Remix.**

← (3.07) J: *3.071 Design as Recipes.*3.072 1. Design thinking: What ingredients and tools do we have available.*3.0720201 2. Design process: What recipes and combinations can we make use of.*3.0720301 3. Design evaluation: Does it taste good;*3.0720402 is it filling etc.*3.073 Tasting is a method of testing;*3.07301 filling is the evaluation of the test.*3.074 ... [truncated] [appeared before 2 times, at 4.14103 3.087]

- (6.174) [redundant]

(6.177) **C: Let-s take that idea.*6.17701 I-m getting really nice visuals, and I think, maybe that-s how we talk about it in the classroom.*6.17702 Maybe we do a little research and look ... [truncated]**

← (6.102) J: Answering questions with as much visual material as possible.

←←N (6.10107) looked at what kind of questions they asked, especially before they frame an exercise—page 65: re collage in corner: using images to communication—this could be about using signs in the world, ... [truncated]

→→ (7.11601)

D.6 Design Meeting Five

D.6.1 Paragraph Scope 21, 7.034–7.05901

See Appendix section C.7.1.

- (7.003) AGENDA.

(7.03401) **what are the skills the students are going to leave with? Still need to know what the students will be doing in the first term, then can look their objectives, projects ... [truncated]**

← (6.089) C: Are you (the group) okay with S and I taking the first pass on the first unit and describing the learner, and also with S and I working on the template?.*6.09 Group: yes.

← (4.162) J: was also thinking about how, in the design thinking context, how do we

think about the term -skill-.*4.16201 Look at transferable skill as a distinction that we can make in terms of design.*4.16202 The process becomes a transferable skill.

- (7.03401) what are the skills the students are going to leave with? Still need to know what the students will be doing in the first term, then can look their objectives, projects ... [truncated]

(7.04804) **C-s agenda is to make sure that they come out of the course with transferable skills—thinking skills—but also have an awesome learning experience.**

← (4.162) [redundant]

D.6.2 Paragraph Scope 22, 7.06–7.07001

See Appendix section C.7.2.

- (7.06) **re Design Thinking (the Lawson book).***7.06001 **Generally good to go, despite the book being a little advanced.**
 - ← (7.00404) 2. Team: will return to the Lawson text and specifically pick out areas that match up or are appropriate to the big ideas on the syllabus.
 - ← (6.16901) If I had my druthers, I would put THIS as the textbook for the course.
 - ← (6.15001) 4. Usefulness of the Lawson text.
 - ←← (6.09701) Contrast and compare with Lawson. [appeared before 1 times, at 6.15001]
 - ←←N (6.167) D: I must say that I have a very high opinion of this book [Lawson].
 - *6.16701 He draws upon the central moving figures in the discourse of design, and he himself ... [truncated]
 - (8.032 8.185 9.0001 9.057 9.058 9.06502 9.06505 9.07004 9.083 9.085 9.11 9.11304 9.145 9.17)
- (7.06102) C: The material they read every week has to be directly applied to the design activity for the workshop.
 - (7.06103) **I would like more real life examples, but there is enough of a framework.**
 - ← (6.17008) What-s lacking for me are real world examples.
 - (7.131 9.103)
- (7.06104) We can research examples.
 - (7.06105) **We don-t want renegade activities.**
 - ← (6.10102) Nevertheless, we are advised that the students need interesting things

to do;*6.10103 they have to make stuff.*6.10104 Design is about making and doing, as well as about thinking.

←← (2.1380208) Design is made by doing: this course explores how the making of artifacts requires skill and development of skill. [appeared before 4 times, at 6.10102 4.111 4.104 3.0680201]

←← (2.1380204) Design is historical: the course explores the importance of precedent in design (how examples, models, patterns or standards) reflect learning and critical thinking. [appeared before 9 times, at 6.17302 6.16 6.10102 5.171 5.088 5.05503 5.04808 5.04403 3.068]

- (7.062) R: You want to engage the students in the first year in active, doing courses.*7.06201 Less about talking about design, and more about doing design.*7.06202 Trying to teach them the cycle ... [truncated]

(7.063) C: We don-t know what they are going to make.*7.06301 Each big idea can be an introduction to design through a certain lens.*7.06302 For example -precedent- in our time-focus on everydayness-has ... [truncated]

← (4.142) C: Wouldn-t it be cool to have a design kaleidoscope that we could point at the different people and see different kinds of design. [appeared before 1 times, at 6.10007]

- (7.06504) [R: Developing the designers eyes;*7.06505 one of the key outcomes of a first year design education].

(7.066) C: Weeks 1-8: toolkit;*7.06601 every week contributes to final project - scaffolded.

← (5.03604) The first 8 weeks we are building a toolkit, and the last 4 weeks we are putting the tool kit into action. [appeared before 3 times, at 6.061 5.15809 5.13903]

← (5.03603) Objectives are to be consistent, and are to scaffold.

←← (4.126) C: So we want to think about our toolkit.*4.12601 What are the core ideas;*4.12602 if we-re going to use terms like principles, frameworks, models, whatever;*4.12603 when we come to our weekly ... [truncated] [appeared before 4 times, at 6.061 5.15809 5.13903 5.03604]

←← (3.05903) We have 4 hours of class time (does not mean the classes are 4 hours each), we have 4 hour blocks that can be broken up.*3.05904 We are very conscious unpacking ... [truncated] [appeared before 6 times, at 6.061 5.15809 5.13903 5.03604 4.164 4.126]

←←N (7.065) C: Take pictures.*7.06501 Make physical things.*7.06502 What does your house look like if you describe it in terms of design-set of criteria.*7.06503 (re Frank Lloyd Wright-the students themselves, not us, will ... [truncated])

→→ (7.10903 8.032 8.185 9.0001 9.057 9.06505 9.07004 9.075 9.083 9.085 9.11 9.11304 9.145 9.17 11.17001)

- (7.068) C: That-s what we-re doing.

(7.06801) Project product: visual representation and recommendations (professional, juried, top presented at mayor-s office with design) and myth busting.

← (6.125) They-re going to -think- about it. *6.12501 We are creating good community thinkers.*6.12502 The final thing is going to be a demo and a proposal.*6.12503 They have to make stuff.*6.12504 Don-t worry about the crit in the design.*6.12505 Just get them thinking about their ideas.*6.12506 It can still be visually appealing, ... [truncated]

←←N (7.067) R: shows Adelaide project: find design issue in Adelaide newspaper, trace it back 3 or 4 weeks, collect everything from every stakeholder-s perspective, and present it to the class.

←←N (2.0082) The quality of the artefact is less important than understanding the context and process.

→→ (10.217)

D.6.3 Paragraph Scope 23, 7.071–7.094

See Appendix section C.7.3.

- **(7.071) C: Still stuck with what are we going to do with our information that we are collecting weekly.**

← (7.05) C: What do we do with OUR information? Make our info available in the same space that the students will use.

← (3.102) C: This course has already been set up as weekly and face to face.*3.10201 But all of the course material is going to be online.*3.10202 Part of our process is going to be how we look at the [Moodle].*3.10203 Is there someone body going to facilitate moving the information over and ... [truncated]

←← (3.00502) Also to talk about where the course is going to live, since we don-t have a CMS;*3.00503 we are going to be using a Moodle, so all [program in this school] ... [truncated] [appeared before 2 times, at 3.102 3.032]

←← (3.0040111) 6. [org associated with the school] Support 1:15-2:00 (Cy and V). [appeared before 2 times, at 3.102 3.098]

- (7.087) C: If we wanted the resources for students to be able to story their work, you (R) would be able to help us with that.

(7.08701) This has got to be a course where we have stuff to show at the end.

← (6.12512) One thing that we are lacking in [a program in the school] is that we don-t have stuff to show.

- (7.08702) We have to show that it is a course where the students develop skills.

(7.08703) **We care about the thinking, the process, articulating why they did what they did, or what strategies they used.**

← (6.125) They-re going to -think- about it. *6.12501 We are creating good community thinkers.*6.12502 The final thing is going to be a demo and a proposal.*6.12503 They have to make stuff.*6.12504 Don-t worry about the crit in the design.*6.12505 Just get them thinking about their ideas.*6.12506 It can still be visually appealing, ... [truncated] [appeared before 1 times, at 7.06801]

- (7.08701) This has got to be a course where we have stuff to show at the end.

(7.089) **C: JF wants link to community.**

← (6.12508) And it could be a community event.

- (7.08901) Good visual information will sell.

(7.08904) **Its all about the assignments—interesting, engaging, doable, set students up to succeed.**

← (6.14203) That-s why I-m pointing at these very visual projects;

← (6.12512) [redundant]

← (6.12403) I know we can-t have 400 of them down there.

← (3.02911) This is not a prototyping class, but what if, given what you know to date, you have something at the end of the day that shows that you went through a particular kind of process.

D.6.4 Paragraph Scope 24, 7.095–7.132

See Appendix section C.7.4.

- (7.095) **Discussion about team-s roles and purpose for reading, and progress of project to date.**

← (7.00404) 2. Team: will return to the Lawson text and specifically pick out areas that match up or are appropriate to the big ideas on the syllabus. [appeared before 1 times, at 7.06]

N→→ (7.098 7.109 7.132)

- (7.096) THE LAWSON TEXT.*7.097 C: What parts are strong?.

(7.109) **C: Want to map Lawson sections to units and big ideas.*7.10901 Next meeting divide up the units.*7.10902 Will have the draft of the learning objectives then.**

← (7.003) AGENDA.

←←N (7.095) Discussion about team-s roles and purpose for reading, and progress of project to date.

→→ (9.07)

- (7.109) C: Want to map Lawson sections to units and big ideas.*7.10901 Next meeting divide up the units.*7.10902 Will have the draft of the learning objectives then.

(7.10903) Would like us to find practices that we learn early on and we continue to use, fine tune or develop so that we get to the team project

← (7.066) C: Weeks 1-8: toolkit;*7.06601 every week contributes to final project - scaffolded.

←← (5.03604) The first 8 weeks we are building a toolkit, and the last 4 weeks we are putting the tool kit into action. [appeared before 4 times, at 7.066 6.061 5.15809 5.13903]

←← (5.03603) Objectives are to be consistent, and are to scaffold. [appeared before 1 times, at 7.066]

←← (4.126) C: So we want to think about our toolkit.*4.12601 What are the core ideas;*4.12602 if we-re going to use terms like principles, frameworks, models, whatever;*4.12603 when we come to our weekly ... [truncated] [appeared before 5 times, at 7.066 6.061 5.15809 5.13903 5.03604]

←← (3.05903) We have 4 hours of class time (does not mean the classes are 4 hours each), we have 4 hour blocks that can be broken up.*3.05904 We are very conscious unpacking ... [truncated] [appeared before 7 times, at 7.066 6.061 5.15809 5.13903 5.03604 4.164 4.126]

- (7.10903) Would like us to find practices that we learn early on and we continue to use, fine tune or develop so that we get to the team project

(7.109031) Frightened by Norman-s -principles-, when we read Norman again, do we agree with Norman and bring the principles into the assignment, or do we have a dialogue between Norman-s book and ... [truncated]

← (6.09701) Contrast and compare with Lawson. [appeared before 2 times, at 7.06 6.15001]

← (5.076) C: We are in agreement that we can go to Norman for higher level ideas, and then we can begin to flush those ideas out with other kinds of readings or supplemental course material. [appeared before 7 times, at 6.17102 5.14 5.139 5.135 5.124 5.114 5.11]

←← (5.058) C: This book reads out of date.*5.05801 Does the dating of this book somehow undermine our credibility. [appeared before 10 times, at 6.17102 5.14 5.139 5.136 5.135 5.124 5.114 5.11 5.095 5.076]

←← (5.04805) Also moving beyond the object.*5.04806 [The Norman book] is located in objects, in products.*5.04807 Good early on for students to interrogate the things around them. [appeared before 8 times, at 6.17102 5.14 5.139 5.135 5.124 5.114 5.11 5.076]

←← (5.041) B: It does touch on some principles that are useful in this course—he talks about them in the first few pages of the book. [appeared before 8 times, at 6.17102 5.14 5.139 5.135 5.124 5.114 5.11 5.076]

N→→ (7.121)

- (7.112) Big ideas not combined/collapsed in syllabus as yet, but that is what will happen.
 - (7.113) **The first 8 weeks are set up as a toolkit, some kind of critical thinking tool or process that they can learn each week and be evaluated on, and then apply ... [truncated]**
 - ← (5.03604) [redundant]
 - ←← (4.126) [redundant]
 - ←← (3.05903) [redundant]
 - ←←N (7.111) What do we mean by design in this particular course?.
 - (7.159)
- (7.116) D: re examples: about conversation from last meeting: knitwear designers and wooden ship builders followed nearly the same process of design.
 - (7.11601) **C thought this would be a visually interesting presentation.**
 - ← (6.177) C: Let-s take that idea.*6.17701 I-m getting really nice visuals, and I think, maybe that-s how we talk about it in the classroom.*6.17702 Maybe we do a little research and look at the fashion designer and compare it.*6.17703 I see something that is colourful, visual, material that we could do. ... [truncated]
 - ← (6.174) D: He does talk a little bit about precedent with the fashion designers–HOW they go about designing, and I realize that how fashion designers do it is very similar to how the old wooden ship builders did it. *6.17401 That is, if you want a ship, you would go to a ... [truncated]
 - ←← (6.102) J: Answering questions with as much visual material as possible. [appeared before 1 times, at 6.177]
- (7.109) [redundant]
 - (7.117) **R: Observations: (1) Lawson text is written about a third year level.*7.11701 (2) Assessment drives the learning process.*7.11702 Should start with the things we ask the students to do in each ... [truncated]**
 - ← (6.093) C: I-ve learned from the past that It-s often better if the learning objectives for the week or the learning objectives for the activity are done first as a sample provided and we talk about them, or they are done as a group, rather than sending somebody off to think of ... [truncated]
- (7.12) R claims that the Norman book is about affordances only.
 - (7.125) **Discussion about how the use of the Norman book is not set in stone despite that it was passed by the Senate.**
 - ← (5.076) [redundant]
 - ←← (5.058) [redundant]
 - ←← (5.04805) [redundant]
 - ←← (5.041) [redundant]
 - N→→ (7.1461)

- (7.125) Discussion about how the use of the Norman book is not set in stone despite that it was passed by the Senate.

(7.126) C: The goal is for students to have critical thinking tools that they can use in any area that they go in to.

← (3.087) D: *3.088 Agrees with G about design thinking;*3.08801 like to see a contrast of different kinds of design thinking. *3.08802 E.g., a team might exercise discipline in postponing evaluation of all the solutions until they feel the number of solutions has been exhausted, and then go into an evaluation.*3.089 In software ... [truncated] [appeared before 2 times, at 4.161 4.07102]

←← (3.062) IDEAS ABOUT WHAT WE THINK WE WOULD LIKE TO ACHIEVE. [appeared before 7 times, at 4.161 4.135 4.103 4.07102 3.087 3.082 3.081]

←← (3.0040110) 5. Course Objectives/Learning Outcomes. [appeared before 12 times, at 4.161 4.135 4.123 4.103 4.07102 3.096 3.087 3.082 3.081 3.062 3.057 3.02603]

←←N (7.12) [redundant]

←←N (3.078) G: I see the ingredients as the design process;*3.07801 design thinking comes from various different disciplines.*3.07802 If an engineer, industrial designer, and architect—we all come from a different design thinking;*3.07803 how ... [truncated] [appeared before 1 times, at 4.07102]

→→ (7.1461 8.053)

N→→ (7.128)

- (7.127) D: Would like the students to abstract the idea of affordances. *7.12701 Gives example of affordance in survey design—the metaphors and language that the intended audience can grab to provide the ... [truncated]

(7.128) C: Which is the same idea as the students designing their exam.*7.12801 Would like students to henceforth (after this course) see exams differently.*7.12802 [Explains to R the team-s idea of the ... [truncated]

← (5.15) J: An exercise might be: here-s a reading, design an exam.

← (5.145) C: we want the design of the course to be transparent.

←← (5.073) C: Re: the idea of the conceptual model. *5.07301 But this course will also have to provide conceptual models for reading and understanding this course—it has to be that transparent. ... [truncated] [appeared before 2 times, at 5.145 5.116]

←← (5.043) B: He doesn-t address every principle in detail. *5.04301 He does for a couple, like the 7 stages of action.*5.04302 To go through an iterative process of applying constraints to decide ... [truncated] [appeared before 3 times, at 5.145 5.116 5.073]

←← (3.02605) One of the goals for this course is that our design is transparent;*3.02606 we want them to see that this course was designed with a set of objects, and the activities ... [truncated] [appeared before 4 times, at 6.06901 5.145 5.116 5.073]

←←N (7.126) C: The goal is for students to have critical thinking tools that they can use in any area that they go in to.

←←N (5.14501) They can look at the difference between an assignment and an exam—what makes an exam an exam.

←←N (5.144) J: the trade off between knowledge in the head and knowledge in the world, you could give them an example of writing an exam as opposed to writing a paper. ... [truncated]

→→ (9.057 9.06505 9.085 9.11 9.11304 9.17)

N→→ (7.131)

- (7.129) R: Mentions small projects (the midterm exam) that can be referred back to.*7.13 R: Agrees that the Lawson lacks examples.

(7.131) C: Examples will be sought while doing the individual units.

← (7.06103) I would like more real life examples, but there is enough of a framework.

←← (6.17008) What-s lacking for me are real world examples. [appeared before 1 times, at 7.06103]

←←N (7.128) C: Which is the same idea as the students designing their exam.*7.12801 Would like students to henceforth (after this course) see exams differently.*7.12802 [Explains to R the team-s idea of the ... [truncated]

←←N (7.124) B: mentions Norman-s mental models and examples.

→→ (9.103)

D.6.5 Paragraph Scope 25, 7.133–7.16302

See Appendix section C.7.5.

- **(7.133) Unit 1(intro, what is design, what is designer, design in the world, the course): chaps 1, 2.**

← (7.00404) 2. Team: will return to the Lawson text and specifically pick out areas that match up or are appropriate to the big ideas on the syllabus. [appeared before 2 times, at 7.095 7.06]

→→ (8.04801)

N→→ (7.138)

- (7.133) Unit 1(intro, what is design, what is designer, design in the world, the course): chaps 1, 2.

(7.134) Unit 2 (design is all around us, explores how design helps us negotiate our lives.): 1, 2.

← (2.1380202) Design is all around us: the course explores how design facilitates our understanding of the world around us (how design helps us better understand the

world around us/design helps us make meaning). [appeared before 9 times, at 6.05703 5.08601 5.082 5.07801 5.039 4.082 3.069 3.068 3.065]

- (7.133) [redundant]

(7.136) **Unit 3 (design is social):. *7.137 design is a means of communication between people;*7.13701 the way design is done is social.**

← (2.1380203) Design is social: the course explores how design is used to facilitate communication with others/Audience (design is out in the open, design helps us communicate more effectively with others in our homes, workplaces and community/ how design better helps us understand each other/how design helps us agree on meanings). [appeared before 8 times, at 5.103 5.09403 5.09105 5.087 5.08103 4.14103 4.107 3.068]

→→ (8.04801 8.073 8.18702 9.104 9.105)

N→→ (7.139)
- (7.136) Unit 3 (design is social):. *7.137 design is a means of communication between people;*7.13701 the way design is done is social.

(7.138) **Unit 4 (design is historical): C: What Designers Know has chapter 8 on precedent.**

← (2.1380204) Design is historical: the course explores the importance of precedent in design (how examples, models, patterns or standards) reflect learning and critical thinking. [appeared before 10 times, at 7.06105 6.17302 6.16 6.10102 5.171 5.088 5.05503 5.04808 5.04403 3.068]

←←N (7.133) [redundant]

←←N (2.1380201) Why Does Design Matter? [appeared before 2 times, at 6.10102 5.171]

→→ (8.074 8.207 9.107)

N→→ (7.14102)
- (7.138) Unit 4 (design is historical): C: What Designers Know has chapter 8 on precedent.

(7.139) **Unit 5 (design enables understanding):.*7.13901 Focus on the designer.*7.13902 What are the things that you do that make you a designer.**

← (2.13802051) Design enables understanding: the course explores how designers (from different professions, backgrounds, disciplines) use design to visualize and make sense of the world they see and experience. [appeared before 3 times, at 5.116 4.14103 3.068]

←←N (7.136) [redundant]

→→ (8.04802)

N→→ (7.14602 7.147)
- (7.139) Unit 5 (design enables understanding):.*7.13901 Focus on the designer.*7.13902 What are the things that you do that make you a designer.

(7.138) [redundant]

(7.141) re 5 and 6: Design enables understanding and design invites inquiry—what does design do? Here get into specifics, designers from different backgrounds;*7.14101 put on the designer lens.

← (7.112) Big ideas not combined/collapsed in syllabus as yet, but that is what will happen.

← (2.1380206) Design invites inquiry: this course explores how designers use design to visualize and to manipulate ideas under consideration/ how design is used as a tool in their own practice/discipline. [appeared before 3 times, at 6.17102 5.124 3.0680201]

- **(7.144) The chapter (8) on design thinking (cog sci, behaviorism) not appropriate for this course. May make the link, and that-s all.**

← (7.098) D: Would leave out the creative thinking part.*7.09801 There-s a great deal of research about creative thinking, and very few conclusions.*7.09802 It seem irrelevant to the learning outcomes.

- (7.14) Unit 6 (design invites inquiry): lumping parts of syllabus together. 1 and 2 are what is design. A shift after week 4.

(7.139) [redundant]

(7.146) Units 5 and 6 lumped together;*7.14601 utilizes chps 3,6,7 03:24:37 May have enough material for 2 units.

← (7.112) [redundant]

N→→ (7.148)

- (7.14609) B: they also draw/sketch.

(7.1461) All of the tools revolve around asking critical questions.

← (7.126) C: The goal is for students to have critical thinking tools that they can use in any area that they go in to. [appeared before 1 times, at 7.128]

←← (3.087) D: *3.088 Agrees with G about design thinking;*3.08801 like to see a contrast of different kinds of design thinking. *3.08802 E.g., a team might exercise discipline in postponing evaluation of all ... [truncated] [appeared before 3 times, at 7.126 4.161 4.07102]

←← (3.062) IDEAS ABOUT WHAT WE THINK WE WOULD LIKE TO ACHIEVE. [appeared before 8 times, at 7.126 4.161 4.135 4.103 4.07102 3.087 3.082 3.081]

←← (3.0040110) 5. Course Objectives/Learning Outcomes. [appeared before 13 times, at 7.126 4.161 4.135 4.123 4.103 4.07102 3.096 3.087 3.082 3.081 3.062 3.057 3.02603]

←←N (7.14606) The nature of questions, why we ask questions. *7.14607 We need to have some strategies that they can practices.*7.14608 They ask questions, evaluate questions, look at the artifact and it makes ... [truncated]

←←N (7.125) Discussion about how the use of the Norman book is not set in stone despite that it was passed by the Senate.

→→ (8.053)

- (7.146) Units 5 and 6 lumped together;*7.14601 utilizes chps 3,6,7 03:24:37 May have enough material for 2 units.
(7.147) Unit 7 (process and collaboration): weeks 9, 10, 11, 12 set aside for project, 7 and 8 need to move into the team stuff;*7.14701 talk about the nature of collaboration. . . [truncated]
 ← (6.139) J: So this is what we-re going with?.*6.14 C: We-re going with it.
 ←←N (7.14) [redundant]
 ←←N (7.139) [redundant]
 ←←N (6.12306) An idea that I suggested is that they don-t come up with a product, they use their critical thinking to come up with proposals–suggestions.
 →→ (8.19 9.07001)
- (7.147) Unit 7 (process and collaboration): weeks 9, 10, 11, 12 set aside for project, 7 and 8 need to move into the team stuff;*7.14701 talk about the nature of collaboration. . . [truncated]
(7.14702) -design is made by doing—kind of general.
 ← (2.1380208) Design is made by doing: this course explores how the making of artefacts requires skill and development of skill. [appeared before 5 times, at 7.06105 6.10102 4.111 4.104 3.0680201]
- (7.147) [redundant]
(7.148) Unit 8.*7.149 Getting the teams ready to do the team project;*7.14901 already collaborating;
 ← (6.139) [redundant]
 ← (2.1380209) Design is collaborative: the course explores the idea that design requires more expertise than resides in any one person-s head and that part of testing and understanding designs is the recognition of the need to connect and collaborate with others. The design and testing cycle is improved by the generation and . . . [truncated] [appeared before 6 times, at 5.13002 5.103 5.1 5.09301 4.113 3.0680201]
 ←←N (7.146) [redundant]
 ←←N (6.12306) [redundant]
 ←←N (2.1380207) How Does Design Happen? [appeared before 2 times, at 5.1 4.11]
 ←←N (2.00801) Coming up with design ideas and testing them is never done alone. [appeared before 1 times, at 5.1]
 →→ (8.187 9.07001)
- **(7.15) R: where does the notion of disciplinary expertise come up?.**
 ← (7.098) [redundant]
- (7.153) C: In their final papers they explore different stakeholders points of view and look at arguments and counter arguments.

(7.154) **R: The biggest reason you have design teams is that you need more than one kind of knowledge to get the job done.**

← (2.1380209) [redundant]

- (7.156) R: How do we give an example that brings this to the fore.

(7.157) **D: Was concerned that all the examples of -guiding principles- were architectural, then realized that all political parties have guiding principles, so this aspect of design thinking abstracts beyond the domain ... [truncated]**

← (7.098) [redundant]

- (7.157) D: Was concerned that all the examples of -guiding principles- were architectural, then realized that all political parties have guiding principles, so this aspect of design thinking abstracts beyond the domain ... [truncated]

(7.159) **What are the primary 8 things that you need to do as a team to make this successful, how do we start here (i.e. unit 1—looking at themselves as design users ... [truncated]**

← (7.113) The first 8 weeks are set up as a toolkit, some kind of critical thinking tool or process that they can learn each week and be evaluated on, and then apply those to the larger project.

←← (5.03604) The first 8 weeks we are building a toolkit, and the last 4 weeks we are putting the tool kit into action. [appeared before 6 times, at 7.113 7.10903 7.066 6.061 5.15809 5.13903]

←← (4.126) C: So we want to think about our toolkit.*4.12601 What are the core ideas;*4.12602 if we-re going to use terms like principles, frameworks, models, whatever;*4.12603 when we come to our weekly ... [truncated] [appeared before 7 times, at 7.113 7.10903 7.066 6.061 5.15809 5.13903 5.03604]

←← (3.05903) We have 4 hours of class time (does not mean the classes are 4 hours each), we have 4 hour blocks that can be broken up.*3.05904 We are very conscious unpacking ... [truncated] [appeared before 9 times, at 7.113 7.10903 7.066 6.061 5.15809 5.13903 5.03604 4.164 4.126]

- (7.148) Unit 8.*7.149 Getting the teams ready to do the team project;*7.14901 already collaborating;

(7.16) **B: combine 3 and 4, combine 5 and 6, thereby free up a unit, touch on social things.**

← (7.112) [redundant]

- (7.162) **R: Assessment is very important.**

← (2.138021) How Is Design Evaluated? [appeared before 1 times, at 4.114]

- (7.162) R: Assessment is very important.

(7.16301) **We also have to think of the workload.**

← (6.133) C: What we have to understand is that we have one class of 48 students that is working on this problem.*6.13301 And then we multiply it by 6 (or more—hopefully 8 max).*6.13302 That-s a huge number of students all working on the same problem.*6.13303 I started thinking of the logistics. ... [truncated]

D.6.6 Paragraph Scope 26, 7.165–7.167

See Appendix section C.7.6.

- (7.166) D: put stuff into [repository at online college], folder for each meeting;

(7.16601) **get notes to C for Thursday meeting.**

← (6.089) C: Are you (the group) okay with S and I taking the first pass on the first unit and describing the learner, and also with S and I working on the template?.*6.09 Group: yes. [appeared before 1 times, at 7.03401]

← (5.1691) The weeks may be divided amongst the team.*5.16911 Each puts their stuff in, and then hands it off to somebody else.*5.16912 At some point we go through them—what-s missing;*5.16913 what do we like. [appeared before 1 times, at 6.08301]

D.7 Design Meeting Six

D.7.1 Paragraph Scope 27, 8.032–8.063

See Appendix section C.8.1.

- (8.001) Design Thinking Meeting Notes: 7th May 2007.

(8.032) **S: re Instructional Design Process.*8.033 Shared assumptions: terms, activities, assignments, content.*8.034 Assumptions about critical thinking.*8.03401 gathering and processing information.*8.03402 how students will.*8.035 metaphor of tool kit, giving them some skill to ... [truncated]**

← (7.066) C: Weeks 1-8: toolkit;*7.06601 every week contributes to final project - scaffolded. [appeared before 1 times, at 7.10903]

← (7.06) re Design Thinking (the Lawson book).*7.06001 Generally good to go, despite the book being a little advanced.

← (5.076) C: We are in agreement that we can go to Norman for higher level ideas, and then we can begin to flush those ideas out with other kinds of readings or supplemental course material. [appeared before 9 times, at 7.125 7.109031 6.17102 5.14 5.139 5.135 5.124 5.114 5.11]

← (5.03604) The first 8 weeks we are building a toolkit, and the last 4 weeks we are

putting the tool kit into action. [appeared before 7 times, at 7.159 7.113 7.10903 7.066 6.061 5.15809 5.13903]

← (5.03602) We will also have a weekly template, that has the big idea, the title, the object for that week is, what that assignment or activity for that week might be, and what the objectives for that are. [appeared before 1 times, at 5.09]

← (4.102) C: re: research activity: That sounds familiar, so that might be a nice point of integration to think about.*4.10201 Ours might have an element of research, because it is a critical thinking class;*4.10202 it-s helpful sometimes if they do kind of the same thing twice, to solidify that the process matters. ... [truncated] [appeared before 3 times, at 6.17102 5.14502 5.128]

← (3.05301) C: believes we will create a project that we know they can do.*3.05302 They are putting their critical thinking skills to work, and learning, because they will be in their teams going through a process. [appeared before 3 times, at 6.17102 5.14502 5.128]

←← (7.00404) 2. Team: will return to the Lawson text and specifically pick out areas that match up or are appropriate to the big ideas on the syllabus. [appeared before 3 times, at 7.133 7.095 7.06]

←← (6.16901) If I had my druthers, I would put THIS as the textbook for the course. [appeared before 1 times, at 7.06]

←← (6.15001) 4. Usefulness of the Lawson text. [appeared before 1 times, at 7.06]

←← (6.09701) Contrast and compare with Lawson. [appeared before 3 times, at 7.109031 7.06 6.15001]

←← (5.058) C: This book reads out of date.*5.05801 Does the dating of this book somehow undermine our credibility. [appeared before 12 times, at 7.125 7.109031 6.17102 5.14 5.139 5.136 5.135 5.124 5.114 5.11 5.095 5.076]

←← (5.04805) Also moving beyond the object.*5.04806 [The Norman book] is located in objects, in products.*5.04807 Good early on for students to interrogate the things around them. [appeared before 10 times, at 7.125 7.109031 6.17102 5.14 5.139 5.135 5.124 5.114 5.11 5.076]

←← (5.041) B: It does touch on some principles that are useful in this course—he talks about them in the first few pages of the book. [appeared before 10 times, at 7.125 7.109031 6.17102 5.14 5.139 5.135 5.124 5.114 5.11 5.076]

←← (5.03603) Objectives are to be consistent, and are to scaffold. [appeared before 2 times, at 7.10903 7.066]

←← (4.126) C: So we want to think about our toolkit.*4.12601 What are the core ideas;*4.12602 if we-re going to use terms like principles, frameworks, models, whatever;*4.12603 when we come to our weekly ... [truncated] [appeared before 8 times, at 7.159 7.113 7.10903 7.066 6.061 5.15809 5.13903 5.03604]

←← (3.05903) We have 4 hours of class time (does not mean the classes are 4 hours each), we have 4 hour blocks that can be broken up.*3.05904 We are very conscious unpacking ... [truncated] [appeared before 10 times, at 7.159 7.113 7.10903 7.066 6.061 5.15809 5.13903 5.03604 4.164 4.126]

←←N (5.074) D: This book is useful at saying there is such a thing as a conceptual model, and here is an example of one, and then we can go on. [appeared before 3 times, at 5.124 5.116 5.09]

←←N (5.069) D: Let-s focus on affordances. (I love the idea of affordances, by the way.) In designing a business process, where does the idea of affordance come in?. [appeared before 2 times, at 5.124 5.09]

←←N (5.036) C: Re: Review course instructional design strategy: met last week: the 2 ID people from both teams will work together so that we have something that all the teams can use. ... [truncated] [appeared before 1 times, at 5.03604]

←←N (4.099) G: team assignment: when I give teams an in-class project where they research online different movements, and then present in the next class, so everybody gets a survey.*4.1 C: That-s an ... [truncated] [appeared before 1 times, at 5.128]

→→ (8.185 9.0001 9.057 9.06505 9.07004 9.083 9.085 9.11 9.11304 9.145 9.17)

N→→ (8.05001 8.071)

- (8.037) **J: Do we still have that bookend thing going on? 00:04:51 Broad intro;*8.03701 middle: how one person would teach the course;*8.03702 at the end the students have enough in their toolkit ... [truncated]**

← (4.146) C: The lens at the beginning is wide;*4.14601 the lens at the end is wide;*4.14602 but who is looking through the lens is different.

- (8.046) B: As we get back to a normal schedule I think we will bring some of that focus back.*8.04601 Some good ideas came out of the last meeting.

(8.04602) **Some concrete examples of big ideas: ichtat, design is collaborative.**

← (7.1372) Scale: those designs that mediate couples, as opposed to other social units: car seats, breakfast nooks, tables for 2, ichtat, text message.

- (8.048) J: It-s actually still there.

(8.04801) **The first 4 weeks—design is a conversation, design is all around us, social interactions, historical—the big stuff.**

← (7.136) Unit 3 (design is social):. *7.137 design is a means of communication between people;*7.13701 the way design is done is social. [appeared before 1 times, at 7.139]

← (7.133) Unit 1(intro, what is design, what is designer, design in the world, the course): chaps 1, 2. [appeared before 1 times, at 7.138]

←← (7.00404) [redundant]

←← (2.1380203) Design is social: the course explores how design is used to facilitate communication with others/Audience (design is out in the open, design helps us communicate more effectively with others in our ... [truncated] [appeared before 9 times, at 7.136 5.103 5.09403 5.09105 5.087 5.08103 4.14103 4.107 3.068]

- (8.048) [redundant]

(8.04802) **Then it goes into what does that do in a specific sense, it enables us to understand something, enables us to question, to develop a process.**

← (7.139) Unit 5 (design enables understanding): *7.13901 Focus on the designer. *7.13902 What are the things that you do that make you a designer. [appeared before 1 times, at 7.147]

←← (2.13802051) Design enables understanding: the course explores how designers (from different professions, backgrounds, disciplines) use design to visualize and make sense of the world they see and experience. [appeared before 4 times, at 7.139 5.116 4.14103 3.068]

- (8.032) S: re Instructional Design Process. *8.033 Shared assumptions: terms, activities, assignments, content. *8.034 Assumptions about critical thinking. *8.03401 gathering and processing information. *8.03402 how students will. *8.035 metaphor of tool kit, giving them some skill to ... [truncated]

(8.049) **S: *8.05 –We agree that there is an element of student reflection.**

← (6.071) C: If the course is a design, we actually want students to reflect back on what they are doing. *6.07101 If the course is also about design in the world, we want them over time to start noticing everyday design problems and bring that into a discussion, but the conversation would ... [truncated] [appeared before 1 times, at 6.16]

←← (3.052) The idea is for students to feel that what they are doing is meaningful to them or their [program in this school] community, so [program in this school] is where we ... [truncated] [appeared before 3 times, at 6.16 6.07801 6.071]

←←N (8.001) [redundant]

←←N (6.07) D: Who would the students be conversing with? That is, a designer is usually in a conversation with the client and the design representation.

←←N (6.06903) If this is about the everydayness of design, it-s like getting students to come to class every week with whatever they learn, or their content—their particular experiences, things they read in ... [truncated]

←←N (2.012) C: As in critical thinking and writing, arguments are built around the perspectives of multiple stakeholders.

→→ (8.10805)

- (8.049) S: *8.05 –We agree that there is an element of student reflection.

(8.05001) **–Course activities will flow from individual, to institutional to community.**

← (2.1380203) [redundant]

←←N (8.032) [redundant]

→→ (9.08501 10.181)

- (8.05001) –Course activities will flow from individual, to institutional to community.

(8.05002) **From discussions about design in everyday life to design of the midterm, which is institutional, to the community project.**

← (5.14501) They can look at the difference between an assignment and an exam—what makes an exam an exam. [appeared before 1 times, at 7.128]

- (8.049) [redundant]

(8.051) **C: Everything has to relate to the student-s life.**

← (3.052) [redundant]

- (8.049) [redundant]

(8.053) **S: *8.054 –assessment is of the ideas and the delivery of the ideas, but not assessing them on how they designed something.**

← (7.1461) All of the tools revolve around asking critical questions.

← (7.126) C: The goal is for students to have critical thinking tools that they can use in any area that they go in to. [appeared before 2 times, at 7.1461 7.128]

←← (3.087) D: *3.088 Agrees with G about design thinking;*3.08801 like to see a contrast of different kinds of design thinking. *3.08802 E.g., a team might exercise discipline in postponing evaluation of all ... [truncated] [appeared before 4 times, at 7.1461 7.126 4.161 4.07102]

←← (3.062) IDEAS ABOUT WHAT WE THINK WE WOULD LIKE TO ACHIEVE. [appeared before 9 times, at 7.1461 7.126 4.161 4.135 4.103 4.07102 3.087 3.082 3.081]

←← (3.0040110) 5. Course Objectives/Learning Outcomes. [appeared before 14 times, at 7.1461 7.126 4.161 4.135 4.123 4.103 4.07102 3.096 3.087 3.082 3.081 3.062 3.057 3.02603]

D.7.2 Paragraph Scope 28, 8.06301–8.12904

See Appendix section C.8.2.

- (8.062) J: What they do in an everyday context, frame that in a design context.

(8.06) C: We have to wait till we are putting the assignments together.

(8.06301) **If we take a closer look at what we want to cover in unit 1 will help us with the first activity could be.*8.06302 Because they haven-t done the readings yet—something ... [truncated]**

← (7.165) C: another crack at the objectives.

- (8.067) C: This conversation is premature.*8.06701 The objectives will better inform the approach.*8.06702 We will not have the end products for them to compare and contrast;*8.06703 that will happen in the tutorials. ... [truncated]

(8.06704) **Unit 1: Develop course intro. *8.06705 , look at home, space, interactions.**

← (7.16501) Next week we can work on unit 1, collaboratively.

N→→ (8.06707)

- (8.06704) Unit 1: Develop course intro. *8.06705 , look at home, space, interactions.
 (8.06706) **Talk about constraints and affordances and use those terms and map them on to our assignments.**
 ← (7.16503) Read Lawson ch 1 and 2 and Norman 1, 2 and 6 for unit 1 for next week.
- (8.06905) Communication tools.
 (8.06906) **Historical: president generates knowledge. *8.06907 Not about the history of design.**
 ← (2.1380204) Design is historical: the course explores the importance of precedent in design (how examples, models, patterns or standards) reflect learning and critical thinking. [appeared before 11 times, at 7.138 7.06105 6.17302 6.16 6.10102 5.171 5.088 5.05503 5.04808 5.04403 3.068]
 ←←N (8.069) C: Looking at concrete ways of demonstrating communication.
 ←←N (2.1380201) Why Does Design Matter? [appeared before 3 times, at 7.138 6.10102 5.171]
 →→ (8.207)
- (8.049) S: *8.05 –We agree that there is an element of student reflection.
 (8.071) **S: set wall board with units 1-8 left to right, and top to bottom: concepts, readings, workshops; *8.07101 skills and knowledge; *8.07102 activities–workshop, assignment. *8.072 Different colors for different contributors.**
 ← (7.165) [redundant]
 ←←N (8.032) S: re Instructional Design Process. *8.033 Shared assumptions: terms, activities, assignments, content. *8.034 Assumptions about critical thinking. *8.03401 gathering and processing information. *8.03402 how students will. *8.035 metaphor of tool kit, giving them some skill to ... [truncated] [appeared before 1 times, at 8.05001]
 →→ (8.13 8.133 11.049)
 N→→ (8.082)
- (8.06707) The unit topics get bigger.
 (8.073) **C: unit 3: design some kind of sign that communicates an idea.**
 ← (7.136) Unit 3 (design is social):. *7.137 design is a means of communication between people; *7.13701 the way design is done is social. [appeared before 2 times, at 8.04801 7.139]
 ←← (2.1380203) Design is social: the course explores how design is used to facilitate communication with others/Audience (design is out in the open, design helps us communicate more effectively with others in our ... [truncated] [appeared before 11 times, at 8.05001 8.04801 7.136 5.103 5.09403 5.09105 5.087 5.08103 4.14103 4.107 3.068]

- (8.06707) [redundant]
 - (8.074) **C unit 4: looking at exploring design over time as precedent.**
 - ← (7.138) Unit 4 (design is historical): C: What Designers Know has chapter 8 on precedent.
 - ←← (2.1380204) [redundant]
 - N→→ (8.07412)

- (8.071) S: set wall board with units 1-8 left to right, and top to bottom: concepts, readings, workshops;*8.07101 skills and knowledge;*8.07102 activities-workshop, assignment.*8.072 Different colors for different contributors.
 - (8.075) **C: Let-s go back to unit one and develop a process to go through the units.**
 - ← (7.165) [redundant]
 - N→→ (8.106)

- (8.091) B: Integration: -designers are exploring concrete integrations of knowledge that will combine theory with practice for new productive purposes, and this is the reason we turn to design thinking for insight ... [truncated]
 - (8.094) **This is where we (the students) can meet the designers.**
 - ← (6.108) J: To use this book as a text book would require us to use a week for each of these stages, which is not going to happen, because this is just one model, but we can pull stuff from it.
 - ←←N (8.088) C: are there other words that we can use? Characteristics, [J] themes.
 - ←←N (6.1) J: re Design Process: discussion of a particular process-their framework: the stages of inspiration, identification, conceptualization, exploration and refinement, definition and modelling, communication and production. *6.10001 Their is a chapter on ... [truncated]
 - (9.085 9.17)

- (8.095) J: we need to address the design as the end artefact.
 - (8.096) **C: the difficulty is defining design aside from the artefact.**
 - ← (7.14602) R: One is about the artifact, and the other is about play with the idea as it goes forward;*7.14603 they are 2 sides of the same coin.

- (8.106) **Unit 1: the 4 broads (broad areas);**
 - ← (8.082) Unit 1.
 - ←←N (8.07501) Unit 1: what is design thinking the concept, and what is design thinking the course.
 - ←←N (8.075) C: Let-s go back to unit one and develop a process to go through the units.
 - (8.131 8.18905)

- (8.106) Unit 1: the 4 broads (broad areas);
 (8.10802) **re: skills and knowledge;*8.10803 do not want to overload students.**
 ← (5.03603) Objectives are to be consistent, and are to scaffold. [appeared before 3 times, at 8.032 7.10903 7.066]
- (8.10804) Complete component in workshop.
 (8.10805) **Idea of reflecting;*8.10806 apply course material to their lives;**
 ← (8.049) [redundant]
 ←← (6.071) C: If the course is a design, we actually want students to reflect back on what they are doing. *6.07101 If the course is also about design in the world, we ... [truncated] [appeared before 2 times, at 8.049 6.16]
 ←← (3.052) The idea is for students to feel that what they are doing is meaningful to them or their [program in this school] community, so [program in this school] is where we ... [truncated] [appeared before 5 times, at 8.051 8.049 6.16 6.07801 6.071]
- (8.10805) Idea of reflecting;*8.10806 apply course material to their lives;
 (8.10804) [redundant]
 (8.10807) **sketch draw map out their living space (look at semantic relationship in their space, (J: materials symbols activities that take place in their space)) map out home as environment for ... [truncated]**
 ← (5.03602) We will also have a weekly template, that has the big idea, the title, the object for that week is, what that assignment or activity for that week might be, and what the objectives for that are. [appeared before 2 times, at 8.032 5.09]

D.7.3 Paragraph Scope 29, 8.13 8.215

See Appendix section C.8.3.

- (8.13) **Talk about schedules and deliverables.**
 ← (8.071) S: set wall board with units 1-8 left to right, and top to bottom: concepts, readings, workshops;*8.07101 skills and knowledge;*8.07102 activities-workshop, assignment.*8.072 Different colors for different contributors.
 ← (7.165) C: another crack at the objectives. [appeared before 3 times, at 8.075 8.071 8.06301]
- (8.13) Talk about schedules and deliverables.
 (8.131) **Overview 1-4: general to specific;**
 ← (8.106) Unit 1: the 4 broads (broad areas);
 ←← (8.082) Unit 1. [appeared before 1 times, at 8.106]
 →→ (8.18905)

- (8.131) Overview 1-4: general to specific;
 - (8.13101) **C interested in precedent—how would you show that in an interesting way in class or what is an interesting activity.*8.13102 I love the idea of signs.**
 - ← (8.07412) C: We get knowledge; *8.07413 put that back in process and design something else with the new knowledge.*8.07414 -Design precedent: old knowledge + new knowledge = design-.
 - ←←N (8.07411) J: How does design build on precedent.
 - (8.206)
- (8.131) [redundant]
 - (8.132) **Everybody has the outline that S sent around.**
 - ← (4.172) Action: Next week C will meet with S to create an outline for developing weekly course objectives, assignment objectives and assignments. [appeared before 1 times, at 5.036]
 - ←← (3.37013) 1.Action: Next week C will meet with S to create an outline for developing weekly course objectives, assignment objectives and assignments. [appeared before 2 times, at 5.036 4.172]
 - N→→ (8.13601)
- (8.132) Everybody has the outline that S sent around.
 - (8.133) **[S has been recording all of this (notes on board) down].**
 - ← (8.071) [redundant]
 - ←← (7.165) [redundant]
- (8.176) **B: 5 is good.*8.177 C: -reflect on and articulate role of self as designer-? B: yes;*8.17701 C: cool.**
 - ← (8.13601) [S:] general course flow and learning outcomes.
- (8.178) **C: the overall learning outcomes: -adapt design thinking strategies to situations outside of the course-.**
 - ← (8.13601) [redundant]
 - ←←N (8.136) C: More than look at course map?;
 - (10.257)
- (8.181) **C: -engaging collaborative processes to complete an iterative design project—that-s the teamwork element, we have to have that.**
 - ← (8.13601) [redundant]
- (8.185) **S: we talked about the learning activities and the instructional methods;**
 - ← (8.13601) [redundant]

- ← (8.032) S: re Instructional Design Process.*8.033 Shared assumptions: terms, activities, assignments, content.*8.034 Assumptions about critical thinking.*8.03401 gathering and processing information.*8.03402 how students will.*8.035 metaphor of tool kit, giving them some skill to apply to the final project. [appeared before 2 times, at 8.071 8.05001]
- ←← (7.066) C: Weeks 1-8: toolkit;*7.06601 every week contributes to final project - scaffolded. [appeared before 2 times, at 8.032 7.10903]
- ←← (7.06) re Design Thinking (the Lawson book).*7.06001 Generally good to go, despite the book being a little advanced. [appeared before 1 times, at 8.032]
- ←← (7.00404) 2. Team: will return to the Lawson text and specifically pick out areas that match up or are appropriate to the big ideas on the syllabus. [appeared before 5 times, at 8.04801 8.032 7.133 7.095 7.06]
- ←← (6.16901) If I had my druthers, I would put THIS as the textbook for the course. [appeared before 2 times, at 8.032 7.06]
- ←← (6.15001) 4. Usefulness of the Lawson text. [appeared before 2 times, at 8.032 7.06]
- ←← (6.09701) Contrast and compare with Lawson. [appeared before 4 times, at 8.032 7.109031 7.06 6.15001]
- ←← (5.076) C: We are in agreement that we can go to Norman for higher level ideas, and then we can begin to flush those ideas out with other kinds of readings or ... [truncated] [appeared before 10 times, at 8.032 7.125 7.109031 6.17102 5.14 5.139 5.135 5.124 5.114 5.11]
- ←← (5.058) C: This book reads out of date.*5.05801 Does the dating of this book somehow undermine our credibility. [appeared before 13 times, at 8.032 7.125 7.109031 6.17102 5.14 5.139 5.136 5.135 5.124 5.114 5.11 5.095 5.076]
- ←← (5.04805) Also moving beyond the object.*5.04806 [The Norman book] is located in objects, in products.*5.04807 Good early on for students to interrogate the things around them. [appeared before 11 times, at 8.032 7.125 7.109031 6.17102 5.14 5.139 5.135 5.124 5.114 5.11 5.076]
- ←← (5.041) B: It does touch on some principles that are useful in this course—he talks about them in the first few pages of the book. [appeared before 11 times, at 8.032 7.125 7.109031 6.17102 5.14 5.139 5.135 5.124 5.114 5.11 5.076]
- ←← (5.03604) The first 8 weeks we are building a toolkit, and the last 4 weeks we are putting the tool kit into action. [appeared before 8 times, at 8.032 7.159 7.113 7.10903 7.066 6.061 5.15809 5.13903]
- ←← (5.03603) Objectives are to be consistent, and are to scaffold. [appeared before 4 times, at 8.10802 8.032 7.10903 7.066]
- ←← (5.03602) We will also have a weekly template, that has the big idea, the title, the object for that week is, what that assignment or activity for that week might be, and ... [truncated] [appeared before 3 times, at 8.10807 8.032 5.09]
- ←← (4.126) C: So we want to think about our toolkit.*4.12601 What are the core

ideas;*4.12602 if we-re going to use terms like principles, frameworks, models, whatever;*4.12603 when we come to our weekly ... [truncated] [appeared before 9 times, at 8.032 7.159 7.113 7.10903 7.066 6.061 5.15809 5.13903 5.03604]

←← (4.102) C: re: research activity: That sounds familiar, so that might be a nice point of integration to think about.*4.10201 Ours might have an element of research, because it is a critical ... [truncated] [appeared before 4 times, at 8.032 6.17102 5.14502 5.128]

←← (3.05903) We have 4 hours of class time (does not mean the classes are 4 hours each), we have 4 hour blocks that can be broken up.*3.05904 We are very conscious unpacking ... [truncated] [appeared before 11 times, at 8.032 7.159 7.113 7.10903 7.066 6.061 5.15809 5.13903 5.03604 4.164 4.126]

←← (3.05301) C: believes we will create a project that we know they can do.*3.05302 They are putting their critical thinking skills to work, and learning, because they will be in their teams ... [truncated] [appeared before 4 times, at 8.032 6.17102 5.14502 5.128]

←←N (8.136) [redundant]

←←N (8.001) Design Thinking Meeting Notes: 7th May 2007. [appeared before 1 times, at 8.049]

←←N (2.012) C: As in critical thinking and writing, arguments are built around the perspectives of multiple stakeholders. [appeared before 1 times, at 8.049]

→→ (9.07004)

- (8.18101) -complete- is a problem, because often things are not completed; *8.18102 so -engaging collaborative processes to -something- in an iterative design- Should not be -project-, it should be about -process- something ... [truncated]

(8.187) C: design is collaborative, but this [?] can live on its own for talking about team process;

← (7.148) Unit 8.*7.149 Getting the teams ready to do the team project;*7.14901 already collaborating;

←← (6.139) J: So this is what we-re going with?.*6.14 C: We-re going with it. [appeared before 2 times, at 7.148 7.147]

←← (2.1380209) Design is collaborative: the course explores the idea that design requires more expertise than resides in any one person-s head and that part of testing and understanding designs is the recognition ... [truncated] [appeared before 8 times, at 7.154 7.148 5.13002 5.103 5.1 5.09301 4.113 3.0680201]

- (8.18701) it makes sense in week 9 if they begin the 4 week process.

(8.18702) It has to come up here [?] We have to be clear about -social-, if it-s social by nature, that has several implications:

← (7.136) Unit 3 (design is social):. *7.137 design is a means of communication between people;*7.13701 the way design is done is social. [appeared before 3 times, at 8.073 8.04801 7.139]

←← (2.1380203) Design is social: the course explores how design is used to facilitate communication with others/Audience (design is out in the open, design helps us communicate more effectively with others in our ... [truncated] [appeared before 12 times, at 8.073 8.05001 8.04801 7.136 5.103 5.09403 5.09105 5.087 5.08103 4.14103 4.107 3.068]

- (8.18901) We can say early on that the process is a team process.*8.18902 We-re going to look at that here [x] but we want to acknowledge it here [y] and it involves ... [truncated]

(8.18905) **And I think that if by week 3 its really important that we look at this idea of design in the world all around us every day.*8.18906 This is the focus. ... [truncated]**

← (8.131) [redundant]

←← (8.106) [redundant]

←← (8.082) [redundant]

- (8.18905) And I think that if by week 3 its really important that we look at this idea of design in the world all around us every day.*8.18906 This is the focus. ... [truncated]

(8.19) **C: 3, 7 and 9 connect.**

← (7.147) Unit 7 (process and collaboration): weeks 9, 10, 11, 12 set aside for project, 7 and 8 need to move into the team stuff;*7.14701 talk about the nature of collaboration.

←← (6.139) [redundant]

- (8.191) **C: I-m under the impression that talking about the social environ outside of the house is a good idea.*8.19101 It-s the transition from the individual to the team.**

← (8.06901) Unit 1: me;*8.06902 unit 2 me in my home;*8.06903 unit 3 neighborhood.

- (8.19) C: 3, 7 and 9 connect.

(8.193) **C: quote -the design holds the idea- He designs experiential interactive spaces—big libraries.*8.19301 Here-s the client their idea, the design and the end user.*8.19302 The design has their idea, the design ... [truncated]**

← (8.06707) The unit topics get bigger.

← (7.13708) Should distinguish between the design process (Lawson unit 3) and the design artifact (unit 10) [R: International highway sign system—good e.g. of design as communication.

- (8.193) C: quote -the design holds the idea- He designs experiential interactive spaces—big libraries.*8.19301 Here-s the client their idea, the design and the end user.*8.19302 The design has their idea, the design ... [truncated]

(8.195) **C: but also design as a medium, and design as a process.**

← (2.13802071) Design is a process: this course explores how the making of artefacts (ideas, words, physical materials, virtual images) facilitates the development of ideas (how designers must generate ideas and test them/ utilize an iterative design and testing cycle). [appeared before 3 times, at 5.108 4.104 3.0680201]

- (8.19501) If we look at examples:

(8.19502) **e.g. stop sign: me and the stop sign, others and the stop sign. *8.19504 any design;*8.19505 what about a system? Everyday example (stop sign).*8.19506 pedestrian, driver Example of system?.**

← (5.09103) For example, we agree on the stop lights. *5.09104 These are everyday objects that were designed with the bigger understanding of the social implication of everybody has to agree or else there-s chaos or danger.

- (8.20001) Understand the social significance of the communication.*8.20002 The big word is -communication- -design a set of instructions using signs that communicate.*8.20003 - -design a social space-? -design a social space that ... [truncated]

(8.20004) - **Also we should be getting into terms like -affordances- -constraints- That stuff has got to be layered on to here as well.*8.20005 We could be introducing that stuff here [week ... [truncated]**

← (5.03603) [redundant]

←←N (8.198) C: find some kind of sign to communicate an idea;

→→ (9.129)

- (8.19501) [redundant]

(8.206) **C: what are some examples of precedence.**

← (8.13101) C interested in precedent-how would you show that in an interesting way in class or what is an interesting activity.*8.13102 I love the idea of signs.

←← (8.07412) [redundant]

- (8.20601) B: also the evolution of designs, different generation of designs.*8.20602 We have classifications of different designs different computers into generations of systems.

(8.207) **C [writing]: one component [of design is historical] is the evolution of design over time [B: technological advances, component technologies, packaging;**

← (8.06906) Historical: president generates knowledge. *8.06907 Not about the history of design.

← (7.138) Unit 4 (design is historical): C: What Designers Know has chapter 8 on precedent. [appeared before 1 times, at 8.074]

←← (2.1380204) Design is historical: the course explores the importance of precedent in design (how examples, models, patterns or standards) reflect learning and critical

thinking. [appeared before 13 times, at 8.074 8.06906 7.138 7.06105 6.17302 6.16 6.10102 5.171 5.088 5.05503 5.04808 5.04403 3.068]

- (8.21202) precedent (when something is so important or influential that everything after is measured against it, then what is there to learn—that embodies a kind of knowledge that can be used again ... [truncated])

(8.213) B: Design is an argument.

← (8.089) J: -Argument is the central theme that cuts across many technical methodologies employed in each design profession-.

D.7.4 Paragraph Scope 30, 8.21701–8.219

See Appendix section C.8.4.

- **(8.219) C: I started finding news articles about the [train station].*8.21901 If you see anything just copy it and I-ll stick it up.**
 - ← (8.13601) [S:] general course flow and learning outcomes. [appeared before 4 times, at 8.185 8.181 8.178 8.176]
 - ← (6.139) J: So this is what we-re going with?.*6.14 C: We-re going with it. [appeared before 4 times, at 8.19 8.187 7.148 7.147]
 - ←←N (8.136) C: More than look at course map?; [appeared before 2 times, at 8.185 8.178]
 - ←←N (6.12306) An idea that I suggested is that they don-t come up with a product, they use their critical thinking to come up with proposals-suggestions. [appeared before 2 times, at 7.148 7.147]
 - (9.06511 9.079 9.09303)

D.8 Design Meeting Seven

D.8.1 Paragraph Scope 32, 9.052–9.082

See Appendix section C.9.2.

- (9.0007) 2. Continue ID work on Units 1 to Unit 4
 - (9.052) B: re Norman book: require students to read it in its entirety in the 1st 4 weeks, because it is all over the place.**
 - ← (5.105) C: chapter 6 is a big chapter for us.

← (5.076) C: We are in agreement that we can go to Norman for higher level ideas, and then we can begin to flush those ideas out with other kinds of readings or supplemental course material. [appeared before 11 times, at 8.185 8.032 7.125 7.109031 6.17102 5.14 5.139 5.135 5.124 5.114 5.11]

←← (5.058) C: This book reads out of date.*5.05801 Does the dating of this book somehow undermine our credibility. [appeared before 14 times, at 8.185 8.032 7.125 7.109031 6.17102 5.14 5.139 5.136 5.135 5.124 5.114 5.11 5.095 5.076]

←← (5.04805) Also moving beyond the object.*5.04806 [The Norman book] is located in objects, in products.*5.04807 Good early on for students to interrogate the things around them. [appeared before 12 times, at 8.185 8.032 7.125 7.109031 6.17102 5.14 5.139 5.135 5.124 5.114 5.11 5.076]

←← (5.041) B: It does touch on some principles that are useful in this course—he talks about them in the first few pages of the book. [appeared before 12 times, at 8.185 8.032 7.125 7.109031 6.17102 5.14 5.139 5.135 5.124 5.114 5.11 5.076]

←←N (5.085) D: Chapter 6 certainly hits a lot of the big ideas.

←←N (5.074) D: This book is useful at saying there is such a thing as a conceptual model, and here is an example of one, and then we can go on. [appeared before 4 times, at 8.032 5.124 5.116 5.09]

←←N (5.069) D: Let-s focus on affordances. (I love the idea of affordances, by the way.) In designing a business process, where does the idea of affordance come in?. [appeared before 3 times, at 8.032 5.124 5.09]

→→ (9.075 11.17001)

N→→ (9.065)

- (9.052) B: re Norman book: require students to read it in its entirety in the 1st 4 weeks, because it is all over the place.

(9.053) B: offers collection of key words that he collected, mostly from the Norman book.

← (5.165) C: Norman will influence our terminology even if we don-t subscribe to his terminology, so when we read other things we can say -those terms map. 5.163

← (5.136) J: The usefulness of this book for design thinking is when that terminology maps; [appeared before 1 times, at 6.17102]

←← (5.06701) How married are we going to be to this terminology. *5.06702 Are Norman-s terms mappable to other terms?. [appeared before 3 times, at 6.17102 5.136 5.076]

←← (5.03608) Unless we are very clear about the language, the terminology, and limitations of the book—book will influence the delivery of the material. [appeared before 3 times, at 6.17102 5.136 5.06701]

- (9.0007) [redundant]

(9.054) C: shows book recommended by [] about people in the world and what they do—photographs of affordances that people unconsciously create.

← (5.17) [about the resource books] whether or not they are all included for the students, they are good for the teacher to have.

N→→ (9.06505 9.085)

- (9.054) C: shows book recommended by [] about people in the world and what they do—photographs of affordances that people unconsciously create.

(9.057) C: working on what would we have to do to make the students ready for the midterm, realized the scope and how it would have to be integrated into every week ... [truncated]

← (8.032) S: re Instructional Design Process.*8.033 Shared assumptions: terms, activities, assignments, content.*8.034 Assumptions about critical thinking.*8.03401 gathering and processing information.*8.03402 how students will.*8.035 metaphor of tool kit, giving them some skill to apply to the final project. [appeared before 3 times, at 8.185 8.071 8.05001]

← (7.128) C: Which is the same idea as the students designing their exam.*7.12801 Would like students to henceforth (after this course) see exams differently.*7.12802 [Explains to R the team-s idea of the students team design of an exam on the big ideas as their midterm. [appeared before 1 times, at 7.131]

← (5.15) J: An exercise might be: here-s a reading, design an exam. [appeared before 1 times, at 7.128]

←← (7.066) C: Weeks 1-8: toolkit;*7.06601 every week contributes to final project - scaffolded. [appeared before 3 times, at 8.185 8.032 7.10903]

←← (7.06) re Design Thinking (the Lawson book).*7.06001 Generally good to go, despite the book being a little advanced. [appeared before 2 times, at 8.185 8.032]

←← (7.00404) 2. Team: will return to the Lawson text and specifically pick out areas that match up or are appropriate to the big ideas on the syllabus. [appeared before 6 times, at 8.185 8.04801 8.032 7.133 7.095 7.06]

←← (6.16901) If I had my druthers, I would put THIS as the textbook for the course. [appeared before 3 times, at 8.185 8.032 7.06]

←← (6.15001) 4. Usefulness of the Lawson text. [appeared before 3 times, at 8.185 8.032 7.06]

←← (6.09701) Contrast and compare with Lawson. [appeared before 5 times, at 8.185 8.032 7.109031 7.06 6.15001]

←← (5.145) C: we want the design of the course to be transparent. [appeared before 1 times, at 7.128]

←← (5.076) [redundant]

←← (5.073) C: Re: the idea of the conceptual model. *5.07301 But this course will also have to provide conceptual models for reading and understanding this course—it has to be that transparent. ... [truncated] [appeared before 3 times, at 7.128 5.145 5.116]

←← (5.058) [redundant]

←← (5.04805) [redundant]

- ←← (5.043) B: He doesn't address every principle in detail. *5.04301 He does for a couple, like the 7 stages of action.*5.04302 To go through an iterative process of applying constraints to decide ... [truncated] [appeared before 4 times, at 7.128 5.145 5.116 5.073]
- ←← (5.041) [redundant]
- ←← (5.03604) The first 8 weeks we are building a toolkit, and the last 4 weeks we are putting the tool kit into action. [appeared before 9 times, at 8.185 8.032 7.159 7.113 7.10903 7.066 6.061 5.15809 5.13903]
- ←← (5.03603) Objectives are to be consistent, and are to scaffold. [appeared before 6 times, at 8.20004 8.185 8.10802 8.032 7.10903 7.066]
- ←← (5.03602) We will also have a weekly template, that has the big idea, the title, the object for that week is, what that assignment or activity for that week might be, and ... [truncated] [appeared before 4 times, at 8.185 8.10807 8.032 5.09]
- ←← (4.126) C: So we want to think about our toolkit.*4.12601 What are the core ideas;*4.12602 if we're going to use terms like principles, frameworks, models, whatever;*4.12603 when we come to our weekly ... [truncated] [appeared before 10 times, at 8.185 8.032 7.159 7.113 7.10903 7.066 6.061 5.15809 5.13903 5.03604]
- ←← (4.102) C: re: research activity: That sounds familiar, so that might be a nice point of integration to think about.*4.10201 Ours might have an element of research, because it is a critical ... [truncated] [appeared before 5 times, at 8.185 8.032 6.17102 5.14502 5.128]
- ←← (3.05903) We have 4 hours of class time (does not mean the classes are 4 hours each), we have 4 hour blocks that can be broken up.*3.05904 We are very conscious unpacking ... [truncated] [appeared before 12 times, at 8.185 8.032 7.159 7.113 7.10903 7.066 6.061 5.15809 5.13903 5.03604 4.164 4.126]
- ←← (3.05301) C: believes we will create a project that we know they can do.*3.05302 They are putting their critical thinking skills to work, and learning, because they will be in their teams ... [truncated] [appeared before 5 times, at 8.185 8.032 6.17102 5.14502 5.128]
- ←← (3.02605) One of the goals for this course is that our design is transparent;*3.02606 we want them to see that this course was designed with a set of objects, and the activities ... [truncated] [appeared before 5 times, at 7.128 6.06901 5.145 5.116 5.073]
- ←←N (9.0007) [redundant]
- ←←N (8.001) Design Thinking Meeting Notes: 7th May 2007. [appeared before 2 times, at 8.185 8.049]
- ←←N (7.127) D: Would like the students to abstract the idea of affordances. *7.12701 Gives example of affordance in survey design—the metaphors and language that the intended audience can grab to provide the ... [truncated]
- ←←N (5.14501) They can look at the difference between an assignment and an exam—what makes an exam an exam. [appeared before 2 times, at 8.05002 7.128]
- ←←N (2.012) C: As in critical thinking and writing, arguments are built around the perspectives of multiple stakeholders. [appeared before 2 times, at 8.185 8.049]

→→ (9.06505 9.085 9.11 9.11304 9.17)

- (9.057) C: working on what would we have to do to make the students ready for the midterm, realized the scope and how it would have to be integrated into every week ... [truncated]

(9.058) D: The last chapter in the Lawson book is a kind of summary pretty well tells the students what they would have to include in their exams—model of design;*9.05801 summary of ... [truncated]

← (7.06) [redundant]

←← (7.00404) [redundant]

←← (6.16901) [redundant]

←← (6.15001) [redundant]

←← (6.09701) [redundant]

N→→ (9.065)

- (9.06) D: quite a chunk of reading at the beginning.

(9.061) C: they have to read;

← (5.089) C: If you are going to be in a critical thinking course, you have to read.*5.08901 We don-t want them to read stuff that we are not going to cover.*5.08902 I have no problems with them picking their way—we don-t need to read linearly.

- (9.065) D: re Lawson.

(9.06502) useful to bring up our intentions for the units. *9.06503 useful to indicate what Lawson was getting at in subsections.*9.06504 help to tie Lawson with question we are trying to answer. ... [truncated]

← (7.132) Believe there is a general consensus to use the Lawson text.

← (7.10905) Individually we can go in more specifically and interrogate the material.

← (7.06) [redundant]

← (6.095) 4. Usefulness off the Lawson and Aspelund texts in relation to syllabus big ideas.

←← (7.00404) [redundant]

←← (6.16901) [redundant]

←← (6.15001) [redundant]

←← (6.09701) [redundant]

←← (6.0030401) 4. Team will discuss the usefulness off the Lawson and Aspelund texts in relation to syllabus big ideas. [appeared before 1 times, at 6.095]

←← (3.37008) 4. Text Books: 1. Lawson: How Designer-s Think - not in yet 2. Lawson: What Designer-s Know - not in yet 3. Aspelund: The Design Process - not in yet ... [truncated] [appeared before 1 times, at 6.095]

←← (3.0040104) c. Design Experience. [appeared before 3 times, at 6.095 3.054 3.026]

←← (2.13802) Big Ideas explored in the course: [appeared before 2 times, at 6.095 3.059]

- (9.06502) useful to bring up our intentions for the units. *9.06503 useful to indicate what Lawson was getting at in subsections.*9.06504 help to tie Lawson with question we are trying to answer. ... [truncated]

(9.06505) D: My opinion that at every step of the way the students should rehearse some aspect of the midterm, so when they get to the midterm it is just another performance. ... [truncated]

← (9.057) [redundant]

←← (8.032) [redundant]

←← (7.128) [redundant]

←← (7.066) [redundant]

←← (7.06) [redundant]

←← (7.00404) [redundant]

←← (6.16901) [redundant]

←← (6.15001) [redundant]

←← (6.09701) [redundant]

←← (5.15) [redundant]

←← (5.145) [redundant]

←← (5.076) [redundant]

←← (5.073) [redundant]

←← (5.058) [redundant]

←← (5.04805) [redundant]

←← (5.043) [redundant]

←← (5.041) [redundant]

←← (5.03604) [redundant]

←← (5.03603) [redundant]

←← (5.03602) [redundant]

←← (4.126) [redundant]

←← (4.102) [redundant]

←← (3.05903) [redundant]

←← (3.05301) [redundant]

←← (3.02605) [redundant]

←←N (9.054) [redundant]

→→ (9.11)

- (9.06506) D: We need to think about design is social and design is historical because Lawson falls short there.

(9.06511) J-s book may help.

← (8.219) C: I started finding news articles about the [train station].*8.21901 If you see anything just copy it and I'll stick it up.

←← (8.13601) [S:] general course flow and learning outcomes. [appeared before 5 times, at 8.219 8.185 8.181 8.178 8.176]

←← (6.139) J: So this is what we-re going with?.*6.14 C: We-re going with it. [appeared before 5 times, at 8.219 8.19 8.187 7.148 7.147]

- (9.06515) notes about 5 and 6, what do designers do that others don-t? answer: they ask certain kinds of questions.

(9.068) **[J:what am I doing, why am I doing this, what am I going to get out of this;*9.06801 someone who is not a designer would just go through the activity]. ... [truncated]**

← (7.14102) R: What does the designer do that others don-t? How do they avoid traps? B: reflect on problem and solution.

← (7.121) C: but the goal of the book is to explain to a lay audience about the ubiquitous presence of design—what kinds of questions does the designed object beg.

- (9.06514) Lawson strong on: design enables understanding and invites inquiry.

(9.069) **[C: this is for unit 6].**

← (7.14) Unit 6 (design invites inquiry): lumping parts of syllabus together. 1 and 2 are what is design. A shift after week 4. [appeared before 1 times, at 7.147]

- (9.06514) [redundant]

(9.07) **D: the objective there is that the students there would have to realize that they as designers would have to ask certain kinds of questions.**

← (7.165) C: another crack at the objectives. [appeared before 5 times, at 8.133 8.13 8.075 8.071 8.06301]

← (7.109) C: Want to map Lawson sections to units and big ideas.*7.10901 Next meeting divide up the units.*7.10902 Will have the draft of the learning objectives then.

←← (7.003) AGENDA. [appeared before 1 times, at 7.109]

N→→ (9.085)

- (9.069) [C: this is for unit 6].

(9.07001) **Unit 7 and 8 process and collaboration: I consider chapter 3 to be a reflection on the design process, so I shove chapter 3 at the end, because it is in ... [truncated]**

← (7.148) Unit 8.*7.149 Getting the teams ready to do the team project;*7.14901 already collaborating; [appeared before 1 times, at 8.187]

← (7.147) Unit 7 (process and collaboration): weeks 9, 10, 11, 12 set aside for project, 7 and 8 need to move into the team stuff;*7.14701 talk about the nature of collaboration. [appeared before 1 times, at 8.19]

←← (6.139) [redundant]

←← (2.1380209) Design is collaborative: the course explores the idea that design requires more expertise than resides in any one person-s head and that part of testing

and understanding designs is the recognition ... [truncated] [appeared before 9 times, at 8.187 7.154 7.148 5.13002 5.103 5.1 5.09301 4.113 3.0680201]

- (9.065) [redundant]
 - (9.07004) **re teamwork: Chapter 14 could be a fun time if we can get 1 or 2 of those design games: Lawson mentions some design game that illustrates in practice teamwork. ... [truncated]**
 - ← (8.185) S: we talked about the learning activities and the instructional methods;
 - ←← (8.13601) [redundant]
 - ←← (8.032) [redundant]
 - ←← (7.066) [redundant]
 - ←← (7.06) [redundant]
 - ←← (7.00404) [redundant]
 - ←← (6.16901) [redundant]
 - ←← (6.15001) [redundant]
 - ←← (6.09701) [redundant]
 - ←← (5.076) [redundant]
 - ←← (5.058) [redundant]
 - ←← (5.04805) [redundant]
 - ←← (5.041) [redundant]
 - ←← (5.03604) [redundant]
 - ←← (5.03603) [redundant]
 - ←← (5.03602) [redundant]
 - ←← (4.126) [redundant]
 - ←← (4.102) [redundant]
 - ←← (3.05903) [redundant]
 - ←← (3.05301) [redundant]
- (9.075) **C: are we agreeing that they have readings from weeks 1-8 only? And then use the final part as reviewing, with no new material.*9.07501 Front loading for the 1st 2/3 of ... [truncated]**
 - ← (9.052) [redundant]
 - ← (7.066) [redundant]
 - ← (6.095) [redundant]
 - ← (5.03604) [redundant]
 - ←← (6.0030401) [redundant]
 - ←← (5.105) [redundant]
 - ←← (5.076) [redundant]
 - ←← (5.058) [redundant]
 - ←← (5.04805) [redundant]
 - ←← (5.041) [redundant]
 - ←← (5.03603) [redundant]

←← (4.126) [redundant]
 ←← (3.37008) [redundant]
 ←← (3.05903) [redundant]
 ←← (3.0040104) [redundant]
 ←← (2.13802) [redundant]
 ←←N (2.029) TEXT BOOKS:
 →→ (11.17001)

- (9.078) **D: end of chapter 14 too advanced—could be optional: views of the design process [C: [] also noted that we will have to break some stuff down;*9.07801 we-ll be looking to ... [truncated]**
 ← (9.065) [redundant]
- (9.07802) C:Although it is front loaded, we will still come back to it during the big project].
 (9.079) **C: iterative, questions, proposal—they will have to research the problem—we are to grab as much [train station] stuff as possible;**
 ← (8.219) [redundant]
 ←← (8.13601) [redundant]
 ←← (6.139) [redundant]
- (9.079) C: iterative, questions, proposal—they will have to research the problem—we are to grab as much [train station] stuff as possible;
 (9.07901) **can-t have people come in and talk for every section;*9.07902 they will have to talk to stakeholders and ask questions.**
 ← (6.135) C: As soon as you say the word -community-,*6.13501 there are so many groups that we will have to liaise with, even before the students do it.*6.13502 It-s going to be a big design problem for us to do that.

D.8.2 Paragraph Scope 33, 9.083–9.091

See Appendix section C.9.3.

- (9.083) **C: Today we will each choose a unit or 2 units to map out the key ideas, content, readings.*9.08301 What do you fit into 2 hours.**
 ← (9.0001) EMAIL Hi Team,Thank you for a very productive meeting. Here is a brief summary of action items and deliverables for next week and a summary of May Scheduleadjustments:Action Items and Deliverables:
 ← (6.08) Course development template.
 ← (5.03602) We will also have a weekly template, that has the big idea, the title, the object for that week is, what that assignment or activity for that week might be, and

what the objectives for that are. [appeared before 7 times, at 9.07004 9.06505 9.057 8.185 8.10807 8.032 5.09]

←← (8.032) S: re Instructional Design Process.*8.033 Shared assumptions: terms, activities, assignments, content.*8.034 Assumptions about critical thinking.*8.03401 gathering and processing information.*8.03402 how students will.*8.035 metaphor of tool kit, giving them some skill to ... [truncated] [appeared before 6 times, at 9.07004 9.06505 9.057 8.185 8.071 8.05001]

←← (7.10905) Individually we can go in more specifically and interrogate the material. [appeared before 1 times, at 9.06502]

←← (7.066) C: Weeks 1-8: toolkit;*7.06601 every week contributes to final project - scaffolded. [appeared before 7 times, at 9.075 9.07004 9.06505 9.057 8.185 8.032 7.10903]

←← (7.06) re Design Thinking (the Lawson book).*7.06001 Generally good to go, despite the book being a little advanced. [appeared before 7 times, at 9.07004 9.06505 9.06502 9.058 9.057 8.185 8.032]

←← (7.00404) 2. Team: will return to the Lawson text and specifically pick out areas that match up or are appropriate to the big ideas on the syllabus. [appeared before 11 times, at 9.07004 9.06505 9.06502 9.058 9.057 8.185 8.04801 8.032 7.133 7.095 7.06]

←← (6.16901) If I had my druthers, I would put THIS as the textbook for the course. [appeared before 8 times, at 9.07004 9.06505 9.06502 9.058 9.057 8.185 8.032 7.06]

←← (6.15001) 4. Usefulness of the Lawson text. [appeared before 8 times, at 9.07004 9.06505 9.06502 9.058 9.057 8.185 8.032 7.06]

←← (6.09701) Contrast and compare with Lawson. [appeared before 10 times, at 9.07004 9.06505 9.06502 9.058 9.057 8.185 8.032 7.109031 7.06 6.15001]

←← (6.095) 4. Usefulness off the Lawson and Aspelund texts in relation to syllabus big ideas. [appeared before 2 times, at 9.075 9.06502]

←← (6.0030401) 4. Team will discuss the usefulness off the Lawson and Aspelund texts in relation to syllabus big ideas. [appeared before 3 times, at 9.075 9.06502 6.095]

←← (6.0030201) 2. S will introduce us to our course development template. [appeared before 1 times, at 6.08]

←← (5.169) Upcoming goals: dump content into the template. [appeared before 2 times, at 6.08301 6.08]

←← (5.076) C: We are in agreement that we can go to Norman for higher level ideas, and then we can begin to flush those ideas out with other kinds of readings or ... [truncated] [appeared before 16 times, at 9.075 9.07004 9.06505 9.057 9.052 8.185 8.032 7.125 7.109031 6.17102 5.14 5.139 5.135 5.124 5.114 5.11]

←← (5.058) C: This book reads out of date.*5.05801 Does the dating of this book somehow undermine our credibility. [appeared before 19 times, at 9.075 9.07004 9.06505 9.057 9.052 8.185 8.032 7.125 7.109031 6.17102 5.14 5.139 5.136 5.135 5.124 5.114 5.11 5.095 5.076]

←← (5.04805) Also moving beyond the object.*5.04806 [The Norman book] is located in objects, in products.*5.04807 Good early on for students to interrogate the things

around them. [appeared before 17 times, at 9.075 9.07004 9.06505 9.057 9.052 8.185 8.032 7.125 7.109031 6.17102 5.14 5.139 5.135 5.124 5.114 5.11 5.076]

←← (5.041) B: It does touch on some principles that are useful in this course—he talks about them in the first few pages of the book. [appeared before 17 times, at 9.075 9.07004 9.06505 9.057 9.052 8.185 8.032 7.125 7.109031 6.17102 5.14 5.139 5.135 5.124 5.114 5.11 5.076]

←← (5.03604) The first 8 weeks we are building a toolkit, and the last 4 weeks we are putting the tool kit into action. [appeared before 13 times, at 9.075 9.07004 9.06505 9.057 8.185 8.032 7.159 7.113 7.10903 7.066 6.061 5.15809 5.13903]

←← (5.03603) Objectives are to be consistent, and are to scaffold. [appeared before 10 times, at 9.075 9.07004 9.06505 9.057 8.20004 8.185 8.10802 8.032 7.10903 7.066]

←← (4.126) C: So we want to think about our toolkit.*4.12601 What are the core ideas;*4.12602 if we-re going to use terms like principles, frameworks, models, whatever;*4.12603 when we come to our weekly ... [truncated] [appeared before 14 times, at 9.075 9.07004 9.06505 9.057 8.185 8.032 7.159 7.113 7.10903 7.066 6.061 5.15809 5.13903 5.03604]

←← (4.102) C: re: research activity: That sounds familiar, so that might be a nice point of integration to think about.*4.10201 Ours might have an element of research, because it is a critical ... [truncated] [appeared before 8 times, at 9.07004 9.06505 9.057 8.185 8.032 6.17102 5.14502 5.128]

←← (3.37008) 4. Text Books: 1. Lawson: How Designer-s Think - not in yet 2. Lawson: What Designer-s Know - not in yet 3. Aspelund: The Design Process - not in yet ... [truncated] [appeared before 3 times, at 9.075 9.06502 6.095]

←← (3.05903) We have 4 hours of class time (does not mean the classes are 4 hours each), we have 4 hour blocks that can be broken up.*3.05904 We are very conscious unpacking ... [truncated] [appeared before 16 times, at 9.075 9.07004 9.06505 9.057 8.185 8.032 7.159 7.113 7.10903 7.066 6.061 5.15809 5.13903 5.03604 4.164 4.126]

←← (3.05301) C: believes we will create a project that we know they can do.*3.05302 They are putting their critical thinking skills to work, and learning, because they will be in their teams ... [truncated] [appeared before 8 times, at 9.07004 9.06505 9.057 8.185 8.032 6.17102 5.14502 5.128]

←← (3.043) Team members should bring interesting readings to the group.

←← (3.0040104) c. Design Experience. [appeared before 5 times, at 9.075 9.06502 6.095 3.054 3.026]

←← (2.13802) Big Ideas explored in the course: [appeared before 4 times, at 9.075 9.06502 6.095 3.059]

←←N (5.036) C: Re: Review course instructional design strategy: met last week: the 2 ID people from both teams will work together so that we have something that all the teams can use. ... [truncated] [appeared before 2 times, at 8.032 5.03604]

←←N (2.01902) We need to evaluate and clarify our terminology.

→→ (9.145)

- (9.084) J: re designers asking questions, J shows video.
- (9.085) **C: For the midterm, we wanted to introduce students to different kinds of designers;**
 - ← (9.057) C: working on what would we have to do to make the students ready for the midterm, realized the scope and how it would have to be integrated into every week before hand. [appeared before 1 times, at 9.06505]
 - ← (8.094) This is where we (the students) can meet the designers.
 - ←← (8.032) [redundant]
 - ←← (7.128) C: Which is the same idea as the students designing their exam.*7.12801 Would like students to henceforth (after this course) see exams differently.*7.12802 [Explains to R the team-s idea of the ... [truncated] [appeared before 3 times, at 9.06505 9.057 7.131]
 - ←← (7.066) [redundant]
 - ←← (7.06) [redundant]
 - ←← (7.00404) [redundant]
 - ←← (6.16901) [redundant]
 - ←← (6.15001) [redundant]
 - ←← (6.108) J: To use this book as a text book would require us to use a week for each of these stages, which is not going to happen, because this is just ... [truncated] [appeared before 1 times, at 8.094]
 - ←← (6.09701) [redundant]
 - ←← (5.15) J: An exercise might be: here-s a reading, design an exam. [appeared before 3 times, at 9.06505 9.057 7.128]
 - ←← (5.145) C: we want the design of the course to be transparent. [appeared before 3 times, at 9.06505 9.057 7.128]
 - ←← (5.076) [redundant]
 - ←← (5.073) C: Re: the idea of the conceptual model. *5.07301 But this course will also have to provide conceptual models for reading and understanding this course—it has to be that transparent. ... [truncated] [appeared before 5 times, at 9.06505 9.057 7.128 5.145 5.116]
 - ←← (5.058) [redundant]
 - ←← (5.04805) [redundant]
 - ←← (5.043) B: He doesn-t address every principle in detail. *5.04301 He does for a couple, like the 7 stages of action.*5.04302 To go through an iterative process of applying constraints to decide ... [truncated] [appeared before 6 times, at 9.06505 9.057 7.128 5.145 5.116 5.073]
 - ←← (5.041) [redundant]
 - ←← (5.03604) [redundant]
 - ←← (5.03603) [redundant]
 - ←← (5.03602) [redundant]
 - ←← (4.126) [redundant]
 - ←← (4.102) [redundant]

←← (3.05903) [redundant]

←← (3.05301) [redundant]

←← (3.02605) One of the goals for this course is that our design is transparent;*3.02606 we want them to see that this course was designed with a set of objects, and the activities ... [truncated] [appeared before 7 times, at 9.06505 9.057 7.128 6.06901 5.145 5.116 5.073]

←←N (9.07) D: the objective there is that the students there would have to realize that they as designers would have to ask certain kinds of questions.

←←N (9.054) C: shows book recommended by [] about people in the world and what they do—photographs of affordances that people unconsciously create. [appeared before 1 times, at 9.06505]

←←N (8.091) B: Integration: -designers are exploring concrete integrations of knowledge that will combine theory with practice for new productive purposes, and this is the reason we turn to design thinking for insight ... [truncated]

←←N (2.01101) Note: Guest speakers will help convey these qualities.

→→ (9.17)

- (9.085) C: For the midterm, we wanted to introduce students to different kinds of designers; (9.08501) **if we continue of moving from private to the world community (unit 8)—the course is about them; *9.08502 their awareness of and relationship to design—why should they care.**
← (8.05001) –Course activities will flow from individual, to institutional to community.

←← (2.1380203) Design is social: the course explores how design is used to facilitate communication with others/Audience (design is out in the open, design helps us communicate more effectively with others in our ... [truncated] [appeared before 13 times, at 8.18702 8.073 8.05001 8.04801 7.136 5.103 5.09403 5.09105 5.087 5.08103 4.14103 4.107 3.068]

→→ (10.181)

- (9.085) [redundant]
(9.088) **C: if we do this midterm, we need to introduce the instructional designer right away;**
← (5.15) [redundant]
←←N (5.14501) They can look at the difference between an assignment and an exam—what makes an exam an exam. [appeared before 3 times, at 9.057 8.05002 7.128]
→→ (9.11504 11.17001)

D.8.3 Paragraph Scope 34, 9.092–9.144

See Appendix section C.9.4.

- (9.092) **Book report by J.**
 - ← (9.0004) J will present a brief summary of Bill Moggridge text and specific reasons for it usefulness.
- (9.092) Book report by J.
 - (9.09303) **J shows a 3 minute clip about interaction design.**
 - ← (8.219) C: I started finding news articles about the [train station].*8.21901 If you see anything just copy it and I-ll stick it up. [appeared before 2 times, at 9.079 9.06511]
 - ← (3.043) Team members should bring interesting readings to the group. [appeared before 1 times, at 9.083]
 - ←← (8.13601) [S:] general course flow and learning outcomes. [appeared before 8 times, at 9.079 9.07004 9.06511 8.219 8.185 8.181 8.178 8.176]
 - ←← (6.139) J: So this is what we-re going with?.*6.14 C: We-re going with it. [appeared before 8 times, at 9.079 9.07001 9.06511 8.219 8.19 8.187 7.148 7.147]
- (9.09301) Material about sociability in the forward and comes out in the examples;
 - (9.103) **J: did not map this book to the units because it is example based, and we can pull from it depending on the examples;**
 - ← (7.131) C: Examples will be sought while doing the individual units.
 - ←← (7.06103) I would like more real life examples, but there is enough of a framework. [appeared before 1 times, at 7.131]
 - ←← (6.17008) What-s lacking for me are real world examples. [appeared before 2 times, at 7.131 7.06103]
- (9.10301) e.g. there is a whole section on google-how information is being architected-middleman or big brother.
 - (9.104) **C: we-ve got google as socially situated;*9.10401 it maps on unit 3?.**
 - ← (7.136) Unit 3 (design is social):. *7.137 design is a means of communication between people;*7.13701 the way design is done is social. [appeared before 4 times, at 8.18702 8.073 8.04801 7.139]
 - ←← (2.1380203) Design is social: the course explores how design is used to facilitate communication with others/Audience (design is out in the open, design helps us communicate more effectively with others in our . . . [truncated] [appeared before 13 times, at 9.08501 8.18702 8.073 8.05001 8.04801 7.136 5.103 5.09403 5.09105 5.087 5.08103 4.107 3.068]
- (9.104) C: we-ve got google as socially situated;*9.10401 it maps on unit 3?.

(9.105) **J: page rank is social because it is based on who links to any one site;*9.10501 google being a success story—could come with a price.**

← (7.136) [redundant]

←← (2.1380203) [redundant]

- (9.092) [redundant]

(9.107) **J: piece by Bruce Sterling: future of cities e.g. use of wireless and digital technology to produce piece in historical location;*9.10703 future in terms of problems ie Danube rising—global warming;*9.10704 will ... [truncated]**

← (7.138) Unit 4 (design is historical): C: What Designers Know has chapter 8 on precedent. [appeared before 2 times, at 8.207 8.074]

←← (2.1380204) Design is historical: the course explores the importance of precedent in design (how examples, models, patterns or standards) reflect learning and critical thinking. [appeared before 14 times, at 8.207 8.074 8.06906 7.138 7.06105 6.17302 6.16 6.10102 5.171 5.088 5.05503 5.04808 5.04403 3.068]

- (9.109) C: concurs; *9.10901 arbitrary to pull the concepts apart. *9.10902 Difficulty with how the big ideas bleed into each other.

(9.11) **D: perhaps the idea of enabling them to practice will help us order things.**

← (9.06505) D: My opinion that at every step of the way the students should rehearse some aspect of the midterm, so when they get to the midterm it is just another performance.

←← (9.057) C: working on what would we have to do to make the students ready for the midterm, realized the scope and how it would have to be integrated into every week ... [truncated] [appeared before 2 times, at 9.085 9.06505]

←← (8.032) S: re Instructional Design Process.*8.033 Shared assumptions: terms, activities, assignments, content.*8.034 Assumptions about critical thinking.*8.03401 gathering and processing information.*8.03402 how students will.*8.035 metaphor of tool kit, giving them some skill to ... [truncated] [appeared before 8 times, at 9.085 9.083 9.07004 9.06505 9.057 8.185 8.071 8.05001]

←← (7.128) C: Which is the same idea as the students designing their exam.*7.12801 Would like students to henceforth (after this course) see exams differently.*7.12802 [Explains to R the team-s idea of the ... [truncated] [appeared before 4 times, at 9.085 9.06505 9.057 7.131]

←← (7.066) C: Weeks 1-8: toolkit;*7.06601 every week contributes to final project - scaffolded. [appeared before 9 times, at 9.085 9.083 9.075 9.07004 9.06505 9.057 8.185 8.032 7.10903]

←← (7.06) re Design Thinking (the Lawson book).*7.06001 Generally good to go, despite the book being a little advanced. [appeared before 9 times, at 9.085 9.083 9.07004 9.06505 9.06502 9.058 9.057 8.185 8.032]

- ←← (7.00404) 2. Team: will return to the Lawson text and specifically pick out areas that match up or are appropriate to the big ideas on the syllabus. [appeared before 13 times, at 9.085 9.083 9.07004 9.06505 9.06502 9.058 9.057 8.185 8.04801 8.032 7.133 7.095 7.06]
- ←← (6.16901) If I had my druthers, I would put THIS as the textbook for the course. [appeared before 10 times, at 9.085 9.083 9.07004 9.06505 9.06502 9.058 9.057 8.185 8.032 7.06]
- ←← (6.15001) 4. Usefulness of the Lawson text. [appeared before 10 times, at 9.085 9.083 9.07004 9.06505 9.06502 9.058 9.057 8.185 8.032 7.06]
- ←← (6.09701) Contrast and compare with Lawson. [appeared before 12 times, at 9.085 9.083 9.07004 9.06505 9.06502 9.058 9.057 8.185 8.032 7.109031 7.06 6.15001]
- ←← (5.15) J: An exercise might be: here-s a reading, design an exam. [appeared before 5 times, at 9.088 9.085 9.06505 9.057 7.128]
- ←← (5.145) C: we want the design of the course to be transparent. [appeared before 4 times, at 9.085 9.06505 9.057 7.128]
- ←← (5.076) C: We are in agreement that we can go to Norman for higher level ideas, and then we can begin to flush those ideas out with other kinds of readings or ... [truncated] [appeared before 18 times, at 9.085 9.083 9.075 9.07004 9.06505 9.057 9.052 8.185 8.032 7.125 7.109031 6.17102 5.14 5.139 5.135 5.124 5.114 5.11]
- ←← (5.073) C: Re: the idea of the conceptual model. *5.07301 But this course will also have to provide conceptual models for reading and understanding this course—it has to be that transparent. ... [truncated] [appeared before 6 times, at 9.085 9.06505 9.057 7.128 5.145 5.116]
- ←← (5.058) C: This book reads out of date.*5.05801 Does the dating of this book somehow undermine our credibility. [appeared before 21 times, at 9.085 9.083 9.075 9.07004 9.06505 9.057 9.052 8.185 8.032 7.125 7.109031 6.17102 5.14 5.139 5.136 5.135 5.124 5.114 5.11 5.095 5.076]
- ←← (5.04805) Also moving beyond the object.*5.04806 [The Norman book] is located in objects, in products.*5.04807 Good early on for students to interrogate the things around them. [appeared before 19 times, at 9.085 9.083 9.075 9.07004 9.06505 9.057 9.052 8.185 8.032 7.125 7.109031 6.17102 5.14 5.139 5.135 5.124 5.114 5.11 5.076]
- ←← (5.043) B: He doesn-t address every principle in detail. *5.04301 He does for a couple, like the 7 stages of action.*5.04302 To go through an iterative process of applying constraints to decide ... [truncated] [appeared before 7 times, at 9.085 9.06505 9.057 7.128 5.145 5.116 5.073]
- ←← (5.041) B: It does touch on some principles that are useful in this course—he talks about them in the first few pages of the book. [appeared before 19 times, at 9.085 9.083 9.075 9.07004 9.06505 9.057 9.052 8.185 8.032 7.125 7.109031 6.17102 5.14 5.139 5.135 5.124 5.114 5.11 5.076]
- ←← (5.03604) The first 8 weeks we are building a toolkit, and the last 4 weeks we are putting the tool kit into action. [appeared before 15 times, at 9.085 9.083 9.075 9.07004 9.06505 9.057 8.185 8.032 7.159 7.113 7.10903 7.066 6.061 5.15809 5.13903]

←← (5.03603) Objectives are to be consistent, and are to scaffold. [appeared before 12 times, at 9.085 9.083 9.075 9.07004 9.06505 9.057 8.20004 8.185 8.10802 8.032 7.10903 7.066]

←← (5.03602) We will also have a weekly template, that has the big idea, the title, the object for that week is, what that assignment or activity for that week might be, and ... [truncated] [appeared before 9 times, at 9.085 9.083 9.07004 9.06505 9.057 8.185 8.10807 8.032 5.09]

←← (4.126) C: So we want to think about our toolkit.*4.12601 What are the core ideas;*4.12602 if we-re going to use terms like principles, frameworks, models, what-ever;*4.12603 when we come to our weekly ... [truncated] [appeared before 16 times, at 9.085 9.083 9.075 9.07004 9.06505 9.057 8.185 8.032 7.159 7.113 7.10903 7.066 6.061 5.15809 5.13903 5.03604]

←← (4.102) C: re: research activity: That sounds familiar, so that might be a nice point of integration to think about.*4.10201 Ours might have an element of research, because it is a critical ... [truncated] [appeared before 10 times, at 9.085 9.083 9.07004 9.06505 9.057 8.185 8.032 6.17102 5.14502 5.128]

←← (3.05903) We have 4 hours of class time (does not mean the classes are 4 hours each), we have 4 hour blocks that can be broken up.*3.05904 We are very conscious un-packing ... [truncated] [appeared before 17 times, at 9.085 9.083 9.075 9.07004 9.06505 9.057 8.185 8.032 7.159 7.113 7.10903 7.066 6.061 5.15809 5.13903 5.03604 4.164]

←← (3.05301) C: believes we will create a project that we know they can do.*3.05302 They are putting their critical thinking skills to work, and learning, because they will be in their teams ... [truncated] [appeared before 10 times, at 9.085 9.083 9.07004 9.06505 9.057 8.185 8.032 6.17102 5.14502 5.128]

←← (3.02605) One of the goals for this course is that our design is transparent;*3.02606 we want them to see that this course was designed with a set of objects, and the activities ... [truncated] [appeared before 8 times, at 9.085 9.06505 9.057 7.128 6.06901 5.145 5.116 5.073]

- (9.11) D: perhaps the idea of enabling them to practice will help us order things.
 - (9.113) C: re assignments.*9.11301 unit 1 home doing=sketching drawing designing, 1 version 1st week, another version 2nd week—doing similar in spatial thinking: 3d sketch of living space, then look at how they ... [truncated]
 - ← (7.03) re Unit 1: What do we think students can do, given the 2 texts that we are agreeing on, and our own experience?.
- (9.11303) something tangible, product at the end.
 - (9.111) C: assignments give you a lot more clarity on content.
 - (9.11304) in each workshop, what we would have to do to prepare them for midterm: scope is huge.*9.11305 working backwards.
 - ← (9.057) [redundant]

←← (8.032) [redundant]
 ←← (7.128) [redundant]
 ←← (7.066) [redundant]
 ←← (7.06) [redundant]
 ←← (7.00404) [redundant]
 ←← (6.16901) [redundant]
 ←← (6.15001) [redundant]
 ←← (6.09701) [redundant]
 ←← (5.15) [redundant]
 ←← (5.145) [redundant]
 ←← (5.076) [redundant]
 ←← (5.073) [redundant]
 ←← (5.058) [redundant]
 ←← (5.04805) [redundant]
 ←← (5.043) [redundant]
 ←← (5.041) [redundant]
 ←← (5.03604) [redundant]
 ←← (5.03603) [redundant]
 ←← (5.03602) [redundant]
 ←← (4.126) [redundant]
 ←← (4.102) [redundant]
 ←← (3.05903) [redundant]
 ←← (3.05301) [redundant]
 ←← (3.02605) [redundant]

- (9.11501) what kinds of questions did the team use, purpose, meet criteria (has to be a set of criteria: e.g. each worth 30 percent 1/3 multiple choice ,1/3 short answer, 1/3 long ... [truncated])

(9.11504) Which means earlier on we will have to show them these kinds of questions. *9.11505 Every element has to be front loaded.*9.116 Will have to introduce instruction design right away when ... [truncated]

← (9.088) C: if we do this midterm, we need to introduce the instructional designer right away;

←← (5.15) [redundant]

←←N (9.11405) workshop:.*9.115 work on their assessment of the exam–this is what they are graded on;

→→ (11.17001)

N→→ (9.12)

- (9.128) They have to have something every week that they are evaluated on in order to show up; *9.12801 so why not talk about it.

(9.129) **In the write up of the activity we talk about constraints, so we are using that design language and applying it to what they are doing.**

← (9.095) J: Rest of the forward talks about what is good in interaction design, including implicit design versus explicit design: a car is implicit, while a fire system is explicit.*9.09501 There is a language to design–1d, 2d, 3d, 4d.

← (8.20004) - Also we should be getting into terms like -affordances- -constraints- That stuff has got to be layered on to here as well.*8.20005 We could be introducing that stuff here [week 2?] when they go back to look at their house again.

←← (5.03603) [redundant]

D.8.4 Paragraph Scope 35, 9.145–9.19508

See Appendix section C.9.5.

- (9.145) **B: each one of us take a unit and give objectives and outline readings, content, assignments.**

← (9.083) C: Today we will each choose a unit or 2 units to map out the key ideas, content, readings.*9.08301 What do you fit into 2 hours.

←← (9.0001) EMAIL Hi Team, Thank you for a very productive meeting. Here is a brief summary of action items and deliverables for next week and a summary of May Schedule adjustments: Action Items and Deliverables: ... [truncated] [appeared before 1 times, at 9.083]

←← (8.032) S: re Instructional Design Process.*8.033 Shared assumptions: terms, activities, assignments, content.*8.034 Assumptions about critical thinking.*8.03401 gathering and processing information.*8.03402 how students will.*8.035 metaphor of tool kit, giving them some skill to ... [truncated] [appeared before 10 times, at 9.11304 9.11 9.085 9.083 9.07004 9.06505 9.057 8.185 8.071 8.05001]

←← (7.10905) Individually we can go in more specifically and interrogate the material. [appeared before 2 times, at 9.083 9.06502]

←← (7.066) C: Weeks 1-8: toolkit;*7.06601 every week contributes to final project - scaffolded. [appeared before 11 times, at 9.11304 9.11 9.085 9.083 9.075 9.07004 9.06505 9.057 8.185 8.032 7.10903]

←← (7.06) re Design Thinking (the Lawson book).*7.06001 Generally good to go, despite the book being a little advanced. [appeared before 11 times, at 9.11304 9.11 9.085 9.083 9.07004 9.06505 9.06502 9.058 9.057 8.185 8.032]

←← (7.00404) 2. Team: will return to the Lawson text and specifically pick out areas that match up or are appropriate to the big ideas on the syllabus. [appeared before 15 times, at 9.11304 9.11 9.085 9.083 9.07004 9.06505 9.06502 9.058 9.057 8.185 8.04801 8.032 7.133 7.095 7.06]

←← (6.16901) If I had my druthers, I would put THIS as the textbook for the course. [appeared before 12 times, at 9.11304 9.11 9.085 9.083 9.07004 9.06505 9.06502 9.058

9.057 8.185 8.032 7.06]

←← (6.15001) 4. Usefulness of the Lawson text. [appeared before 12 times, at 9.11304 9.11 9.085 9.083 9.07004 9.06505 9.06502 9.058 9.057 8.185 8.032 7.06]

←← (6.09701) Contrast and compare with Lawson. [appeared before 14 times, at 9.11304 9.11 9.085 9.083 9.07004 9.06505 9.06502 9.058 9.057 8.185 8.032 7.109031 7.06 6.15001]

←← (6.095) 4. Usefulness off the Lawson and Aspelund texts in relation to syllabus big ideas. [appeared before 3 times, at 9.083 9.075 9.06502]

←← (6.08) Course development template. [appeared before 1 times, at 9.083]

←← (6.0030401) 4. Team will discuss the usefulness off the Lawson and Aspelund texts in relation to syllabus big ideas. [appeared before 4 times, at 9.083 9.075 9.06502 6.095]

←← (6.0030201) 2. S will introduce us to our course development template. [appeared before 2 times, at 9.083 6.08]

←← (5.169) Upcoming goals: dump content into the template. [appeared before 3 times, at 9.083 6.08301 6.08]

←← (5.076) C: We are in agreement that we can go to Norman for higher level ideas, and then we can begin to flush those ideas out with other kinds of readings or ... [truncated] [appeared before 20 times, at 9.11304 9.11 9.085 9.083 9.075 9.07004 9.06505 9.057 9.052 8.185 8.032 7.125 7.109031 6.17102 5.14 5.139 5.135 5.124 5.114 5.11]

←← (5.058) C: This book reads out of date.*5.05801 Does the dating of this book somehow undermine our credibility. [appeared before 23 times, at 9.11304 9.11 9.085 9.083 9.075 9.07004 9.06505 9.057 9.052 8.185 8.032 7.125 7.109031 6.17102 5.14 5.139 5.136 5.135 5.124 5.114 5.11 5.095 5.076]

←← (5.04805) Also moving beyond the object.*5.04806 [The Norman book] is located in objects, in products.*5.04807 Good early on for students to interrogate the things around them. [appeared before 21 times, at 9.11304 9.11 9.085 9.083 9.075 9.07004 9.06505 9.057 9.052 8.185 8.032 7.125 7.109031 6.17102 5.14 5.139 5.135 5.124 5.114 5.11 5.076]

←← (5.041) B: It does touch on some principles that are useful in this course—he talks about them in the first few pages of the book. [appeared before 21 times, at 9.11304 9.11 9.085 9.083 9.075 9.07004 9.06505 9.057 9.052 8.185 8.032 7.125 7.109031 6.17102 5.14 5.139 5.135 5.124 5.114 5.11 5.076]

←← (5.03604) The first 8 weeks we are building a toolkit, and the last 4 weeks we are putting the tool kit into action. [appeared before 17 times, at 9.11304 9.11 9.085 9.083 9.075 9.07004 9.06505 9.057 8.185 8.032 7.159 7.113 7.10903 7.066 6.061 5.15809 5.13903]

←← (5.03603) Objectives are to be consistent, and are to scaffold. [appeared before 15 times, at 9.129 9.11304 9.11 9.085 9.083 9.075 9.07004 9.06505 9.057 8.20004 8.185 8.10802 8.032 7.10903 7.066]

←← (5.03602) We will also have a weekly template, that has the big idea, the title, the

object for that week is, what that assignment or activity for that week might be, and ... [truncated] [appeared before 11 times, at 9.11304 9.11 9.085 9.083 9.07004 9.06505 9.057 8.185 8.10807 8.032 5.09]

←← (4.126) C: So we want to think about our toolkit.*4.12601 What are the core ideas;*4.12602 if we-re going to use terms like principles, frameworks, models, whatever;*4.12603 when we come to our weekly ... [truncated] [appeared before 18 times, at 9.11304 9.11 9.085 9.083 9.075 9.07004 9.06505 9.057 8.185 8.032 7.159 7.113 7.10903 7.066 6.061 5.15809 5.13903 5.03604]

←← (4.102) C: re: research activity: That sounds familiar, so that might be a nice point of integration to think about.*4.10201 Ours might have an element of research, because it is a critical ... [truncated] [appeared before 12 times, at 9.11304 9.11 9.085 9.083 9.07004 9.06505 9.057 8.185 8.032 6.17102 5.14502 5.128]

←← (3.37008) 4. Text Books: 1. Lawson: How Designer-s Think - not in yet 2. Lawson: What Designer-s Know - not in yet 3. Aspelund: The Design Process - not in yet ... [truncated] [appeared before 4 times, at 9.083 9.075 9.06502 6.095]

←← (3.05903) We have 4 hours of class time (does not mean the classes are 4 hours each), we have 4 hour blocks that can be broken up.*3.05904 We are very conscious unpacking ... [truncated] [appeared before 19 times, at 9.11304 9.11 9.085 9.083 9.075 9.07004 9.06505 9.057 8.185 8.032 7.159 7.113 7.10903 7.066 6.061 5.15809 5.13903 5.03604 4.164]

←← (3.05301) C: believes we will create a project that we know they can do.*3.05302 They are putting their critical thinking skills to work, and learning, because they will be in their teams ... [truncated] [appeared before 12 times, at 9.11304 9.11 9.085 9.083 9.07004 9.06505 9.057 8.185 8.032 6.17102 5.14502 5.128]

←← (3.043) Team members should bring interesting readings to the group. [appeared before 2 times, at 9.09303 9.083]

←← (3.0040104) c. Design Experience. [appeared before 6 times, at 9.083 9.075 9.06502 6.095 3.054 3.026]

←← (2.13802) Big Ideas explored in the course: [appeared before 5 times, at 9.083 9.075 9.06502 6.095 3.059]

- (9.149) **wk 1: close to home;**

← (9.0007) 2. Continue ID work on Units 1 to Unit 4 [appeared before 1 times, at 9.057]

- (9.15) **wk 2: they do something to change it, produce an iteration (can be on own as bigger proj).**

← (9.0007) [redundant]

- (9.16) C: want meaty assignment so we don-t get stick people.

(9.161) **J: [raises Bloom-s taxonomy :].**

← (9.12) Basic instructional design strategy phases:. *9.121 analysis, design, development, implementation, evaluation.*9.12101 (this is a model students can use).

- (9.17) **B: designer de jour.**

← (9.102) C: giving students a sense of how different designers would approach the same problem;

← (9.096) C: getting a bit specific;*9.09601 we are going for snapshots of different designers and looking at the process they use to achieve different outcomes that students will experience;*9.09602 that is why the video J showed is so relevant.

← (9.085) C: For the midterm, we wanted to introduce students to different kinds of designers;

←← (9.057) C: working on what would we have to do to make the students ready for the midterm, realized the scope and how it would have to be integrated into every week ... [truncated] [appeared before 4 times, at 9.11304 9.11 9.085 9.06505]

←← (8.094) This is where we (the students) can meet the designers. [appeared before 1 times, at 9.085]

←← (8.032) [redundant]

←← (7.128) C: Which is the same idea as the students designing their exam.*7.12801 Would like students to henceforth (after this course) see exams differently.*7.12802 [Explains to R the team-s idea of the ... [truncated] [appeared before 6 times, at 9.11304 9.11 9.085 9.06505 9.057 7.131]

←← (7.066) [redundant]

←← (7.06) [redundant]

←← (7.00404) [redundant]

←← (6.16901) [redundant]

←← (6.15001) [redundant]

←← (6.108) J: To use this book as a text book would require us to use a week for each of these stages, which is not going to happen, because this is just ... [truncated] [appeared before 2 times, at 9.085 8.094]

←← (6.09701) [redundant]

←← (5.15) J: An exercise might be: here-s a reading, design an exam. [appeared before 8 times, at 9.11504 9.11304 9.11 9.088 9.085 9.06505 9.057 7.128]

←← (5.145) C: we want the design of the course to be transparent. [appeared before 6 times, at 9.11304 9.11 9.085 9.06505 9.057 7.128]

←← (5.076) [redundant]

←← (5.073) C: Re: the idea of the conceptual model. *5.07301 But this course will also have to provide conceptual models for reading and understanding this course—it has to be that transparent. ... [truncated] [appeared before 8 times, at 9.11304 9.11 9.085 9.06505 9.057 7.128 5.145 5.116]

←← (5.058) [redundant]

←← (5.04805) [redundant]

←← (5.043) B: He doesn-t address every principle in detail. *5.04301 He does for a couple, like the 7 stages of action.*5.04302 To go through an iterative process of applying constraints to decide ... [truncated] [appeared before 9 times, at 9.11304 9.11 9.085 9.06505 9.057 7.128 5.145 5.116 5.073]

←← (5.041) [redundant]
 ←← (5.03604) [redundant]
 ←← (5.03603) [redundant]
 ←← (5.03602) [redundant]
 ←← (4.126) [redundant]
 ←← (4.102) [redundant]
 ←← (3.05903) [redundant]
 ←← (3.05301) [redundant]
 ←← (3.02605) One of the goals for this course is that our design is transparent;*3.02606 we want them to see that this course was designed with a set of objects, and the activities ... [truncated] [appeared before 10 times, at 9.11304 9.11 9.085 9.06505 9.057 7.128 6.06901 5.145 5.116 5.073]

- (9.171) C: limit it to FAS designers.

(9.176) **C: we want to appeal to our people.**

← (3.052) The idea is for students to feel that what they are doing is meaningful to them or their [program in this school] community, so [program in this school] is where we start. [appeared before 6 times, at 8.10805 8.051 8.049 6.16 6.07801 6.071]

D.9 Design Meeting Eight

D.9.1 Paragraph Scope 37, 10.055–10.085

See Appendix section C.10.1.

- (10.001) Design Thinking Meeting Notes: 070604.*10.002 Present: B, D, J, K.*10.003 Agenda: Units 4-8 and Project.

(10.055) **B: [presented updated version of readings for 7 : Unit-7-content-template-June042007.doc].**

← (9.194) B: 7 and 8.

← (7.005) BEGIN SUMMARY. *7.006 NEXT MEETING.*7.00601 23 April, 10AM - 2PM.*7.007 ACTION ITEMS.*7.00701 - C: another crack at the objectives.*7.00702 - D: put material on [repository at online college];*7.00703 experiment with other scenario.*7.00704 - R: send URL for Adelaide project about tracing design issue from newspaper.*7.00705 - Everyone: How are we going ... [truncated]

→→ (10.084 10.111)

- (10.056) Bertoline-s book available online;

(10.057) **One activity: reverse engineer.**

← (6.178) J: One thing that might apply to that out of this book is *6.17801 he-s

got a reverse engineered thing—reverse designing requires that you choose an object and trace its progress back through the stages.*6.17802 You are looking at the object and take this model and step back from where it ... [truncated]
 ← (6.104) J: SCAMPER stands for substitute, combine, adapt, minimize/magnify, put to other uses, eliminate/elaborate, reverse/rearrange.

- (10.055) B: [presented updated version of readings for 7 : Unit-7-content-template-June042007.doc].

(10.07301) Theme of this lecture: 3 flavours of processes;

← (9.096) C: getting a bit specific;*9.09601 we are going for snapshots of different designers and looking at the process they use to achieve different outcomes that students will experience;*9.09602 that is why the video J showed is so relevant. [appeared before 1 times, at 9.17]

- (10.078) B: mentions an engineering book [lent by R] that has plenty of good examples: paper clip, pen.

(10.079) D: I think we should speak with examples;

← (9.184) D: I think we should be minimal, because they are not just concepts to memorize, they are concepts to feel; *9.18401 they have to practice the design in order to perform their exam and project.

- (10.079) D: I think we should speak with examples;

(10.07901) as soon as we speak more abstractly, they would be lost.

← (7.061) D: the ideas here can be lived by the students, for example a couple of design games.*7.06101 If the students play the game and live through some of the things Lawson talks about, then the ideas are no longer abstract.

- (10.081) B: unit 8 is a synthesis of all previous.
(10.08001) what-s the difference between the plan and the doing?.

(10.082) J: the debate: is design in the planning or in the doing.

← (6.163) D: Shoen-s example of reflection in action was, I think, a tight rope walker.*6.16301 That is, as the person is thinking about walking on the tight rope, all that thinking happening in the body;*6.16302 it-s not happening in the head at all.

- **(10.084) Terminology: (unit 7) plan;**

← (10.055) [redundant]

←← (9.194) [redundant]

←← (7.005) [redundant]

- (10.084) Terminology: (unit 7) plan;

(10.08406) agile software development (design by doing) vs. rational unified process.

← (3.087) D: *3.088 Agrees with G about design thinking;*3.08801 like to see a

contrast of different kinds of design thinking. *3.08802 E.g., a team might exercise discipline in postponing evaluation of all the solutions until they feel the number of solutions has been exhausted, and then go into an evaluation.*3.089 In software ... [truncated] [appeared before 5 times, at 8.053 7.1461 7.126 4.161 4.07102]

←← (3.062) IDEAS ABOUT WHAT WE THINK WE WOULD LIKE TO ACHIEVE. [appeared before 9 times, at 8.053 7.1461 7.126 4.161 4.103 4.07102 3.087 3.082 3.081]

←← (3.0040110) 5. Course Objectives/Learning Outcomes. [appeared before 13 times, at 8.053 7.1461 7.126 4.161 4.103 4.07102 3.096 3.087 3.082 3.081 3.062 3.057 3.02603]

D.9.2 Paragraph Scope 38, 10.086–10.126

See Appendix section C.10.2.

- (10.089) J: how quick is the feedback—is that the difference be planning and doing; (10.08901) **which takes us back to Norman.**
← (5.07803) What-s the core information? I put: visibility, conceptual models, good mapping, and feedback, as areas that would appear in my lecture.
- (10.09) K: re process: acting, reacting.
(10.093) **D: relates to U6: design solution probes the problem: these 2 units play off each other (8 and 6).**
← (7.14) Unit 6 (design invites inquiry): lumping parts of syllabus together. 1 and 2 are what is design. A shift after week 4. [appeared before 2 times, at 9.069 7.147]
← (6.128) D: Applying a bit of design thinking to this problem, the solutions that class would come up with probes the problem a bit deeper, and reveals more about the problem, which may give rise to further design problems that future classes can work on.*6.12801 It would be a related body of ... [truncated]
←← (6.077) D: I really like the idea of a design proposal as a way of probing a problem;*6.07701 that you don-t really understand what the problem is, so you make a solution, ... [truncated] [appeared before 1 times, at 6.128]
- (10.108) **J, D, B: reiterate U8 thoughts to K.**
← (10.081) B: unit 8 is a synthesis of all previous.
- (10.109) **re: reverse design: D: we-ve been doing that since the first day;**
← (10.058) D: reverse design has been used as a method of researching the design process.
- (10.111) **B: re U7 block 5: FAS designer de jour-s design process: video, interview, class visit.**

← (10.055) B: [presented updated version of readings for 7 : Unit-7-content-template-June042007.doc]. [appeared before 1 times, at 10.084]

← (9.171) C: limit it to FAS designers.

←← (9.194) B: 7 and 8. [appeared before 2 times, at 10.084 10.055]

←← (7.005) BEGIN SUMMARY. *7.006 NEXT MEETING.*7.00601 23 April, 10AM - 2PM.*7.007 ACTION ITEMS.*7.00701 - C: another crack at the objectives.*7.00702 - D: put material on [repository at online college];*7.00703 experiment with other ... [truncated] [appeared before 2 times, at 10.084 10.055]

- (10.121) **B: ideal movie, nightline, process, ABC news gave design shopping cart, 20 minute video.**

← (9.056) B: B bought the 20 min shopping cart video.

D.9.3 Paragraph Scope 39, 10.127–10.187

See Appendix section C.10.3.

- (10.127) **D: re 5 and 6 [presents by writing notes on paper taped to the wall because thoughts differed from printed version].**

← (10.001) Design Thinking Meeting Notes: 070604.*10.002 Present: B, D, J, K.*10.003 Agenda: Units 4-8 and Project.

← (9.193) D: 5 and 6.

- (10.127) D: re 5 and 6 [presents by writing notes on paper taped to the wall because thoughts differed from printed version].

(10.12902) **summary at end of Lawson chap 7 leads into units 7 and 8 being a kind of review.**

← (10.081) B: unit 8 is a synthesis of all previous. [appeared before 1 times, at 10.108]

- (10.173) **unit 6.**

← (10.001) [redundant]

← (9.193) [redundant]

- (10.18) D: draws attention to how the [student public transportation card] has many of the kinds of constraints;

(10.181) **K: good lead-in to this community.**

← (9.08501) if we continue of moving from private to the world community (unit 8)–the course is about them; *9.08502 their awareness of and relationship to design–why should they care.

←← (8.05001) –Course activities will flow from individual, to institutional to community. [appeared before 1 times, at 9.08501]

←← (2.1380203) Design is social: the course explores how design is used to facilitate communication with others/Audience (design is out in the open, design helps us communicate more effectively with others in our ... [truncated] [appeared before 15 times, at 9.105 9.104 9.08501 8.18702 8.073 8.05001 8.04801 7.136 5.103 5.09403 5.09105 5.087 5.08103 4.107 3.068]

- (10.187) **J defers his presentation till next week.**
← (10.001) [redundant]

D.9.4 Paragraph Scope 40, 10.188–10.22

See Appendix section C.10.4.

- (10.188) **K: re community project.**
← (10.001) Design Thinking Meeting Notes: 070604.*10.002 Present: B, D, J, K.*10.003 Agenda: Units 4-8 and Project. [appeared before 3 times, at 10.187 10.173 10.127]
← (8.05604) In the final project they go through a design process to generate a list of questions to generate some recommendations.*8.05605 It doesn't have to be a thing, it can be more questions.
- (10.19701) J: yes.
(10.198) **D: red-flagging getting them to step back from process, but J has had success.**
← (7.062) R: You want to engage the students in the first year in active, doing courses.*7.06201 Less about talking about design, and more about doing design.*7.06202 Trying to teach them the cycle of critique and design;*7.06203 have to set critical frameworks and discuss the work within them at every step along the ... [truncated]
- (10.217) **K: nice to invite say mayor (and other stakeholders) to be on jury.**
← (7.06801) Project product: visual representation and recommendations (professional, juried, top presented at mayor-s office with design) and myth busting.
← (6.13304) A critical thinking idea is: who are the stakeholders. *6.13305 We have the everyday user, the mall, the police, the mayor-s office—we have all these different points of view.*6.13306 Each team could take on one.*6.13307 Can you imagine 8 teams bothering the police? That becomes an issue.*6.13308 This becomes an opportunity ... [truncated]
←← (6.125) They-re going to -think- about it. *6.12501 We are creating good community thinkers.*6.12502 The final thing is going to be a demo and a proposal.*6.12503 They have to make stuff.*6.12504 Don-t ... [truncated] [appeared before 2 times, at 7.08703 7.06801]

D.9.5 Paragraph Scope 41, 10.221–10.26

See Appendix section C.10.5.

- (10.223) D: glad this is an open framework;
(10.19001) people asked to respond to issue theme environment space function, e.g. issue=[train station]–public space, mobility, safety, role in community neighbourhood.
(10.22301) **nervous about the safety thing—it defeats the fun and the diversity.**
← (7.06802) How has the image of this space been constructed in the news. *7.06803 What are the things that we know have happened.*7.06804 What are the things in this space that may or may not be a threat to safety.
- (10.238) J: maybe in units 5 and 6.
(10.239) **D: there is that transportation exercise, could be introduced there.**
← (10.172) D: students brainstorm about public transportation irritants–identifying failures that could be grounds for redesign.
- (10.239) D: there is that transportation exercise, could be introduced there.
(10.24) **J: at the review point with that video (mother takes a holiday).**
← (10.145) D: re video: developers pump women-s emancipation angle of washing machine, likely in search of new problems;*10.14501 has illustration of actual design process;*10.14502 fit a number of different concepts.*10.146 [viewing of video -mother takes a holiday-].
- (10.251) B: Winners need time to prepare posters.
(10.257) **D: evaluation of poster vs. design thinking orientation of course.**
← (8.178) C: the overall learning outcomes: -adapt design thinking strategies to situations outside of the course-.
←← (8.13601) [S:] general course flow and learning outcomes. [appeared before 9 times, at 9.09303 9.079 9.07004 9.06511 8.219 8.185 8.181 8.178 8.176]

D.10 Design Meeting Nine

D.10.1 Paragraph Scope 42, 11.001–11.078

See Appendix section C.11.1.

- (11.001) Design Thinking Meeting Notes: June 18 2007.*11.002 Present: B, C, D, J, K, S.
 (11.01) **Discussion with S about webct and ID related issues:.**
 ← (9.196) Need to talk about getting ready for webCT.
 →→ (11.067 11.075)
- (11.038) C: We don-t have content for tech101w in WebCT–but use repository for instructor-s resources;
 (11.039) **S: repository looks like a course;**
 ← (7.167) R: The material for the folders can be looked at by someone toward answering the question: how could a repository support material of this kind?.
- (11.01) Discussion with S about webct and ID related issues:.
 (11.049) **C in response to [?]: workshops are face to face.**
 ← (9.06104) C: they have workshops, so outside should be reading;
 ← (8.10804) Complete component in workshop.
 ← (8.071) S: set wall board with units 1-8 left to right, and top to bottom: concepts, readings, workshops;*8.07101 skills and knowledge;*8.07102 activities–workshop, assignment.*8.072 Different colors for different contributors. [appeared before 2 times, at 8.133 8.13]
 ← (5.08) C: They can get their reading, and before they come to the workshop, they would have their reading read. *5.08001 We cover the idea in the lecture, and then they go to the workshop.*5.08002 In week one most student-s don-t have all of their books.
 ←← (7.165) C: another crack at the objectives. [appeared before 6 times, at 9.07 8.133 8.13 8.075 8.071 8.06301]
- (11.067) **S in response to discussion: learning models are effective if your course is completely online–integrates everything.**
 ← (11.01) [redundant]
 ←← (9.196) [redundant]
- (11.074) S: will set up repository and sandbox.
 (11.075) **K: set up timeline?.**
 ← (11.01) [redundant]
 ←← (9.196) [redundant]
- (11.078) **Agenda: Units 8, 6, 4; *11.07801 final project, site for content if not in WebCT.**
 ← (11.001) [redundant]
 →→ (11.103 11.137)

D.10.2 Paragraph Scope 43, 11.08–11.097

See Appendix section C.11.2.

- (11.082) J: can mock up slide show with real content.
(11.083) **C: won-t have much time.**
← (11.008) Date for show and tell: June 28 (2pm in room 14-400) (1.5 hours for design thinking)–Activities will garner more feedback.
- (11.096) **C: preparing for show and tell: overview of content objectives;**
← (11.008) [redundant]

D.10.3 Paragraph Scope 44, 11.103–11.136

See Appendix section C.11.3.

- (11.103) [**B presents UNIT 8 (see documentation for what he wrote)**].
← (11.078) Agenda: Units 8, 6, 4; *11.07801 final project, site for content if not in WebCT. [appeared before 2 times, at 11.137 11.103]
←← (11.001) Design Thinking Meeting Notes: June 18 2007.*11.002 Present: B, C, D, J, K, S. [appeared before 3 times, at 11.137 11.103 11.078]

D.10.4 Paragraph Scope 45, 11.137–11.197

See Appendix section C.11.4.

- (11.137) [**K presents FINAL PROJECT (see documentation)**].
← (11.078) Agenda: Units 8, 6, 4; *11.07801 final project, site for content if not in WebCT. [appeared before 2 times, at 11.137 11.103]
←← (11.001) Design Thinking Meeting Notes: June 18 2007.*11.002 Present: B, C, D, J, K, S. [appeared before 3 times, at 11.137 11.103 11.078]
- (11.13701) feedback:.
(11.138) **K: 1 winner from each category in each section.**
← (10.21) B: before poster: internal competition, play-offs – 70+ teams; [appeared before 1 times, at 11.138]

- (11.153) D: so they would have a checklist.
 (11.155) **D: concern: the themes will bleed together.**
 ← (10.19201) mutation sharing mobility: mutation–build the city over the city;*10.19202 transform;*10.19203 sharing–reformat some space via fashion, engineering etc;*10.19204 mobility–networks of mobility, network as forum for designing something new, as a catalyst for intensity, urbanity, commerce, or joy. [appeared before 2 times, at 11.168 11.155]
- (11.167) C: after unit 8 they are tired;
 (11.16701) **this gives them a chance to DO.**
 ← (7.062) R: You want to engage the students in the first year in active, doing courses.*7.06201 Less about talking about design, and more about doing design.*7.06202 Trying to teach them the cycle of critique and design;*7.06203 have to set critical frameworks and discuss the work within them at every step along the ... [truncated] [appeared before 2 times, at 11.16701 10.198]
- (11.13701) [redundant]
 (11.168) **C: re: mutation, sharing, mobilities: not sure what they are being asked to do; *11.16801 this is how you frame it for yourself, not how you would frame it for a ... [truncated]**
 ← (10.19201) [redundant]
- (11.17001) **eg -mutation- has to be front-loaded.**
 ← (9.11504) Which means earlier on we will have to show them theses kinds of questions. *9.11505 Every element has to be front loaded.*9.116 Will have to introduce instruction design right away when introducing the course–re intro the course: discuss the course in the context of design. [appeared before 1 times, at 11.17001]
 ← (9.075) C: are we agreeing that they have readings from weeks 1-8 only? And then use the final part as reviewing, with no new material.*9.07501 Front loading for the 1st 2/3 of the course? This course is unique in how it is structured. [appeared before 1 times, at 11.17001]
 ←← (9.088) C: if we do this midterm, we need to introduce the instructional designer right away; [appeared before 2 times, at 11.17001 9.11504]
 ←← (9.052) B: re Norman book: require students to read it in its entirety in the 1st 4 weeks, because it is all over the place. [appeared before 2 times, at 11.17001 9.075]
 ←← (7.066) C: Weeks 1-8: toolkit;*7.06601 every week contributes to final project - scaffolded. [appeared before 14 times, at 11.17001 9.17 9.145 9.11304 9.11 9.085 9.083 9.075 9.07004 9.06505 9.057 8.185 8.032 7.10903]
 ←← (6.095) 4. Usefulness off the Lawson and Aspelund texts in relation to syllabus big ideas. [appeared before 5 times, at 11.17001 9.145 9.083 9.075 9.06502]
 ←← (6.0030401) 4. Team will discuss the usefulness off the Lawson and Aspelund texts in relation to syllabus big ideas. [appeared before 6 times, at 11.17001 9.145

9.083 9.075 9.06502 6.095]

←← (5.15) J: An exercise might be: here-s a reading, design an exam. [appeared before 10 times, at 11.17001 9.17 9.11504 9.11304 9.11 9.088 9.085 9.06505 9.057 7.128]

←← (5.105) C: chapter 6 is a big chapter for us. [appeared before 3 times, at 11.17001 9.075 9.052]

←← (5.076) C: We are in agreement that we can go to Norman for higher level ideas, and then we can begin to flush those ideas out with other kinds of readings or ... [truncated] [appeared before 23 times, at 11.17001 9.17 9.145 9.11304 9.11 9.085 9.083 9.075 9.07004 9.06505 9.057 9.052 8.185 8.032 7.125 7.109031 6.17102 5.14 5.139 5.135 5.124 5.114 5.11]

←← (5.058) C: This book reads out of date.*5.05801 Does the dating of this book somehow undermine our credibility. [appeared before 26 times, at 11.17001 9.17 9.145 9.11304 9.11 9.085 9.083 9.075 9.07004 9.06505 9.057 9.052 8.185 8.032 7.125 7.109031 6.17102 5.14 5.139 5.136 5.135 5.124 5.114 5.11 5.095 5.076]

←← (5.04805) Also moving beyond the object.*5.04806 [The Norman book] is located in objects, in products.*5.04807 Good early on for students to interrogate the things around them. [appeared before 24 times, at 11.17001 9.17 9.145 9.11304 9.11 9.085 9.083 9.075 9.07004 9.06505 9.057 9.052 8.185 8.032 7.125 7.109031 6.17102 5.14 5.139 5.135 5.124 5.114 5.11 5.076]

←← (5.041) B: It does touch on some principles that are useful in this course—he talks about them in the first few pages of the book. [appeared before 24 times, at 11.17001 9.17 9.145 9.11304 9.11 9.085 9.083 9.075 9.07004 9.06505 9.057 9.052 8.185 8.032 7.125 7.109031 6.17102 5.14 5.139 5.135 5.124 5.114 5.11 5.076]

←← (5.03604) The first 8 weeks we are building a toolkit, and the last 4 weeks we are putting the tool kit into action. [appeared before 20 times, at 11.17001 9.17 9.145 9.11304 9.11 9.085 9.083 9.075 9.07004 9.06505 9.057 8.185 8.032 7.159 7.113 7.10903 7.066 6.061 5.15809 5.13903]

←← (5.03603) Objectives are to be consistent, and are to scaffold. [appeared before 18 times, at 11.17001 9.17 9.145 9.129 9.11304 9.11 9.085 9.083 9.075 9.07004 9.06505 9.057 8.20004 8.185 8.10802 8.032 7.10903 7.066]

←← (4.126) C: So we want to think about our toolkit.*4.12601 What are the core ideas;*4.12602 if we-re going to use terms like principles, frameworks, models, whatever;*4.12603 when we come to our weekly ... [truncated] [appeared before 21 times, at 11.17001 9.17 9.145 9.11304 9.11 9.085 9.083 9.075 9.07004 9.06505 9.057 8.185 8.032 7.159 7.113 7.10903 7.066 6.061 5.15809 5.13903 5.03604]

←← (3.37008) 4. Text Books: 1. Lawson: How Designer-s Think - not in yet 2. Lawson: What Designer-s Know - not in yet 3. Aspelund: The Design Process - not in yet ... [truncated] [appeared before 6 times, at 11.17001 9.145 9.083 9.075 9.06502 6.095]

←← (3.05903) We have 4 hours of class time (does not mean the classes are 4 hours each), we have 4 hour blocks that can be broken up.*3.05904 We are very conscious unpacking ... [truncated] [appeared before 22 times, at 11.17001 9.17 9.145 9.11304

9.11 9.085 9.083 9.075 9.07004 9.06505 9.057 8.185 8.032 7.159 7.113 7.10903 7.066
6.061 5.15809 5.13903 5.03604 4.164]

←← (3.0040104) c. Design Experience. [appeared before 8 times, at 11.17001 9.145
9.083 9.075 9.06502 6.095 3.054 3.026]

←← (2.13802) Big Ideas explored in the course: [appeared before 7 times, at 11.17001
9.145 9.083 9.075 9.06502 6.095 3.059]

- (11.13701) [redundant]

(11.172) **C: what is connection between the question and the [train station]?
K: also surrounding area.**

← (10.19001) people asked to respond to issue theme environment space function, e.g.
issue=[train station]–public space, mobility, safety, role in community neighbourhood.
[appeared before 1 times, at 11.172]

- (11.17401) You took a while with us, imagine 1st yr students–it would take them a week to
figure it out [B: [concur]] Find a way to make it really clear.

(11.176) **D: we decided that the project would be re-introduced in unit 5,
and they would keep sketch books, so hopefully they would have ideas by
the time the form teams; ... [truncated]**

← (10.237) B: introduce the project early on. [appeared before 1 times, at 11.176]

- (11.18) C: go through and ask if terms have been covered previously.

(11.182) **J: reminds of Winograd mapping to K-s concepts [covered in pre-
vious meeting notes].**

← (10.221) J: mentions 3 themes relate to Moggridge text Terry Winograd metaphors
of interaction with digital environments: manipulation=manipulation, mobility=locomotion,
sharing=communication; [appeared before 1 times, at 11.182]

Appendix E

Coding of Non-Coincident Segmentation

This appendix includes the coding of transcript units that (1) were predicted by the model to be topic shifts, but did not coincide with the human segmentation (t), and (2) were used as references in the thick description (and taken as indications of segmentation), but were not predicted by the model (n). Some of the references that were not predicted at a threshold of quartile 3 (Q3) were weakly predicted (w) at a threshold of quartile 2 (Q2). Furthermore, it was noted whether a unit had a predicted unit nearby (within two units away, before (-) or after (+), or both (-+)). A *status* of “n” required the nearby predicted to have Q3, while a status of “t” or “w” required the nearby predicted to have at least Q2.

Status “t” (maybe supplemented with “-”, “+”, or “-+”) could receive the following codes: nn – invalidly predicted (model failure); v? – maybe validly predicted (uncertain model success); vv – validly predicted (model success).

Status of “n” or “w” (maybe supplemented with “-”, “+”, or “-+”) can receive the following codes: xv – validly excluded (model success); x? – maybe should have been predicted (uncertain model success); xt – was a title, expected model weakness with titles (uncertain model success); xl – was in a list or list-like area of discourse, expected model weakness with lists (uncertain model success); xx – should have been predicted model failure).

E.1 The Coding

				4.07101	t+	v?	m2/p5
2.138	t+	vv	m0/p0	4.07103	t-	nn	m2/p5
2.13801	t+	vv	m0/p0	4.077	t+	vv	m2/p6
2.13802	t-	vv	m0/p0	4.08	t+	v?	m2/p6
2.13803	t	vv	m0/p0	4.085	t-	v?	m2/p6
3.0040101	t	vv	m1/p0	4.093	n-	xv	m2/p6
3.011	n-	xl	m1/p1	4.096	n	xv	m2/p6
3.013	n	xl	m1/p1	4.104	t-	vv	m2/p7
3.015	w	xl	m1/p1	4.12	t+	nn	m2/p7
3.017	w	xl	m1/p1	4.121	t+	v?	m2/p7
3.019	w	x?	m1/p1	4.122	w	x?	m2/p7
3.03	n	x?	m1/p2	4.129	t+	v?	m2/p7
3.033	t	v?	m1/p2	4.131	t-	nn	m2/p0
3.037	n	x?	m1/p2	4.144	n	xv	m2/p8
3.043	w	xl	m1/p2	4.156	t-	nn	m2/p9
3.04815	t	v?	m1/p2	4.157	n	xv	m2/p9
3.049	n-	xv	m1/p2	4.15801	n	xv	m2/p9
3.053	t+	v?	m1/p2	4.159	n	x?	m2/p9
3.057	t	v?	m1/p2	4.16	n	xv	m2/p9
3.064	t+	nn	m1/p3	4.162	n	x?	m2/p9
3.07	t	v?	m1/p3	4.17	n	xl	m2/p10
3.075	n-	xx	m1/p3	5.03	n	x?	m3/p11
3.078	t	v?	m1/p3	5.036	t+	v?	m3/p11
3.087	t	v?	m1/p3	5.03601	n-	xl	m3/p11
3.10401	n	xx	m1/p4	5.03606	t	vv	m3/p11
4.049	w-	xt	m2/p5	5.045	t+	v?	m3/p12
4.055	n+	x?	m2/p5	5.046	t+	nn	m3/p12
4.057	t+	v?	m2/p5	5.051	t	v?	m3/p12
4.058	t-	v?	m2/p5	5.054*	t	nn	m3/p12
4.064	t	v?	m2/p5	5.06	t+	nn	m3/p12
4.071	t+	v?	m2/p5	5.06701	t+	v?	m3/p12

5.073	t	v?	m3/p12	6.1231	n-	x?	m4/p19
5.076	t	vv	m3/p12	6.12403	n	xv	m4/p19
5.09101	t-	vv	m3/p13	6.12701	n	x?	m4/p19
5.11	t-	v?	m3/p13	6.134	t-	nn	m4/p19
5.111	t	vv	m3/p13	6.141	n	x?	m4/p19
5.116	t	v?	m3/p13	6.145	t	vv	m4/p19
5.124	t	v?	m3/p13	6.15001	w+	xt	m4/p20
5.128	t	v?	m3/p13	6.151	t-	vv	m4/p20
5.13	t	vv	m3/p13	6.161	t	vv	m4/p20
5.133	t	nn	m3/p13	6.16901	n+	x?	m4/p20
5.14902*	t+	vv	m3/p14	6.17	t+	nn	m4/p20
5.15801	t+	nn	m3/p14	6.17001	t-	vv	m4/p20
5.15802	t-	nn	m3/p14	6.17302	w-+	x?	m4/p20
5.15808*	t+	nn	m3/p14	6.17303	t-	v?	m4/p20
5.163	n	xl	m3/p15	7.001	t+	vv	m0/p0
5.16501	n	xl	m3/p15	7.003	t-	vv	m5/p0
5.169	t	vv	m3/p15	7.034	n+	xt	m5/p21
6.001	t+	vv	m0/p0	7.03401	t	v?	m5/p21
6.05702	t-	v?	m4/p16	7.047	n	x?	m5/p21
6.063	t+	nn	m4/p16	7.05	t	v?	m5/p21
6.065	t-	vv	m4/p16	7.05203	n	xv	m5/p21
6.073	t	vv	m4/p16	7.05208	t	v?	m5/p21
6.08	w-+	xt	m4/p17	7.05802	n	xx	m5/p21
6.08701	t	nn	m4/p17	7.05811	w	xx	m5/p21
6.1	t	vv	m4/p18	7.061	n	xx	m5/p22
6.101	t	v?	m4/p18	7.062	t+	nn	m5/p22
6.11	t	nn	m4/p18	7.063	t-	nn	m5/p22
6.112	t+	v?	m4/p18	7.066	w-+	xt	m5/p22
6.118	t-	v?	m4/p18	7.069	t	vv	m5/p22
6.119	w+	xx	m4/p19	7.086	n	xv	m5/p23
6.121	n	x?	m4/p19	7.08703	t-	nn	m5/p23
6.123	t-	vv	m4/p19	7.08902	n	xv	m5/p23
6.12306	t	vv	m4/p19	7.095	t+	vv	m5/p24

7.096	t-	vv	m5/p24	8.074	t	vv	m6/p28
7.1	n	xl	m5/p24	8.075	w+	x?	m6/p28
7.10903	t-	v?	m5/p24	8.076	w-+	x?	m6/p28
7.109031	n-	xv	m5/p24	8.08201	t-	v?	m6/p28
7.111	t-	nn	m5/p24	8.08208	n+	x?	m6/p28
7.112	n-	xl	m5/p24	8.083	t	vv	m6/p28
7.115	n	xv	m5/p24	8.103	t	nn	m6/p28
7.12	w	x?	m5/p24	8.105	t	v?	m6/p28
7.123	w	xv	m5/p24	8.10601	n-	xl	m6/p28
7.138	t+	vv	m5/p25	8.10802	n+	x?	m6/p28
7.141	t-+	vv	m5/p25	8.10804	t+	vv	m6/p28
7.14102	t-	vv	m5/p25	8.10805	t-+	vv	m6/p28
7.146	t	vv	m5/p25	8.115	w-	xx	m6/p28
7.14702	n-	xv	m5/p25	8.131	t-+	vv	m6/p29
7.148	t+	vv	m5/p25	8.132	t-	nn	m6/p29
7.154	t-	nn	m5/p25	8.16	n+	xx	m6/p29
7.15701	n	x?	m5/p25	8.16002	t+	nn	m6/p29
7.161	n+	xv	m5/p25	8.161	t-+	nn	m6/p29
7.162	t	v?	m5/p25	8.178	w	x?	m6/p29
7.164	t+	vv	m5/p0	8.181	w+	x?	m6/p29
7.165	w-	xl	m5/p26	8.185	w	x?	m6/p29
7.166	n	xl	m5/p26	8.19102	n+	xv	m6/p29
8.036	w-	xv	m6/p27	8.193	t	v?	m6/p29
8.037	w	xx	m6/p27	8.19501	t	nn	m6/p29
8.048	n	xv	m6/p27	8.201	t-	v?	m6/p29
8.053	t	vv	m6/p27	8.206	w+	x?	m6/p29
8.055	n-	xv	m6/p27	8.207	t-+	vv	m6/p29
8.06301	w	xv	m6/p28	8.21202	t	v?	m6/p29
8.065	n	xv	m6/p28	8.21701	n	x?	m6/p30
8.06707	t-+	nn	m6/p28	9.0002	w-	x?	m7/p31
8.068	n-+	xv	m6/p28	9.052	w+	xl	m7/p32
8.069	t-	vv	m6/p28	9.054	t-	v?	m7/p32
8.073	n+	xl	m6/p28	9.057	t+	vv	m7/p32

9.059	t+	nn	m7/p32	10.188	t	vv	m8/p40
9.06502	t+	v?	m7/p32	10.189	n-	xv	m8/p40
9.06514	t+	v?	m7/p32	10.193	n	xv	m8/p40
9.07004	t	vv	m7/p32	10.209	n+	xv	m8/p40
9.075	t	vv	m7/p32	10.21001	t	nn	m8/p40
9.079	w-	xv	m7/p32	10.213	n	xv	m8/p40
9.097	t+	vv	m7/p34	10.221	w	x?	m8/p41
9.114	t-	vv	m7/p34	10.229	w	x?	m8/p41
9.125	t	vv	m7/p34	10.23	n	xv	m8/p41
9.131	t	nn	m7/p34	10.237	n	xv	m8/p41
9.149	w	xl	m7/p35	10.245	t+	nn	m8/p41
9.152	t	vv	m7/p35	10.249	w+	x?	m8/p41
9.162	t	nn	m7/p35	10.251	w-	xv	m8/p41
9.183	n	xl	m7/p35	10.257	t	v?	m8/p41
9.196	n	xl	m7/p36	11.001	w	xx	m9/p42
10.076	n	xv	m8/p37	11.019	n	xv	m9/p42
10.081	t+	vv	m8/p37	11.024	t	v?	m9/p42
10.084	t	vv	m8/p37	11.039	t-	nn	m9/p42
10.086	n	xt	m8/p38	11.055	w+	x?	m9/p42
10.088	n	xv	m8/p38	11.078	t+	vv	m9/p42
10.091	n	xv	m8/p38	11.096	t	vv	m9/p43
10.093	n+	xv	m8/p38	11.104	t-	vv	m9/p44
10.095	t+	vv	m8/p38	11.118	t-	vv	m9/p44
10.096	t-	nn	m8/p38	11.121	w	xv	m9/p44
10.112	n+	xv	m8/p38	11.126	w	x?	m9/p44
10.114	t+	nn	m8/p38	11.133	n	xv	m9/p44
10.11401	t-	nn	m8/p38	11.13701	t-	vv	m9/p45
10.117	n	xv	m8/p38	11.138	n-	xl	m9/p45
10.121	n	x?	m8/p38	11.142	n	xl	m9/p45
10.142	n	xt	m8/p39	11.149	n	xx	m9/p45
10.15	t	v?	m8/p39	11.16	n	xl	m9/p45
10.156	n	x?	m8/p39	11.168	w	xx	m9/p45
10.174	t-	vv	m8/p39				
10.182	n+	xl	m8/p39				

Appendix F

Linkograph Coding of Nine Design Meetings

Eleven meetings were held to design a university course. The first two were to establish shared understanding and explore ideas for a draft syllabus. These were used to build the model for topic segmentation (Section 4), and can be seen in Appendix A. The remaining nine meetings are represented here; these were used to test the model.

All the transcripts were objectively parsed into simple sentences and phrases, with unit numbers. The objectively parsed transcripts were then theoretically parsed according to the linkograph framework, in which *design moves*. Each design move was given the identification number of its first phrase, for example the first design move has “[1.004].”. Each paragraph below (2033 of them) is a design move; 77% of them comprise a single simple sentence or phrase. The design moves were coded by indicating (linking) prior moves that influenced the current one. The links are contained within curly brackets, for example “{1.004}.”

Note: there are also remnants of other codes that may be ignored.

[2.137] [email]Hi team, Here is a second draft of the Design Course Syllabus. Here are the strategies at work: t 1. I have created 4 primary questions to generate ideas for the syllabus and categorized Rob-s Big Ideas within them. I used D-s draft of the ideas from the meeting notes, as they were much more detailed than my own. This strategy is simply a method to support the development of a syllabus. The big ideas are not ranked and they do not reflect a weekly schedule of course material (although they can).2. I have purposely avoided the use of terms like -principles- or -canon- or -rules-. After our discussion on Wednesday, I was confused about my own use of the word principles and wondered where

it came from. I started reading Norman again and there it was - Principles. If Design of Everyday Things is our course text, we must be aware that the author often refers to -design principles- and states specifics like visibility is a fundamental principle of design.3. The work is wordy and descriptive. This is purposeful, to allow you to edit, remove, reword as you like. 4. I have a meeting with JF at 2:30 to work on the next draft. Any revisions or suggestions are welcome. Best C {2.01902 2.136 2.028} --o{a}

[2.138] [emailed attachment]C. [a university school] Re Vis: Design Course Jan. 11, 2007[course number] Design Matters: Syllabus and Course Objectives Draft 2 {2.027 2.136}

[2.13801] Course Description: INTD120 is a breadth course that explores the role design and designer play in the world around us. {2.138 1.004 1.007}

[2.13802] Big Ideas explored in the course: .t{} {2.008 2.13801}

[2.1380201] Why Does Design Matter? {2.13802}

[2.1380202] Design is all around us: the course explores how design facilitates our understanding of the world around us (how design helps us better understand the world around us/design helps us make meaning). {2.008001 2.1380201}

[2.1380203] Design is social: the course explores how design is used to facilitate communication with others/Audience (design is out in the open, design helps us communicate more effectively with others in our homes, workplaces and community/ how design better helps us understand each other/how design helps us agree on meanings). {2.00808 2.1380201}

[2.1380204] Design is historical: the course explores the importance of precedent in design (how examples, models, patterns or standards) reflect learning and critical thinking. {2.00814 2.1380201}

[2.1380205] Who Does Design? {2.13802}

[2.13802051] Design enables understanding: the course explores how designers (from different professions, backgrounds, disciplines) use design to visualize and make sense of the world they see and experience. {2.00815 2.1380205}

[2.1380206] Design invites inquiry: this course explores how designers use design to visualize and to manipulate ideas under consideration/ how design is used as a tool in their own practice/discipline. {2.00811 2.1380205}

[2.1380207] How Does Design Happen? {2.13802}

[2.13802071] Design is a process: this course explores how the making of artifacts (ideas, words, physical materials, virtual images) facilitates the development of ideas (how designers must generate ideas and test them/ utilize an iterative design and testing cycle). {2.00813 2.1380207}

[2.1380208] Design is made by doing: this course explores how the making of artifacts requires skill and development of skill. {2.00809 2.1380207}

[2.1380209] Design is collaborative: the course explores the idea that design requires more expertise than resides in any one person-s head and that part of testing and understanding designs is the recognition of the need to connect and collaborate with others. The design and testing cycle is improved by the generation and critical evaluation of many ideas. {2.00802 2.00801 2.00803 2.1380207}

[2.138021] How Is Design Evaluated? {2.13802}

[2.1380211] Design satisfies its Audience: the course explores the complexity of the design audience and how successful design satisfies all stakeholders and users (rarely a single end user)/how the work succeeds in the world. {2.00808 2.00804 2.00806 2.138021}

[2.1380212] Design puts Ethos before Ego: the course explores how good designs are measured by the quality of ideas they provoke and invoke rather than the ego of the designer. {2.00811 2.138021}

[2.1380213] Design begs Joy of Use: the course explores how good designs are measured by how they contribute to the quality of life for users (pleasure, safety, knowledge, etc.) and their communities. {2.00806 2.138021}

[2.13803] Course Objectives: $t\{\}$ {2.138 2.13801}Students will:

[2.1380301] Explore the role design and designers in the world around them. {2.13803 2.01301}

[2.1380302] Interrogate the term -design- the contextual nature of its meanings. {2.13803 2.013 }

[2.1380303] Explore the social implications of design. {2.13803 2.00814 2.00808}

[2.1380304] Examine the nature of the relationship between designer and audience {2.13803 2.00808}

[2.1380305] Carry out design exercises that attempt to help them see the world through others- eyes {2.13803 2.01301 2.00808}

[2.1380306] Carry our exercises that employ one-s own experience and knowledge as tools of observation and experimentation {2.13803 2.01301}

[2.1380307] Employ iterative design practice strategies to individual projects. {2.13803 2.00803 }

[2.1380308] Engage is collaborative design practice. {2.13803 2.00802 2.00803 }

[2.1380309] Explore project management skills. {2.13803 2.00813 }

[2.13804] Resources: _t{} Ideas have been borrowed from MIT: Introduction to Design Inquiry, Open Course Software ...

[2.139] [email]C This is wonderful!There is another big idea that I would like to see in the course. Actually it is a complex of ideas.Design is economic.Design makes a difference to organizations and countries. Those that value design tend to do better than those that do not.Design can help solve large problems. But it is always embedded in larger processes, such as development, policy and politics. It is a crucial part of the way in which societies change. It is not a sole cause (like some Modernists thought). best -R- {2.137 2.138}

[3.004] Agenda. _p{} _t{}

[3.0040101] 1. Introduce Team Members. _p{3.004}

[3.0040102] a. What you bring to the team. {3.0040101}

[3.0040103] b. Course development experience. {3.0040101}

[3.0040104] c. Design Experience. {3.0040101}

[3.0040104] 2. Overview the course outline as we know it. _p{3.004}

[3.0040106] a. Syllabus. {3.0040104}

[3.0040107] b. Text. {3.0040104}

[3.0040108] 3. Explore what we know about the course. _p{3.004}

[3.0040109] 4. Explore what we don-t know. _p{3.004}

[3.0040110] 5. Course Objectives/Learning Outcomes. _p{3.004}

[3.0040111] 6. [org associated with the school] Support 1:15-2:00 (Cy and V). _p{3.004}

[3.0040112] 7. Next meeting: objectives?. _p{3.004}

[3.005] C: Requested that we have an instructional designer from [org associated with the school] on our team to consult throughout, to help ensure that we have a good process. -p{} {3.0040111}

[3.00502] Also to talk about where the course is going to live, since we don-t have a CMS; *3.00503 we are going to be using a Moodle, so all [program in this school] folks are learning Moodle. -i{C} -p{} {3.005}

[3.00504] They have already been to a meeting with JM and the visual communication course team, and V said that she has some interesting information that she would like to share with us. -p{} {3.005}

[3.006] D (<http://>) will provide minutes. -p{} {3.005 2.028}

[3.007] Room booked from 10 to 2 every Monday for our use, whatever that may be. -p{} {3.005}

[3.008] EXPECTATIONS FOR THIS MEETING. -p{} {3.004} -t{} {3.005}

[3.009] (1) Introductions: background, design lens, if you've worked on courses before, own sense of design thinking is at this point -i{C} -o{i} -p{} {3.008 3.0040101}

[3.00901] 2) For this meeting there are not going to be any definitive answers about anything, I would like us to get to know each other a little bit and explore what we think this course could look like, before we start jumping into objects and things like that. -p{} {3.008}

[3.01] INTRODUCTIONS. -p{} {3.009} -t{} {3.005}

[3.011] G: *3.012 -Background in industrial design prior to coming to [this university school]. -Skill set in design. -Re: course development: spotty; {3.01 3.0040104}

[3.01201] with [old name of school] helped T (<http://>) design a course, did a graduate course with JM this past year, currently teaching 2 sections in IAT 100 Systems of Media Representation (<http://>) -have been reworking the original material for her own course, an iterative process of redesigning it to fit her needs. -Design experience: doing a lot of research lately with A (<http://>); *3.01202 role: usability testing for various user studies-designed the study and run the script with a particular user group. *3.01203 Currently working with children. *3.01204 When worked with Rn (<http://>), similarly designed, facilitated and documented the study. {3.011 3.0040103}

[3.012041] -The area that she [G] would be suitable for in this team would be the design side. -i{G} -p{} {3.01201 3.0040101}

[3.013] J: *t*{ } –[this university school] Master student. –A lot of experience teaching and developing courses over the last 5 or 6 years, with [program in this school] the [program in this school]14-3 History and Theory of Technology and Culture (<http://>), which is going to be changing into another course, which is the predecessor to this design thinking course. –Teaching that course right now. {3.01 3.0040103}

[3.0140102] Looking at the courses in terms of how they can be redeveloped or what kind of pieces can be pulled from existing materials that we have for our courses or the program in general. –Area of study has been culture-related fields, digital culture specifically. {3.013} *3.0140103 But in terms of design thinking there-s been a strong applying of cultural models for interaction in terms of looking at design. {3.013 3.0040101}

[3.01402] The one that J keyed in on is a cultural model of a remix environment where you-re taking building blocks and taking mixes, frames and perspectives of what you-re doing as a way to interact with digital culture or other types of cultural interactions. *i*{J} {3.0140103} *3.01403 What is useful about that for this course on design thinking is how that model can incorporate a number of different perspectives on a situation, so you can get a wide variety of views of a design situation *i*{J} {3.0040101 3.01402} , and get the best approach to something. –Worked with C extensively.

[3.015] B: *t*{ } –Faculty of [this university school], 4 years. –Computer and Electrical Engineering background; *3.01601 background in the process of design, but also looking at user-centred design as a criterion in that process, expanding that to the entire discipline that can be incorporated in design. {3.01 3.0040101}

[3.01602] Want to give the student a flavour of design as it applies to F.A.S. (<http://fas>). {3.01601 3.0040101}

[3.01607] Not to limit that to a computing perspective, but give them the breadth necessary. *i*{B} {3.01602} –design is ubiquitous;

[3.0160101] we don-t have to look hard to find examples that can inspire us or that we can learn from. –teaching Spatial Computing ([http://www.\[this university school\]](http://www.[this university school])). {3.01607}

[3.017] D: *t*{ } –Been with [this university school] since it was [old name of school]; *3.0180101 a PhD candidate; *3.0180304 sometime will finish. –When he started he was with a company that was supporting standards in distance education, but joined the interactive arts program with a focus on design. *3.0180501 Initially started studying the development of ontology, and it became how to support the development of metadata for anything, but with a focus on educational material; *3.0180602 that is how to design the metadata and how to carry out the use of the design later on. *3.0180703 The company changed its focus radically–no longer with the company; *3.0180804 currently doing ethnographic research of IT security management. *3.0180905 Interestingly that wends into organizational usability of various systems. *3.0181006 His focus has changed too. *3.0181207 It-s still design,

but the metadata has shifted to social bookmarking, and its closer to design because he is looking at ways that social bookmarking can support distributed design. {3.01 3.0040101}

[3.01812071] –His role in this project is to facilitate communication, $_i\{D\}$ $_p\{3.017$ 3.0040101} and participate as much as he can in every way.

[3.0181301] But he is also recording these sessions in order to watch how the design of this course plays out, and looking for instances of where social bookmarking could have, in retrospect, helped out. –R (<http://www.> [this university school]) is his supervisor. {3.01812071}

[3.019] C: Maybe you could also speak to the relationship that R-s research group has to this course as well. $_t\{\}$ {1.044 3.0181301}

[3.02] D: R-s research group provides some really interesting people who can act as an advisory group. $_i\{D\}$ $_p\{3.019\}$ *3.02001 That brings in the distributed design aspect too. {3.02}

[3.02002] The reason for this is that the intention of this course is that it address broadly a wide number of areas—engineering design, graphic design, all different kinds of design. {3.02001} *3.02003 So people have to agree the kinds of design concepts that would be appropriate to take on that task. *3.02004 That-s a reason why its good to consult with people from different design fields.

[3.021] C: Clarified that both R-s group and the other [this university school] colleagues are available for reference and ideas—there are a number of designers in the house who are willing to come in and offer feedback. $_i\{C\}$ $_p\{3.02\}$ $_o\{i a\}$

[3.02101] This particular course has to be designed for [program in this school] first; $_i\{C\}$ {3.021 1.012}

[3.02102] it has to meet the needs of a first year [program in this school] student, and we know that its a breath course, and we-re going for a B soc. $_i\{C\}$ {1.016 3.02101}

[3.02103] So there are a lot of requirements, and we will find that it is probably surveyish in nature and we are not going to be able to speak to every kind of design, but the more that we can bridge different kinds of design, I think that that will make the course more interesting for students who are deciding where they are going to go in second year, but also we-ll have a course that we can recycle and take to [main campus] and other places. $_i\{C\}$ {1.008 1.00703 2.008 3.02102}

[**3.022**] C. *t*{} *3.023 –Been around since [old name of school]. –Project managing the new development of this course and the redevelopment of the [program in this school] Teamwork and Communication course, which are supposed to speak to each other, and those are coming up in the spring. –Position in [this university school]–the writing lady; *3.02301 teaching the Critical and Creative Thinking course ([http://www.\[this university school\]](http://www.[this university school])). –Designed the W courses here. *3.0230101 Currently learning about W courses outside of [this university school] and [program in this school]. *3.0230202 Took on the task of teaching the Business 3rd year writing course. *3.0230303 The deliverables are amazing. –Kind of wearing 3 hats. *3.0230401 Where ever she is, her goal is to be present. –Experience: written a lot of courses, redeveloped a lot of courses–[program in this school]00 was written every year for 4 years depending on what was happening . *3.0230501 Taught several of the first and second year courses. *3.0230602 Interest in writing, critical thinking and culture studies. {3.01 3.0040101 3.0040101}

[**3.02306021**] –Design: learned to be a pretty good instructional designer, also was trained here. {3.022 3.0040101}

[**3.0230701**] Not coming at this as a content expert, rather a someone who understands the [program in this school] program and the needs of a 1st year student. *3.0230802 Coming at this with an understanding that [program in this school] courses have to speak to other courses. *i*{C} {3.02306021}

[**3.0230903**] Will probably be in all kinds of other meetings, seeing what other groups are saying, and seeing how we connect. *3.0231004 And will be working on the redevelopment of the Teamwork and Communication course. {3.022 3.0040101}

[**3.025**] C: Like to put out a few questions and get ideas about what course could look like. *t*{} *p*{3.00901 3.0040104}

[**3.02501**] (Approved syllabus handed out) Course approved up to, but not including, the highest level–that should not be a problem. *3.02502 The program has been approved. *3.02503 The course is Design Thinking, and we-re working with this particular weekly syllabus, which they seem to want some detail. *p*{3.025}

[**3.02504**] We-re not married to the syllabus. *3.02505 This is to meet the needs of getting it approved. *3.02506 We are not married to these titles. *3.02507 What we have here is a series of big ideas, which were given to C by many colleagues, about what are the big ideas of design. *3.02508 That-s why this has a surveyish flavour. *i*{C} {3.02501 1.009 2.138}

[**3.026**] Texts: *p*{3.025 3.0040104} *t*{}

[**3.026001**] we have already signed up for -Design of Everyday Things. *i*{C} {2.029001 3.026}

[3.02601] Copies to be given to group. _p{3.026001}

[3.02602] Ordered copies of -What Designers Know and How Designers Think-, as well as -The Design Process—talking about how designers use concept maps—it has concrete activities, so we may want to use these drawing activities, mapping activities, doing illustrations. _i{C} {3.026 2.029}

[3.02603] Experiential learning: one of C-s goals for this course is that the assignments are memorable. *3.02604 Did we create an interesting experience for them, what would that look like. _i{C} {3.02602 3.0040110}

[3.02605] One of the goals for this course is that our design is transparent; *3.02606 we want them to see that this course was designed with a set of objects, and the activities are designed in a way for you to have an experience but also be able to use the principles that you-re learning to be able to think about what it is that you-ve done. _i{C} {2.013 3.02603} _o{i a}

[3.027] B: This book [-The Design Process-?] is full of illustrative examples on those principles. *3.02701 It is very useful because it concretizes the ideas in examples. *3.02702 Great examples of both good and bad designs and what we learn from both. *3.02703 Feedback with the user—having models and mappings—use of constraints - iteration. _i{B} {3.026 2.011}

[3.028] D: R was going to inquire of John Dill about a certain book. *3.02801 Have you heard anything about that?. {3.026}

[3.029] C: No. {3.028}

[3.02901] But C-s reading list is overwhelming. {3.029}

[3.02902] Got these books so we could brainstorm about these ideas. {3.029}

[3.02903] But when she saw some of the pictures of the class activities, she thought it would be great, because we don-t know what level a first year student is at in terms of what they-re going to make. *3.02904 All of her colleagues have informed her that students want to do stuff, students want to make stuff. *3.02905 So we don-t just want to be talking about what designers do, we want them to make things. _i{C} {2.011 3.02603 3.027} _o{i}

[3.02906] But we also know that this is not a graphic design or architecture design course. *3.02907 There are other people doing that kind of work. *3.02908 So we want to borrow from the designers, to have interesting class activities, and if they can produce some kind of outcome. *3.02909 Want to be careful about using the word -artifact-. _i{C} {2.0082 3.02903}

[3.0291] We may end up creating our own activities based on other ones that we know. *i*{C} *p*{3.02903}

[3.02911] This is not a prototyping class, but what if, given what you know to date, you have something at the end of the day that shows that you went through a particular kind of process. *i*{C} {2.0082 3.02903}

[3.03] C: When everybody gets a copy, we'll set a date to have them all read, and be able to come back and see what kind of material we think will be useful. *p*{3.02602}

[3.03001] If anybody else has resources that they think will be useful, then that's great. *p*{2.029 3.026} *o*{i a}

[3.03002] There was a really strong vote for this (-The Design of Everyday Things-?) as the first year design book. {3.026}

[3.03003] We've also opened the door for a course package or a second textbook, so this is where the design group's ideas will be helpful, because C has learned that first year students do not like to read online *i*{C} *p*{2.029 3.026 3.03001}

[3.03004] there seems to be some kind of ethos attached to be book or the article. *i*{C} {2.029 3.03003}

[3.03005] Having the book or article makes the opportunity to talk about the in the classroom. *i*{C} {2.029 3.03004}

[3.031] B affirms the course package that can deal with the assignments in the project. {3.03003}

[3.032] C: Because we're a spring course, but the goal is to have everything in Moodle and ready to go by the Fall. *i*{C} {1.007 3.031 3.00502} *t*{}

[3.03201] As JM's courses are running we'll get feedback from them to help us fine-tune the Design Thinking course. {3.032}

[3.033] G: The library has VHS -Deep Dive- by Ideal, the International Design Group out of California-A Night Line challenge to redesign the shopping cart within 5 days-a good intro for the first class or two to see a process within 20 minutes. {3.03001} *t*{}

[3.034] B purchased the DVD from ABC. *i*{G} {3.033}

[3.035] J saw it online back in the [old name of school] days. {3.033}

[3.036] C: Our material needs to be multimedia in nature. *i*{C} *p*{3.033}

[3.037] C: Would like to come up with a way of shelving useful ideas when the group is not at that part of the process yet. $_i\{C\} _p\{3.033\ 3.036\} _o\{i\} _t\{\}$

[3.038] (talk about Dive Deep). {3.033}

[3.039] D to create a Design Matters group on a social bookmarking web site that enables -memos- to be both just notes and tagged resources. $_i\{D\} _p\{3.037\}$

[3.04] C overwhelmed by new wiki-s and the like; *3.04001 space already set up for all the [program in this school] material; *3.04002 want to be consistent with existing place; *3.04003 doesn-t want to create more work with other external or multiple. $_i\{C\} _p\{3.039\}$

[3.041] G: Concern over the extra work of having to come up with classifications. $_i\{G\} _p\{3.04\} _o\{i\}$

[3.042] -Shelved ideas- and the like to be a regular feature in D-s communications. $_i\{D\} _p\{3.037\} _o\{i\}$

[3.043] Team members should bring interesting readings to the group. $_i\{G\} _p\{2.029\ 3.03001\} _o\{i\} _t\{\}$

[3.044] B to bring copy 2007 reference on design-graphics; *3.04401 complementary source. *3.04402 To send title to C. $_p\{3.043\}$

[3.045] C: Some of the reading is for us, and some to give to students. $_i\{C\} _p\{2.029\ 3.043\} _o\{s\}$

[3.046] Design Thinking: 3 themes: Design, technology, community. $_i\{C\} _t\{\} \{3.0040108\}$

[3.047] -Teamwork, communication and collaborative strategies- to help facilitate what we-re doing in Design Thinking. $_i\{C\} \{3.046\ 2.03401\}$

[3.04701] Can-t integrate the courses too closely; *3.04702 the courses are open for students from [the main university campus] and else where; *3.04703 can run them side by side and they can speak to each other, but they can-t be that tightly integrated. $_i\{C\} \{3.047\ 1.008\}$

[3.048] $_t\{\}$ Constraint: Final Project (published in order to get approval for the course): Big [program in this school] idea about community building and being of service; *3.04801 team project where students will examine a problem in the community. $_i\{C\} \{2.00817\ 3.046\}$

[3.04802] Already ran this by J. {3.048}

[3.04803] Maybe either the last 4 weeks of the course, or be a theme that runs through the course. $_i\{C\}$ {3.048}

[3.04804] Looking at safety issues at the [this municipality] Central [train] Station. $_i\{C\}$ {3.048}

[3.04805] It has to be a place that students use, even if they just pass it on the way to the community centre, school or the mall. $_i\{C\}$ {3.048}

[3.04806] We will take them through a team process. *3.04807 We will be in the space, we can talk about the space; $_i\{C\}$ {3.048}

[3.04808] they may be in teams where they are looking through a particular designer lens, and we have wide class discussion where people coming from a particular design lens will speak—that-s all up to us. $_i\{C\}$ {3.048 3.009}

[3.04809] Large scale project where we-re looking at improving the user experience—not necessarily solve, rather the students put forth a series of questions or suggestions based on their research; $_i\{C\}$ {3.048}

[3.0481] getting them to look at stakeholders, whether its an [this university] student or a [this municipality] police officer. $_i\{C\}$ {3.048 2.02202 2.012 2.00806}

[3.04811] May culminate in a report; $_i\{C\}$ {3.048}

[3.04812] include some of their designs or process. $_i\{C\}$ {3.048}

[3.04813] We want it to be relevant. $_i\{C\}$ {3.048}

[3.04814] So the project may be across [program in this school]; $_i\{C\}$ {3.048 3.04813}

[3.04815] we would look at some of the top proposals across [program in this school]; *3.04816 they may go to say the [this municipality] City Counsel. *3.04817 Its a contribution back to the community. $_i\{C\}$ {3.048 1.018 2.00817 2.01301 3.046}

[3.049] J: What-s going to be the contentious issue is -what community?—[this municipality], [this university] [this municipality], [this university], [program in this school]. $_i\{J\}$ {3.04815}

[3.05] C: made it purposefully vague so we can decide what that is. $_i\{C\}$ {3.04815 3.049}

[3.051] B: Pointed out the necessity to define the constraints of the project. {3.048}

[3.052] The idea is for students to feel that what they are doing is meaningful to them or their [program in this school] community, so [program in this school] is where we start. {3.049 2.024} $_i\{C\}$

[3.05201] It would be hard to generate 300 feeling like they are a community. {3.04815 3.052}

[3.05202] We want them to realize that out there, there are other people that are affected. {3.052 }

[3.053] There has been some discussion about whether first year students can do a project of this scale. {3.04813}

[3.05301] C: believes we will create a project that we know they can do. *3.05302 They are putting their critical thinking skills to work, and learning, because they will be in their teams going through a process. {3.053}

[3.054] C: $_t\{\}$ Has not seen a model for a course like this, so perhaps we are generating something new. *3.05401 It will be a kind of collage of sorts. $_i\{C\}$ {2.011 3.053 3.0040104}

[3.055] G: It is a first year level course, it depends on how the syllabus is structured. {3.054}

[3.05501] In the first 5 weeks they need the tools to understand how to approach this project. $_i\{G\}$ {3.053}

[3.05502] Its surprising how smart students can be if they are designing a project that impacts their lives. *3.05503 Their project may not cover everything like a professional project, but they will cover enough in the beginning to be able to create a proposal for the city, that this could be worked on again and reiterated. *3.05504 The syllabus is quite ambitious. $_i\{G\}$ {3.053 3.05501}

[3.056] B: They might have the opportunity to answer some of the questions in a conceptual way: asking the right questions, gathering a lot of data, surveying and things like that. *3.05601 So its a beginning of a bigger picture. $_i\{B\}$ {3.053}

[3.057] C: What kind of outcomes do we want. $_t\{\}$ *3.05701 Does it matter to us that students leave and they feel like they have solved some kind of puzzle, or really in a design course you want them leaving asking more questions—good, critically processed questions—the difference between asking an active question and a passive question. $_i\{C\}$ {3.054 3.0040110}

[3.05702] Not married to the syllabus; *3.05703 if we feel its too ambitious we can collapse material or take stuff out. $_p\{3.057 3.02504\}$

[3.058] B: Its a breadth course, wide in scope; *3.05801 want to attract as many FTEs and numbers. *3.05802 that-s a guide or constraint: maintaining the breadth. {1.007 3.01602 3.057}

[3.059] C: We have more than enough big ideas. *3.05901 There are some ideas, like How is Design Evaluated; *3.05902 that is what is going to be running in the final weeks as students are in process. $_i\{C\}$ {2.008 2.03104 2.13802}

[3.05903] We have 4 hours of class time (does not mean the classes are 4 hours each), we have 4 hour blocks that can be broken up. *3.05904 We are very conscious unpacking the toolkit that comprises the beginning of the course. *3.05905 We may do more work-shopping and discussing—we are free to play with what those models look like. $_p\{3.057\}$ $_o\{s\}$

[3.06] J: $_t\{\}$ I think one of the early activities is to get them to reflect on the communities that they are a part of, and then if they are working in groups the obvious common community would be the classroom and the [program in this school] program that they are involved with. *3.06001 To get them to see that they are simultaneously participating in a number of communities as stakeholders. *3.06002 That might one of the early things is to get them to reflect individually and discuss it collaboratively. $_i\{J\}$ {3.05903 3.05501 3.052}

[3.061] C: In the Teamwork and Communication course, part of the process for their research paper is getting them to examine different stakeholders in whatever the issue is. *3.06101 So we will be able to use that common language, and hopefully we will be able to map whatever the topic is over to what we are doing in the Design Thinking course. $_i\{C\}$ {2.012 2.02202 3.0481 3.06} $_o\{s\ i\ o\}$

[3.062] IDEAS ABOUT WHAT WE THINK WE WOULD LIKE TO ACHIEVE. $_p\{3.0040110\}$ $_t\{\}$

[3.063] G: Re: White boards: it would be good to have some to write on because we have 13 weeks, it would be good to breakdown the core themes. $_i\{G\}$ $_o\{s\ i\}$ $_p\{3.062\}$

[3.064] B: We have 4 themes here. $_r\{3.062\}$ {2.1380201 2.1380205 2.1380207 2.138021}

[3.065] G.: *3.066 Umbrella of this whole course: Design is all around us. $_t\{\}$ *3.06601 This is integrated into every topic. *3.06602 Some of the topics are so integrated with the other weeks that its hard to separate. *3.067 The big ideas overlap. $_o\{s\ i\}$ {3.062 3.064 2.1380202}

[3.068] 1. Design thinking: meta, breadth: understand problem; *3.06802 ideas 1-4 (from syllabus). {3.065 2.1380202 2.1380203 2.1380204 2.13802051}

[**3.0680201**] Design processes: done through examples and bringing people in to talk about it: problem solve; *3.0680302 ideas 5-8; *3.0680403 collaboration could be part of that, and also through out the whole theme of the course; {3.065 2.1380206 2.1380207 2.1380208 2.1380209}

[**3.0680504**] -Who is a Designer?- is not a necessary question. {3.065 2.1380205 }

[**3.0680601**] 3. Design evaluation: project: evaluate solution; *3.0680702 ideas 10-13. Based on process and examples, what are the things you look for, so they will know the things that they have to consider. {3.065 2.1380211 2.1380212 2.1380213}

[**3.069**] Design matters means design thinking; *3.06901 design is all around us and that is why is does matter. {2.1380202 3.065}

[**3.07**] J:. *3.071 t{} Design as Recipes. *3.072 1. Design thinking: What ingredients and tools do we have available. *3.0720201 2. Design process: What recipes and combinations can we make use of. *3.0720301 3. Design evaluation: Does it taste good; *3.0720402 is it filling etc.? *3.073 Tasting is a method of testing; *3.07301 filling is the evaluation of the test. *3.074 Same conceptual framework as the remix thing; *3.07401 you have the building blocks of a design problem; *3.07402 you have the way to assemble those pieces; *3.07403 then looking at the overall view of the situation–did that fit the needs, the perspectives that were required for the design situation. *3.07404 You might have a different set of needs or a different problem with a different set of users or community. _i{J} {3.062 }

[**3.075**] G: with design thinking you are solving a problem–with design thinking sometimes things come out from the iterative process. {3.07}

[**3.076**] J: These things are concurrent and dynamic. {3.07 3.075}

[**3.077**] B: Feedback loop. {3.076 3.075}

[**3.078**] G: I see the ingredients as the design process; *3.07801 design thinking comes from various different disciplines. *3.07802 If an engineer, industrial designer, and architect–we all come from a different design thinking; *3.07803 how were we trained to problem solve. *3.07804 I see the design thinking as more of a problem solving topic. *3.07805 Then in the design process, that is were I see the your ingredients should be inserted. {3.07}

[**3.079**] J: Multiple disciplines looking in the same general direction but with different lenses or perspectives. {3.078}

[**3.08**] G: But its critical to understand that everybody has been trained differently, so everybody has to negotiate how to solve a problem. {3.079}

[3.081] C: It is important to understand that we are not all going to have the same understanding of the process, and it doesn't mean that the umbrella is going to be the course, or the recipe is going to be the course, but our understanding and questioning of what design is. *3.08101 Which is really what we need to be doing in our first few meetings. {3.062 3.079 3.08}

[3.082] B.: *3.083_t{} Software development. *3.0840101 1. Design thinking: capture the user requirements, understanding the problem, what am I trying to build; *3.0840202 project spec.s. *3.0840401 2. Design process: the development itself, the spiral model, the waterfall model. *3.0840502 Use requirements to do high level design, detailed design, coding of the functionality. *3.0840601 3. Design evaluation: testing, at unit level, integration of units, system level: integrated units on different platforms. *3.085 Always a feedback: an issue can cause going back even to renegotiated the requirements. {3.062}

[3.086] C: Models are being mentioned at point 2 (design process). _i{B} {3.082}

[3.087] D: _t{} *3.088 Agrees with G about design thinking; *3.08801 like to see a contrast of different kinds of design thinking. *3.08802 E.g., a team might exercise discipline in postponing evaluation of all the solutions until they feel the number of solutions has been exhausted, and then go into an evaluation. *3.089 In software design you might follow a Rational Unified Process of high level then get down to low level strategy, or you might do agile development. *3.08901 In agile you have a different kind of thinking going on. *3.09 In the development of integrated circuits, particularly analogue circuits, where you have huge investment of billions of dollars and a very competitive market, they will run with the first solution, they don't care about finding the best solution. *3.09001 Because, if you spend a billion dollars, and somebody gets to the market 2 weeks ahead of you, you've lost it. *3.09002 Because the market commits by using those components, and they can't backup. *3.09003 So there you have high levels of commitment and you go with the first solution rather than comparing a wide set of solutions. *3.091 And then there's Electronic Arts where they will have several design teams working independently sort of in competition, and then at the end of the game of these parallel streams of designs they choose a winner. *3.09101 And there's at least one architect who does that too. *3.092 So you have these different kinds of design thinking. _i{D} {3.062 3.078}

[3.093] B: In large projects you get quickly to a prototype phase because it's such an expensive undertaking that you don't want to make a mistake. *3.09301 You want to make mistakes early in the process, so that it's cheaper to recover from. _i{B} {3.087}

[3.094] C: _t{} We know there are different kinds of design thinking depending on the context. *3.09401 There are different ways of talking about how design happens, so we're working with metaphors right now. *3.095 There are different ways of talking about, of seeing. *3.09501 This is the core we need to get across to students, that we want them to experience different ways of looking at problems. {3.087}

[3.09502] *t* Part of our job is how do we fit them with a lens. *3.09503 Its only a 13 week course. *3.09504 We have to think about how do we do that. *3.09505 How do you get 300 kids in the course to get that. *3.09506 JF wanted the students to have a taste of the disciplines. *3.09507 Not necessarily giving them a taste of the Faculty of Applied Science disciplines—that is not a constraint. *3.09508 Let-s pick disciplines that we can touch. *3.09509 Business—there-s a lot of students that go into business; *3.0951 we know students are going into [this university school]; *3.09511 we know students are going into engineering. *3.09512 But its up to us to make the connections and similarities. *3.09513 We can-t cover everybody. *3.09514 We want to sell a first year course that-s interesting and relevant. {3.079 3.094}

[3.096] (ASSIGNMENT) *t* Explore your view of design in relation to the proposed syllabus and to bring your results to our meeting. *3.09701 How we see. *3.09702 Mess up the syllabus. *p*{3.0040110 3.00901}

[3.098] *t* (Learning and Instructional Design Centre ([org associated with the school] [http://newsite.\[org associated with the school\]./\[org associated with the school\].home.php](http://newsite.[org associated with the school]./[org associated with the school].home.php)) Visitors: Vn and Cy.) Want to know what does the team want of the instructional designer who will attend the meetings; *p*{1.035 3.0040111}

[3.09901] JM wanted: put together design documents, layout, structure for developing learning activities—13 weeks, the goals, the activities, the assessments. *3.09902 Making mock ups for how content would be presented. *3.1 C: Whatever JM gets we also want. {3.098}

[3.101] Participating, communicating between meetings, general consulting. DP to invite a person from the College of the [] to come here to give a workshop on Moodle. {3.098}

[3.102] C: This course has already been set up as weekly and face to face. *3.10201 But all of the course material is going to be online. *3.10202 Part of our process is going to be how we look at the [Moodle]. *3.10203 Is there someone body going to facilitate moving the information over and making it consistent and clean, putting the content inside. *3.103 That will probably be a different person than the instructional designer. *3.104 C: Our goal is to have a working version towards the end of the summer. *i*{C} *p*{3.098 3.00502 3.0040111}

[3.10401] Everything would be sitting in Moodle and we would use the feedback from JM-s courses to tweak it. *i*{C} *p*{3.102} *o*{i a}

[3.105] Likely meet every two weeks, for up to 4 hours each time. *3.10501 Good to give people time to play, if it gets done, the meeting can be cut off. {3.10401}

[3.106] G: Hopefully there will be a lot of team cross knowledge. *p*{3.105 3.101}

[3.107] C: My request is that the same instructional designer [one out of the two available for the 4 courses under development] be working on both Design Thinking and Teamwork and Communication since they are going to be integrated. _p{3.099 1.00701}

[3.108] J to work on three of the courses. _p{3.107}

[3.109] C: Goal to have M [M http://] join our group so we can talk about the courses together. {3.106 3.108}

[3.11] Cy is going to act as the Moodle consultant for all four courses, and will be attending many of the meetings. {3.10401} *3.111 [post 2ndary online learning campus] is supporting the use of Moodle; *3.11101 they have a server at [this university] through [this province] Net. {3.11}

[3.11102] There are a number of colleges using the Moodle. {3.111}

[3.112] The Moodle has a learning curve, but after, it is straight forward. {3.11}

[3.113] We will be discussing what our delivery model is. {3.09901}

[3.11301] We already know that for first year students it is best that it be face to face. {3.113}

[3.11302] We don-t expect the same issues as before. {3.11301}

[3.114] J: Does Moodle support social bookmarking?. {3.10401}

[3.115] Cy: You can always use del.icio.us together with Moodle. {3.114} *3.11503 That-s not a problem. *3.11504 Do not think the Moodle should have its own social bookmarking service; *3.11505 that has been done so nicely elsewhere.

[3.11506] The two can be integrated at a course level. _p{3.115}

[3.116] Discussion of help support for using CMS. {3.112}

[3.117] There should be support for Moodle for both students and instructors. {3.116}

[3.118] Possibly integrate Moodle use into the first class-creative use of Moodle. {3.116}

[3.119] ACTION ITEMS. _p{3.0040112} *3.12 .t{ } C to send out digital syllabus, assignment for next week, and confirmation of next meeting.

[3.201] *t*{2} Since our meeting on Monday, I have been asked questions about compensation, R-s research group-s role in the course development, and the ethical practice of taping meetings for research. These are good points to address before we begin the task at hand. JF has agreed to come to our meeting to address these questions to help facilitate our process. *p*{2.028 3.02 1.021}

[3.202] S has been appointed as the instructional designer for the Design Thinking course and the Teamwork, Communication and Collaborative Strategies course *t*{}. *p*{3.107 3.099 3.005} She will be in attendance for part of the meeting on Monday.

[3.204] *t*{1} I asked each of you to explore your view of design in relation to the proposed syllabus and to bring your results to our meeting. Please make photocopies of any information you wish to share. *p*{3.097 }

[3.205] *t*{ } D, I would appreciate it if you would email me the notes from our last meeting by Monday morning, so I can review and photocopy them for our meeting. *p*{3.0181207 }

[3.37002] *t*{2} *t*{ } 1. S – LIDC instructional designer (10 hours per week) *p*{3.202}

[3.37003] *t*{ } 2. Research Server Space *p*{ } Here is the information you need to log onto the *t*{ } server space. Server name: ftp://*t*{ } For guest/shared account use the server name plus Username: guest Password: guest_*t*{ }

[3.37004] *t*{ } ACTION: Upload meeting minutes D *p*{3.0181207 }

[3.37005] 3. JF: will attend today to discuss and clarify *p*{3.201} 1. The role of R and his research group in the development of the course *3.37006 2. Ethics responsibilities with respect to D-s research and the use of a tape recorder in our sessions *3.37007 3. Team member compensation and future outlook

[3.37008] 4. Text Books: *p*{2.029 3.0040104} 1. Lawson: How Designer-s Think - not in yet 2. Lawson: What Designer-s Know - not in yet 3. Aspelund: The Design Process - not in yet

[3.3701] *t*{ } 2. Design Activity: How do you see the course? *p*{3.204 } 1. Each team member will briefly discuss the course syllabus through his/her design lense(s) 2. Where are the overlaps? Intersections? Differences?

[3.37011] *t*{ } 3. Course Objectives/Learning Outcomes *p*{3.3701} 1. Based on what we-ve learned from Activity 2, what do we want our students to learn/do?

[3.37012] *t*{ } 4. Next Meeting Prep: 1. Next meeting in 2 weeks: Monday, March 12 11am-2pm 2. Action: Read the Norman textbook (our official text) and note specifically where sections/chapters map onto major course ideas. *p*{3.03}

[3.37013] *t*{} *p*{3.37002 } 1.Action: Next week C will meet with S to create an outline for developing weekly course objectives, assignment objectives and assignments.

[4.001] Design Thinking: Meeting Notes: 26 Feb 2007. *t*{}

[4.003] ACTION ITEMS. {4.001} Everyone: Read the Norman textbook (our official text) and note specifically where sections/chapters map onto major course ideas. Everyone: Supply annotated bibliography. C: Deliver text books. C: Meet with S to create an outline for developing weekly course objectives, assignment objectives and assignments. D: Upload meeting minutes. J: To send electronic version of his colour markup of syllabus. *4.004 ISSUES. *4.005 Could jam up every section with who is going to teach this. *4.00501 We will create a course that someone could come in with their expertise and layer it on top of good design and good pedagogy. *4.00502 Create a course that has a good skeleton and lots of muscle, then let instructor put their flesh on it. *4.006 (Provide a toolkit that will help students succeed in life) . *4.00601 want to think about our toolkit. *4.00602 What are the core ideas; *4.00603 if we-re going to use terms like principles, frameworks, models, whatever; *4.00604 when we come to our weekly material, we can think about what 1 or 2 tools do we want them to leave with, this week, from . *4.00605 how we pull out the core ideas. *4.00606 But I like the idea of front loading. *4.007 It is a breadth course. *4.008 When you are learning about process, you don-t want to be talking about 2 or 3 processes at the same time. *4.00801 . *4.00802 Give just an hour and a half overview of it [one perspective, like software engineering]. *4.009 When you have an understanding of who the audience is, at that time you can lean more heavily towards on or the other, but at the very least go here-s this wide pallet of design disciplines. *4.01 would like the students to be self conscious that there are different kinds of design thinking. *4.011 MAPPING. *4.012 that I share, like for example when you talked about the spiral model-iterative process, I totally get that, so that-s a map. *4.01201 Waterfall-not quite so sure. *4.013 Appreciated how B kept the front end and back end of the course, but asked what would a software designer do for that middle section; *4.0130101 what would a graphics person do for that middle section; *4.0130202 what would an industrial designer do. *4.0130303 . *4.0130404 In the beginning, we are coming from a broader perspective, and there-s going to be a lot of establishing context, and explaining. *4.0130505 We-re going to be doing that in the beginning, which seems this 3rd level stuff. *4.0130606 Then we-re going to go back into this idea of looking at points of view and perspectives again, but THEY-RE going to be doing that. *4.0130707 Whereas the blue is a lot more specific, concrete. *4.0130803 . *4.0130909 The lens at the beginning is wide; *4.0131 the lens at the end is wide; *4.01311 but who is looking through the lens is different. *4.01303 . *4.01313 J: At the beginning, we-re framing their lens. *4.01314 C: By the end, they-re framing their own. *4.014 Design, analysis and evaluation-the 3 major categories. *4.01401 Arrangements/design; *4.01402 perspectives/evaluations; *4.01403 analysis/ingredients. *4.015 We can agree on some of the topics discussed in weeks 1-4. *4.016 Skill . *4.01601 The story after . *4.01602 transferable skill . *4.01603 transferring a skill is when you learn a skill and then adapt it to different circumstances . *4.01604 this is were the idea of packaging the toolkit could be really helpful; *4.01605 because there-s

a self-consciousness around your learning skills that you can apply elsewhere. *4.017 the third level—how you are looking at what is being designed, the outcome of that, and realizing that somebody else might have a different frame of reference . *4.01701 a design is a kind of shared representation; *4.01702 but the question is, shared between who. *4.01703 And that would be between different communities. *4.01704 Part of the problem is discovering who the communities are and what their minimal requirements are. *4.01705 Because in the end they all have to agree that their minimal requirements are showing up in the shared representation . *4.01706 there-s a process of discovery and negotiation . *4.01707 merging most easily happens it seems at the level of writing. *4.018 PERSPECTIVES. *4.019 base design over movements; *4.01901 technology strong factor in how design is done—process and aesthetic; *4.01902 prior to industrial revolution there was no design process. *4.02 The KISS protocol (-Keep It Simple, Stupid-). *4.021 cognitive psychology, and perception and mental models there, visual perception. *4.022 time-sharing, batch computing, structured programming to object oriented paradigm. *4.023 when mobility began in the 90s, impacts on what design is; *4.02301 no longer industrial design or graphic design; *4.02302 turning into interaction design; *4.02303 -The thread that will join everything together will be user centered design, which is leading now into human centered design. *4.02304 -; *4.02305 -from real time to user interface design, which would be very useful from a [this university school] perspective-. *4.024 Cultural psychology (see RESOURCES): three level object conceptual model talked about with recipe metaphor: (1) building blocks, pieces ingredients; *4.02401 (2) arrangements, mixes, code, how you put the pieces together—set of instructions, practices, ways you put the pieces together; *4.02402 (3) the process itself—potential ways to arrange the pieces. *4.02403 . *4.02404 Each of those levels can have an aspect of design. *4.025 a design is a kind of shared representation; *4.02501 but the question is, shared between who. *4.02502 And that would be between different communities. *4.026 When people have articulated the problem to a sufficient detail that they know how to solve it, in one sense, at that point the design process is over. *4.027 RESOURCES. *4.028 G-s PPT: How different movements parallel with technology and methods—linked with different methods and books that came out during the 70s. *4.029 Massive Change: <http://www.massivechange.com/>. *4.03 Cole, M. *4.03001 (1996). *4.03002 Cultural psychology: a once and future discipline. *4.03003 Cambridge, Mass. *4.03004 ; *4.03005 London, England: Belknap Press of Harvard University Press. *4.03006 and Wartofsky, M. *4.03007 W. *4.03008 (1979). *4.03009 Models : representation and the scientific understanding. *4.0301 Dordrecht, Holland ; *4.03011 Boston: D. *4.03012 Reidel Pub. *4.03013 Co. *4.031 combined with the above is Manovich-s use of the term -object-, i. *4.03101 e. *4.03102 in the early part of this book (pages 8-12). *4.03103 Manovich, L. *4.03104 (2001). *4.03105 The language of new media. *4.03106 Cambridge, Mass. *4.03107 : MIT Press. *4.032 SHELVED IDEAS. *4.033 Use the advisory group to gage the success of design courses that are very early in the curriculum. *4.034 In-class project where they research online different movements. *4.03401 . *4.03402 Ours might have an element of research, because it is a critical thinking class; *4.03403 it-s helpful sometimes if they do kind of the same thing twice. *4.035 Understanding people and introduction to cognitive

psychology, and perception and mental models there, visual perception. *4.036 Ground learner to history of the topic. *4.037 Review the different models—the spiral model, the waterfall model, the iterative or star models. *4.038 Design Patterns. *4.039 Follow a theme based approach through the example user interface design [only] and highlight its main features. *4.04 Explore the software testing usability strategies. *4.041 Evaluation strategies. *4.042 A design kaleidoscope. *4.043 When people have articulated the problem to a sufficient detail that they know how to solve it, in one sense, at that point the design process is over. *4.04301 at least it gives a kind of level that we can ask students to do. *4.044 Kinds of design thinking [examples here were inserted by D]: brainstorming, postponing evaluation of alternatives, handing off unfinished work to experts, competition between concurrent parallel design streams, early commitment to first idea that works, modularization of design interdependencies, unified Rational process, agile development, distributed design (large scale open source development, the development of global concepts of sociology, the development of the World Health Organization-s Classification of Diseases). *4.045 Be self conscious about design thinking and what kind of a process is appropriate to the situation, so maybe we can create problems where different processes are appropriate. *4.046 Agenda. 1. *4.0460101 Team Management: Updates. a. *4.0460201 S: LIDC instructional designer (10 hours per week). b. *4.0460301 Research Server Space:. Here is the information you need to log onto the [this university school] Transitions server space. Server name: ftp://[]. For guest/shared account use the server name plus. Username: []. Password: []. ACTION: Upload meeting minutes—D. c. *4.0460401 JF: will attend today to discuss and clarify. i. *4.0460501 The role of R and his research group in the development of the course. ii. *4.0460601 Ethics responsibilities with respect to D-s research and the use of a tape recorder in our sessions. iii. *4.0460701 Team member compensation and future outlook. d. *4.0460801 Text Books:. i. *4.0460901 Lawson: How Designer-s Think - not in yet. ii. *4.0461001 Lawson: What Designer-s Know - not in yet. iii. *4.0461101 Aspelund: The Design Process - not in yet. ACTION: C will deliver to team when they arrive. 2. *4.0461201 Design Activity: How do you see the course?. a. *4.0461301 Each team member will briefly discuss the course syllabus through his/her design lense(s). b. *4.0461401 Where are the overlaps? Intersections? Differences?. 3. *4.0461501 Course Objectives/Learning Outcomes. a. *4.0461601 Based on what we-ve learned from Activity 2, what do we want our students to learn/do?. 4. *4.0461701 Next Meeting Prep:. a. *4.0461801 Next meeting in 2 weeks: Monday, March 12 11am-2pm. b. *4.0461901 Action: Read the Norman textbook (our official text) and note specifically where sections/chapters map onto major course ideas. c. *4.0462001 Action: Next week C will meet with S to create an outline for developing weekly course objectives, assignment objectives and assignments. *4.04702 MEETING NOTES.

[4.048] 1. Team Management: Updates.

[4.049] S: [an organization associated with the school] instructional designer (10 hours per week). *4.05 –10 hours for both courses, but we are getting all the 10 hours presently. -p{3.37002 4.048}

- [4.051] –Teamwork and Communication to start in a few weeks; $_i\{S\}$ {4.049}
- [4.05101] not as intensive as Design Thinking; $_i\{S\}$ {4.051}
- [4.05102] new lens: to speak to Design Thinking. $_i\{S\}$ {4.051}
- [4.052] Research Server Space (see Agenda above): $_t\{ \}$ $_p\{3.37003\}$ 4.048}
- [4.053] Will also be helpful for Teamwork and Communication course. $_i\{S\}$ $_p\{4.052\}$
 $_o\{i\ a\}$
- [4.054] Also allows JF or whoever is watching us to see what is produced on a weekly or bi-weekly basis. $_i\{S\}$ {4.052} $_o\{a\}$
- [4.055] c. JF will attend today to discuss and clarify. {4.048 4.054} $_t\{ \}$ The role of R and his research group in the development of the course. {4.055}
- [4.057] JF: Relationship with R – $_p\{3.37005\}$ 4.055}
- [4.058] R had a proposal and idea for creating a large enrolment first year design course for SFU. {4.057}
- [4.05801] It didn-t happen with [this university school]. {4.058}
- [4.059] Same time as [a program at the school] deciding that it wanted a design course in the new curriculum. {4.058}
- [4.06] R has a major interest in the idea of design with the [a design research organization].{4.058}
- [4.061] R has funding from [a post secondary school] to put this course together. {4.058}
- [4.062] D-s role is one of facilitator of the communication process. Between the research agenda and this course. {4.057 1.037}
- [4.06202] But this course belongs to [a program at the school]; {4.061 2.03102}
- [4.06203] staffed by [a program at the school] resources. {4.06202} $_i\{JF\}$
- [4.063] We are happy to have some of the benefits of this overarching research agenda around design. {4.062} $_i\{JF\}$
- [4.064] There is an advisory group that R has or is putting together, that is supposed to feed into this process. $_p\{4.06\}$ 1.021 } $_o\{2\ 3\ 6\}$

[4.06401] People across Canada with an interest in design at a first year level. _p{4.064 1.02301 1.02302} _o{i a}

[4.065] This will be a way for them to help us possibly with learning objects for the course, and vice versa. _o{i a} _p{4.064}

[4.066] B: maybe gage the success of the course that early in the curriculum. {4.065} _o{i} _i{B}

[4.067] JF: This is probably the first generic design course. {4.058 1.01301} _i{JF}

[4.068] _t{} [re: agenda item -Ethics responsibilities with respect to D-s research and the use of a tape recorder in our sessions-.Research agenda, ethics approval, and consent forms discussed] {4.062}

[4.0681] _t{} -Intentional- course design-student centered design, as opposed to faculty centered design. _i{JF} {4.06202}

[4.07] _t{} [[a program at the school] discussed]. {4.0681}

[4.071] C: When this course is offered at other SFU campuses, the enrolment will be around 800. _t{} {4.0681 1.007 1.00702 1.008}

[4.07101] Which indicates how surveyish the course has to be. {4.071 2.00602 2.00603 2.011}

[4.07102] Not about any one kind of designer expertise, because we could jam up every section with who is going to teach this. {4.07101 3.01403 3.078 3.087 3.094 3.09502} _i{C}

[4.07103] We will create a course that someone could come in with their expertise and layer it on top of good design and good pedagogy. {4.07102} _i{C}

[4.07104] Even the [another school at this university] is a layer that will go on top of what we are going to create. {4.07103} _i{C}

[4.07105] We are not going to create a [another school at this university] version, then a business version. *4.07106 Its up to whoever the expert is; {4.07103} _i{C}

[4.07107] we can give them some tools. {4.07105} _i{C}

[4.07108] We don-t want to over-write these courses; *4.07109 we want to make sure that they are not constrained. {4.07103} _i{C}

[4.072] JF: Transferable and relevant. {4.07108}

[4.07201] The more that you can make everybody that-s in the room believe that they are a designer when they go, that they could use this toolkit to help them succeed. {4.072 2.02401}

[4.074] .t{} [Agenda Item: Team member compensation and future outlook.] {4.001}

[4.075] C: -Everybody needs to feel that they are taken care of, or there is something in it [Design Thinking] for everyone. {4.074}

[4.0750202] .t{} Last week: an introduction; {4.001} *4.0750303 this week: looking at our own perspectives of design and what we see this course looking like, and coming up with an early set of course objectives.

[4.0750505] After this meeting we know if this is the team, or not the team- {4.074}

[4.076] d. Text Books (see Agenda above). {4.001}

[4.077] 2. Design Activity: How do you see the course?. {4.001} *4.078 What kind of lens you [each team member] use to see design; *4.07801 if you were to walk through the syllabus, what might your interpretations be.

[4.079] Can make notes on each other-s copies, then write on the Big Paper. {4.077}

[4.08] a. Each team member will briefly discuss the course syllabus through his/her design lens. .t{} .p{4.077 3.3701} .i{C}

[4.081] G: PPT presentation. {4.08}

[4.082] -Further pushed idea of Big Umbrella {4.081 3.065 } .t{} .i{G}

[4.083] Framed in 13 week course. {4.081}

[4.084] Spread sheet. {4.081}

[4.085] base design over movements; *4.08501 technology strong factor in how design is done-process and aesthetic; *4.08502 prior to industrial revolution there was no design process. *4.086 5 weeks of design thinking. *4.087 4 weeks of design process. *4.088 4 weeks of design evaluation. *4.089 broad survey of design; *4.08901 changing based on technology-specifically human-computer design; *4.08902 design or creating a product requires the 3 areas-collaborative work. *4.09 timelines: how different movements parallel with technology and methods-linked with different methods and books that came out during the 70s,. *4.091 Course layout: technology, design methods, community, plotting different movements and different relevant issues that parallel each other; *4.09101 e. *4.09102 g. *4.09103 , when mobility began in the 90s, impacts on what design is; *4.09104 no longer industrial design or

graphic design; *4.09105 turning into interaction design. *4.092 Massive Change impacted perception of design. {4.083} *-i*{G}

[4.093] C: Want to create a course that has a good skeleton and lots of muscle, then let instructor put their flesh on it. {4.085} *-i*{C}

[4.09301] I would like our course to have a repository of resources. {4.093} *-i*{C}

[4.09302] E.g. here-s the Massive Change site, here-s a list of URLs—I think that is good instructional design practice—even though we don-t need that today, we know that those resources are available, and we can look at how many of us were affected {4.09301} [comments about Massive Change].

[4.094] B: If we want to talk about week 4, the historical aspects of design—I can use some material from the time lines. {4.085} *-i*{B}

[4.095] G: The subheading would depend on how you want to see it chronologically. {4.094}

[4.096] C: What matters is that this [the PPT] is a snapshot of you as a designer, so we have an understanding of your perspective and the kind of resources that you are going to bring. {4.077 4.085 }

[4.097] This PPT is on G-s Web-site. {4.085}

[4.09701] The PPT has numerous links in reference to various threads. {4.085}

[4.098] C: I-m already thinking how we can start with one and then layer everybody else. {4.096 4.085}

[4.099] *-t*{ } G: team assignment: when I give teams an in-class project where they research online different movements, and then present in the next class, so everybody gets a survey. *4.1 C: That-s an IAT 101 assignment. *4.101 G: They do that in relation to art, but this would be in relation to design. {4.085}

[4.102] C: re: research activity: That sounds familiar, so that might be a nice point of integration to think about. *4.10201 Ours might have an element of research, because it is a critical thinking class; *4.10202 it-s helpful sometimes if they do kind of the same thing twice, to solidify that the process matters. {4.099 2.01301} *-i*{C}

[4.10203] So maybe I can go to [a teacher in the school] and say, what-s the activity that you do; *4.10204 we may be interested in revamping it; {4.102} *-i*{C}

[4.10205] she-s interested in making sure that we have a connection between [the two courses]. {4.10203} *-i*{C}

[4.103] .t{} 6 copies of thoughts. {4.077 3.082 } _i{B} _o{}

[4.104] The KISS protocol [(-Keep It Simple, Stupid-) TNC provides direct computer to TNC communication using a simple protocol]. *4.105 starting with original syllabus, keeping in mind the main characteristic of the course, that it is a breadth course. *4.106 combined weeks 1 and 2 into one week; *4.10601 kept the title -Introduction to Design Thinking-; *4.10602 added: also explores how design helps us better understand the world around us; {4.103 2.13801 2.13802071 2.1380208}

[4.107] week 3 Design is Social: there is an element from the original syllabus, plus understanding people and introduction to cognitive psychology, and perception and mental models there, visual perception. *4.108 the historical aspects to design; {4.103 2.1380203}

[4.109] Who is a designer, week 4: combination of weeks 5 and 6 from the original syllabus-Design enables understanding and invites inquiry. *4.10901 Kept main topics, just under one week. {4.103 2.1380205}

[4.11] How Design is done, week 5: get into design as a process; {4.103 2.1380207} *4.11001 software process-exploring different phases in that process, review the different models-the spiral model, the waterfall model, the iterative or star models; *4.11002 for example, the waterfall model has be modified to include feedback from every phase to the previous one.

[4.111] Week 6, Design is made by doing: present principles of software design, give examples-correctness, usability, reliability, utility, efficiency. {4.103 2.1380208 } *4.11101 In the original syllabus there is The Making of Artifacts Requires Skill, and The Continuous Development of Skill. *4.1112 Another possibility is a theme-based exploration, so I look a object-oriented design. *4.11201 I have that in the following week: week 7, week 8, again possibility to choose a different theme: from real time to user interface design, which would be very useful from a [this university school] perspective. *4.11202 Also I put in the possibility: Design Patterns-how do you take advantage of recurring design purpose and enhance usability by using existing patterns. *4.11203 Which leads to component framework, component use. *4.11204 The example of standards, like CORBA. *4.11205 What is a software architecture-what are the different categories. *4.11206 Then within the architecture you have different frameworks. *4.11207 Discuss the meaning and usage and goals of frameworks; *4.11208 how to build frameworks; *4.11209 give examples. *4.1121 Or follow a theme based through the example user interface design [only] and highlight its main features. *4.11211 User interface design can be adapted to reflect the who course syllabus. *4.11212 The scope can be really large or small.

[4.113] Design is collaborative: add quality assurance. {4.103 2.1380209} *4.11301 You need different expertise, different personnel. *4.11302 Not only designing, testing, coding, and implementing, but also quality assurance. *4.11303 This is a collaborative endeavour.

[4.114] Design evaluation: keep week 10 description there; {4.103 2.138021} *4.11401 add explore the software testing usability strategies. *4.11402 There are myriad techniques—could pick a couple of those. *4.115 11 and 12: keep the same; *4.11501 add to 12 evaluation strategies during the active use of the product. *4.11502 Getting feedback from the users for the next version of the product.

[4.116] 13: keep as is. {4.103} _i{B}

[4.11601] The guide is the breadth, otherwise we would get into programming and programming languages. {2.13801 4.104} _i{B}

[4.117] C: there will be none of that. *4.11701 Other people are teaching that. {4.11601}

[4.118] B: a lot of these themes are courses by themselves. {4.103}

[4.119] G: is it possible to consolidate weeks 5 to 8 and give an overview in one week? During the whole design process it might be good each week from an engineering perspective from a designer perspective, cause when you are learning about process, you don't want to be talking about 2 or 3 processes at the same time {4.104} _i{G} , cause I don't think people would understand.

[4.11901] I see from week 5 to week 8 talking about software design. *4.11902 To give just an hour and a half overview of it. *4.11903 I think you can tell the whole story [software engineering] in one week. {4.104}

[4.12] B: In the first syllabus I liked the beginning and the end: I changed the heart of the design process—weeks 5-8; {2.138 4.104} _i{B}

[4.12001] its doable in 2 or 1 weeks. {4.12} _i{B}

[4.121] C: We're not there, and I'm going to pull you back. {4.119 4.12} *4.12101 The purpose here is to find out how we are seeing where we can fit our stuff in.

[4.12102] What I'm seeing words like principles, frameworks, models categories—that's what I'm listening to right now. {4.104 4.121} _i{C}

[4.12103] And our next step would be to go what are the principles, models and categories for you. {4.12102} _i{C}

[4.12104] Like I know that I share, like for example when you talked about the spiral model—iterative process, I totally get that, so that's a map. *4.12105 Waterfall—not quite so sure. *4.12106 So what kinds of language, categories, models, are going to come out of this very general conversation that we're going to start to map. {4.12102} _i{C}

[4.12107] We-re at this very general level, but [we-re] already seeing connections. {4.12104}

[4.122] G: It-s just that there are not very many weeks, and if you want them to work on that project-3 or 4 weeks to work on that project. {4.104} _i{G}

[4.123] C: But we already know that this is not the syllabus. {3.097 4.122 4.104}

[4.12301] Yours is not the syllabus, and [B-s] is not the syllabus. *4.124 [C-s is not the syllabus either] We-re going to have a project, but. {4.121}

[4.125] G: I thinking all this should be taught before these last 4 weeks. {4.122} _i{G}

[4.126] _t{} C: So we want to think about our toolkit. *4.12601 What are the core ideas; *4.12602 if we-re going to use terms like principles, frameworks, models, whatever; *4.12603 when we come to our weekly material, we can think about what 1 or 2 tools do we want them to leave with, this week, from . *4.12604 I don-t think EVERY week has to be like Engineering Design, not every week, but think about how we pull out the core ideas. *4.12605 But I like the idea of front loading. {3.05903 4.125} _i{C}

[4.12606] The final project will be a monster. {4.125}

[4.127] G: The thread that will join everything together will be user centered design, which is leading now into human centered design. {4.125} _i{G}

[4.128] C: We-ll see. {4.127 2.00603}

[4.129] _t{} J. Appreciated how B kept the front end and back end of the course, but asked what would a software designer do for that middle section; *4.12901 what would a graphics person do for that middle section; *4.12902 what would an industrial designer do. *4.12903 As G said, can those 4 weeks be condensed into one week for each discipline. {4.077 4.11901} _i{J}

[4.13] B: could do the same thing for user interface design. {4.129}

[4.131] At this point in the course, we can go off into a number of different disciplines and directions. *4.13101 When you have an understanding of who the audience is, at that time you can lean more heavily towards one or the other, but at the very least go here-s this wide pallet of design disciplines-everyone who is using this term design, and how they might go about it. {4.129 4.072} _i{J}

[4.13102] And maybe have teams split off. {4.131}

[4.132] B: I can agree to that. {4.131}

[4.13201] We can agree on some of the topics discussed in weeks 1-4. {4.131 4.12102} $_i\{B\}$

[4.133] $_t\{J\}$ J: If I had those 4 weeks [the middle 4] for my discipline; *4.13301 how would I lay that out? Have a bunch of those to be able to compare and pull something together from. {4.13201}

[4.134] B: The evaluation part, you can do a similar exercise, but then you run into time. {4.133} $_i\{B\}$

[4.135] $_t\{C\}$ C to B: Can you send an electronic copy of this?. {4.103}

[4.136] J. Marked up C-s initial syllabus according to the 3 levels: three level object conceptual model talked about with recipe metaphor: {4.077}

[4.136001] (1) building blocks, pieces ingredients; {4.136}

[4.13601] (2) arrangements, mixes, code, how you put the pieces together–set of instructions, practices, ways you put the pieces together; {4.136}

[4.13602] (3) the process itself–potential ways to arrange the pieces. {4.136}

[4.137] Critical thinking the processes those are ways to look at the world around you, how to go about making a design, the process involved in that, the strategies that are common to many disciplines. {4.136}

[4.138] The idea with the second level is that these are skills, traditions, recipes, formulas that will be communicated to other people across generations; {4.13601}

[4.13801] these are the things that exist beyond the artefacts themselves. {4.138}

[4.139] C: like the story after. {4.13801}

[4.14] Third level is the perspectives and the ways to look at the environment that you're working in, the design environment. {4.13602}

[4.141] Each of those levels can have an aspect of design. {4.136} *4.14101 You can design the end artefact, but you can also design the recipe. *4.14102 You can design the frame of view for how you are looking at the activity;

[4.14103] you can tweak how you want somebody to be engaged in the environment, for different purposes or different audiences. {2.1380203 2.13802051 3.01402 3.07 4.141 } $_i\{J\}$

[4.142] C: Wouldn't it be cool to have a design kaleidoscope that we could point at the different people and see different kinds of design. {4.136}

[4.14201] [J] should work on that. {4.142}

[4.143] J: Example: week 11: explores how good designs are measured by the quality of the ideas they provoke and invoke, rather than a single point of view of the designer. *4.14301 For me that calls to mind the third level—how you are looking at what is being designed, the outcome of that, and realizing that somebody else might have a different frame of reference of how they are looking at that same object, might have different valuation systems placed on it, and go: no this isn't as good a design as this other is. {4.136}

[4.144] .t{} C: what I find interesting about your use of colour is that the course starts yellow and ends yellow. *4.14401 In the beginning, we are coming from a broader perspective, and there's going to be a lot of establishing context, and explaining. *4.14402 We're going to be doing that in the beginning, which seems this 3rd level stuff. *4.14403 Then we're going to go back into this idea of looking at points of view and perspectives again, but THEY-RE going to be doing that. *4.14404 Whereas the blue is a lot more specific, concrete. *4.14405 That makes sense to me, when we start looking at processes; *4.14406 there's going to be a lot of doing happening. *4.14407 The colour metaphors are working. *4.14408 The framing makes sense. {4.136} _i{C}

[4.145] J: that there is a dynamic between these things always going on. {4.144} *4.14501 The idea of the feeding back of the perspectives to the pieces to the arrangements.

[4.146] C: The lens at the beginning is wide; *4.14601 the lens at the end is wide; *4.14602 but who is looking through the lens is different. {4.136} _i{C}

[4.147] J: At the beginning, we're framing their lens. {4.146}

[4.148] C: By the end, they're framing their own. {4.147} *4.14801 The idea is that we want them to be looking through the wider lens. *4.14802 You leave having learned how to ask more questions. *4.14803 The lens is wide, and then it gets narrow when the work gets specific and tough, and then it opens up again, but they are the ones that are doing the interpreting and thinking.

[4.149] B: Design, analysis and evaluation—the 3 major categories. Arrangements / design; perspectives / evaluations; analysis / ingredients. {4.146} _i{B}

[4.15] [J to send electronic version]. {4.136}

[4.151] J mentioned that his is a cultural psychology model (see Resources). {4.136}

[4.152] C: We're going to be collecting from people their annotated bibliography. {4.151}

[4.153] .t{} D. General thoughts, having difficulty pulling the syllabus into; {4.077}

[4.15301] maybe J-s colour coding can help that out. I think a design is a kind of shared representation; {4.144 4.153}

[4.15301] but the question is, shared between who. *4.15302 And that would be between different communities. {4.15301}

[4.15303] Part of the problem is discovering who the communities are and what their minimal requirements are. *4.15304 Because in the end they all have to agree that their minimal requirements are showing up in the shared representation. {4.15301}

[4.154] C: which is what we-re doing in this exact process. {4.15303} *4.15401 We-re a little community that needs to decide. *4.155 And we have different ideas, and we-re discovering each other-s requirements. *4.15501 And in the end we-ll have to agree that what we have represents in some what we have in mind, and can be read in different ways.

[4.156] D: So there-s a process of discovery and negotiation. {4.15303}

[4.15601] And I do think it is a writing process. {4.156}

[4.15602] Right now, in a part-time job of mine, we-re doing grounded theory research, in which at least 2 researchers are coming up with their own grounded theory and merging it. *4.15603 And merging at the detail level is just about impossible. *4.15604 But merging most easily happens it seems at the level of writing, that is somebody has all this detailed markup, and these concepts arise, and then they start writing about their theory; *4.15605 its at that level paragraphs that the independent researchers can get together and really start talking. {4.15601}

[4.157] Also I think its a matter of taking something from being an ill structured problem to being structured. {4.156}

[4.15701] When people have articulated the problem to a sufficient detail that they know how to solve it, in one sense, at that point the design process is over, and the rest is almost mechanical. {4.157}

[4.15702] I know that-s not really true in life, because often when you implement something it changes the picture entirely, but at least it gives a kind of level that we can ask students to do. {4.15701}

[4.15703] We know that they can take something that is ill structured, and when they articulate the problem in sufficient detail, then we might call that done, since this is not a prototyping class. {4.15702}

[4.158] I did mention negotiating solutions. {4.156 4.15703}

[4.15801] I would like the students to be self conscious that there are different kinds of design thinking. {4.153}

[4.15802] For example, in our scenario here we have the luxury to brainstorm and put up all the ideas. *4.15803 We aren-t resolving the ideas yet. {4.15801}

[4.15804] In some situations you might throw up ideas that are much more generalized, less detailed, and then assign them to experts to finish. {4.15803}

[4.15805] For example, in traditional animation somebody will do pencil sketches, or even storyboarding, and then hand that off to an artist who they really trust. {4.15804} *4.15806 The best comic book artists have inkers and colorists who they really trust will interpret the sketches.

[4.159] The idea of skill comes up a lot. {4.153}

[4.15901] Skill is not necessarily part of design, but it certainly does come up in every design course, the students have to address that there is some level of skill. {4.159}

[4.15902] I don-t know how this is going to be pulled in or talked about. {4.15901}

[4.16] Part of the articulation of the design problem, is to be aware of dependencies in the problem. {4.153}

[4.16001] This has been important in industry. {4.16} *4.16002 For example, if you-re designing something really complicated like integrated circuits or computers, you would have designer B who depends on designer A, and designer A depends on designer B—a kind of vicious cycle of dependence. *4.16003 So in the computer industry, IBM made some executive decisions about the values for the interdependent decisions, and with these executive decisions, the industry was able to modularize. *4.16004 Then sub-industries were able to grow up and evolve within the modules.

[4.16005] Just being aware of the dependencies and when to step in and make decisions about them. {4.16}

[4.161] So I want the students to be self conscious about design thinking and what kind of a process is appropriate to the situation, so maybe we can create problems where different processes are appropriate. {2.1380302 3.087 4.153} _i{D}

[4.162] _t{} J: was also thinking about how, in the design thinking context, how do we think about the term -skill-. *4.16201 Look at transferable skill as a distinction that we can make in terms of design. *4.16202 The process becomes a transferable skill. {4.153} _i{J}

[4.163] C: There-s learn and apply; *4.16301 transferring is more active. *4.16303 Every [a program at the school] course has a set of transferable skills. *4.16304 [D-s interpretation of C-s idea: transferring a skill is when you learn a skill and then adapt it to different circumstances. {4.162} _i{J}].

[4.164] C: this is were the idea of packaging the tool kit could be really helpful; *4.16401 because there-s a self-consciousness around your learning skills that you can apply elsewhere. {3.05904 4.163} _i{C}

[4.17] Action: Read the Norman textbook (our official text) and note specifically where sections/chapters map onto major course ideas. *4.171 Also Try to map the ideas that came up today. _p{3.37012}

[4.172] Action: Next week C will meet with S to create an outline for developing weekly course objectives, assignment objectives and assignments. _p{3.37013 }

[5.003] BEGIN SUMMARY. *5.004 The main goal of this meeting was to decide how to use the required book *The Design of Everyday Things* by Norman. *5.00401 Briefly, we can use Norman as a way of opening a discussion about the everydayness of design. *5.00402 We can go to Norman for higher level ideas, and then we can begin to flush those ideas out with other kinds of readings or supplemental course material. *5.00403 Chapter 3 and 6 should be presented early. *5.00404 Chapter 6 is a big chapter for us. *5.00405 We can have the students read the entire chapter in the beginning, and then we make reference back. *5.00406 The idea of aesthetics would be introduced in week 1, but as the students are nearing the end of the project and they are evaluating their project, this is where it could come back. *5.00407 The Norman resources would be drawn upon as indicated in the following table. *5.005 UNIT: THOUGHTS: NORMAN RESOURCES. *5.006 1. *5.007 2:Visibility, conceptual models, good mapping, and feedback; *5.00701 cultural constraints: 1, 3, 6, snippet from chapter 2. *5.008 3. *5.009 4. *5.01 5: Mental/Conceptual models (a generalizable idea): 1, 3, 6, 7. *5.011 6:Constraints (a generalizable idea): 3, 4, 6. *5.012 7,8,9: These sections are related. *5.01201 Collaborative nature to stretch across these sections. *5.01202 The role of looking at the user. *5.01203 Recognizing the designer-s limitations are what cue the process. *5.01204 Complexity of an audience (a generalizable idea): 6 pp 161-2. *5.013 10. *5.014 11: Designing for special people isn-t necessarily limited to them: a good design has other implications. *5.015 12. *5.016 13. *5.017 Several issues with Norman, and how to handle them, were discussed. *5.01701 Norman tells what to do, but how to do it. *5.01702 There-s a reference to teams, but there-s no discussion of teams. *5.01703 There-s reference to collaboration, but there-s no discussion of collaboration. *5.01704 There is no exploration of team process. *5.01705 But, as mentioned above, we can use his ideas as umbrella ideas. *5.01706 Also, Norman only touches on the historical nature of design. *5.01707 The book opens up a places for us to decide where we want to be more specific, then find other ideas to talk about process. *5.01708 Concerning cognitive science, we will talk about it in a way that relates to critical thinking, but not in a

way that-s overly scientific. *5.01709 We want to touch a cognitive science course. *5.0171 Norman touches on collaboration by indicating the need to engage the user, which we can use to help students recognize that the designer-s limitations are what cue the process. *5.018 The Norman book is located in objects, in products. *5.01801 This is good early on for students to interrogate the things around them. *5.01802 We could use Norman to lead-in to other kinds of design, but we would have to lead into them pretty quickly. *5.01803 Eventually we have to get to that [train station] issue. *5.01804 Business students writing a report have to make it very general for a wide audience, inclusive of both executives and employees. *5.01805 Design in the world has to accommodate the diversity of the people. *5.01806 Designing for special people isn-t necessarily limited to them: a good design finds new audiences. *5.01807 This is a good way to talk about public design. *5.019 Norman does not explicate how design is used to help facilitate communication. *5.01901 Nevertheless, he does mention the need for standards. *5.01902 The idea of standards could be at the beginning of Design is Social; *5.01903 we could point out, for example, the difference between a pen working in your hand and knowing hot and cold, which, if you don-t know, presents a safety issue. *5.02 One concern is his critical grouchiness or crankiness. *5.02001 He often talks about design as captive or constrained; *5.02002 he separates designers from engineers and computer programmers. *5.02003 From a critical writing class point of view, this could be good because we can look at the position that this writer is taking. *5.02004 What we need to get clear about is helping our students to read this book. *5.02005 How do we address this text critically. *5.02006 This might be a place for the teamwork and communication course to help facilitate that. *5.02007 We need to acknowledge that he is assuming a position; *5.02008 we have to be conscious of how the past is framed. *5.02009 He-s talking from a particular design perspective. *5.0201 Let-s open it up a little bit. *5.021 The Norman book is dated. *5.02101 When we get to the part about the phones, the students could take out their phones and continue the discussion. *5.02102 There-s a blank space here for us to play. *5.02103 Treat the book as the historical document that it is. *5.02104 Our students can speak to these technologies as the users first, and then see them through the lens of the designer. *5.02105 The students should have some grounding in doing because the previous course is a historical. *5.02106 The instructional designers will want us to talk about mobile technologies. *5.022 Norman caricatures the designer and the designer-s ego, whereas many designers are faceless and nameless. *5.02201 In contrast, in the sense of distributed cognition, the designer-s actions can be looked as collaborating with the design. *5.02202 In any case, we want to have a moment when the we look at certain kinds of designs and have students identify the way of designing. *5.023 Norman will influence our terminology even if we don-t subscribe to his terminology, so when we read other things we can say -those terms map. *5.02301 - Are Norman-s terms mappable to other terms? For example, in designing a business process, where does the idea of affordance come in? That-s how we start thinking about these terms: do they work across the board?. *5.024 We discussed Norman in terms of some requirements imposed on this course. *5.02401 The angle that we are taking in this course is all about the thinking. *5.02402 Designers are critical thinkers; *5.02403 design includes due diligence. *5.02404 Furthermore, a constraint

is a way of creating information, generating knowledge. *5.02405 If you put a constraint here, you begin to ask different kinds of questions. *5.02406 The concepts we employ in this course are thinking words; *5.02407 they-re not necessarily -doing- words, which may be different in other kinds of design courses where they have to do stuff. *5.025 This course will also have to provide conceptual models for reading and understanding this course—it has to be that transparent. *5.02501 What other kinds of conceptual models are there? Compare the conceptual model for designing a teapot and designing a business system, or being a student a designing your online learning web space—would those models look the same? This book is useful at saying there is such a thing as a conceptual model, and here is an example of one, and then we can go on. *5.02502 We are going to be show conceptual models and use them. *5.02503 How does the conceptual model reflect the approach taken towards it. *5.02504 This concept maps; *5.02505 that is, it is generalizable, because we are going to be talking about process. *5.02506 One outcome for the course involves models, which is a transferable term, a big ticket term, that can be used another classes, or in the student-s new discipline; *5.02507 the student will know what a model is, and have an understanding that there are some models that come prepackaged, and there are others that can be created in the student-s own process. *5.026 How do you show that you possess the qualities of a design thinker? By communicating that way. *5.02601 Of course the students will be expected to employ design terminology, but so will we, continually. *5.027 Want to show, through instructional design, the design process in action. *5.02701 Each team is responsible for coming up with one exam for the term. *5.02702 We would give them a set of constraints for what the exam would look like. *5.02703 Then each team creates an exam and gives it to another team. *5.02704 The individual members of the other team will do the exam, and then that team collectively evaluates the exam. *5.02705 Design choices (multiple choice, essay, and so on) must be accounted for. *5.02706 What kind of information can be represented in each format? Altogether, the students would make use of their toolbox of concepts, and they would already be in teams at that point. *5.02707 Their midterm would thus be to create and evaluate midterm exams. *5.02708 A poor exam would be one that exhibits design flaws. *5.02709 The toolkit would be built from week 1 to week 7. *5.0271 Week 8 would comprise the midterm. *5.02711 Weeks 9-13 would comprise the community project. *5.028 Finally, books are preferable because they have an ethos in a way that course packages don-t. *5.02801 Students can move on with books; *5.02802 the books can be useful in other situations. *5.029 END SUMMARY.

[5.03] C: Key ideas from strong notes can be copied and pasted into the instructional design template. .t{} .p{1.036} --o{i a}

[5.031] D: Was dismissive about some of the ideas until realizing during the note writing process that many of the ideas were the same but said with different words. {5.03} --o{i a}

[5.032] D to send a file of the first meeting to B. *5.03201 Also to make an executive summary of the first meeting. .p{1.036} .t{}

- [5.033] Signing of consent forms. {4.068}
- [5.034] Information to be moved to [another post secondary school-s repository].-t{}
-p{1.036}
- [5.03401] All (or several) of [a program in the school] material to be in the same place for at least a year. -p{1.036}
- [5.035] C and D to meet to decide on organization of Design Thinking on [another post secondary school-s repository]. -p{1.036}
- [5.036] C: Re: Review course instructional design strategy: met last week: the 2 ID people from both teams will work together so that we have something that all the teams can use.
-t{} -p{4.17201} -i{C}
- [5.03601] It will delineate the objectives that we have to fulfil. {5.036} -i{C}
- [5.03602] We will also have a weekly template, that has the big idea, the title, the object for that week is, what that assignment or activity for that week might be, and what the objectives for that are. {5.036} -i{C} -t{}
- [5.03603] Objectives are to be consistent, and are to scaffold. {5.03602}
- [5.03604] The first 8 weeks we are building a toolkit, and the last 4 weeks we are putting the tool kit into action. { 5.03602 3.05904 4.126} -t{}
- [5.03605] Want the templates up ahead of time, so we all have the same understanding of the kind of information we are looking for. -p{5.03602} -i{C} -t{5.03602}
- [5.03606] -t{} Re: The Design of Everyday Things: The everydayness of it is incredibly useful for students. {2.029001}
- [5.03607] This book came with the course. {5.03606}
- [5.03608] Unless we are very clear about the language, the terminology, and limitations of the book–book will influence the delivery of the material. {5.03606}
- [5.03609] What is the core information that we want to pull out, or are required to pull out, because this [Everyday Things] is a required text. {5.03606}
- [5.0361] That stuff we can put into the template, not necessarily as concrete information or an activity, but heads up. {5.03609}
- [5.03611] There-s a limitation in this book in terms of the week 7 material. {5.03608}

[5.037] C: Template coming out for next large meeting. _p{5.03605}

[5.03701] The team should be in place then. {5.037}

[5.03702] End of the term then, and we will go a little bit harder on filling in the blanks. {5.03701}

[5.038] D: Found the Norman book a bit of a stretch [to connect with the many of the big ideas]—rather we should obtain some gems to use. {5.03606}

[5.039] C: Re: Norman book: It feels like a tool kit (B: user centred), but the tools are not necessarily clear. {5.03606 5.038 3.065}

[5.03901] The tools are located in language, but the process is missing—tells what to do, but how to do it. {5.039}

[5.03902] We can use Norman as a way of opening a discussion about the everydayness of design. {5.039} *5.03903 Use his ideas as umbrella ideas. *5.03904 Then find other ideas to talk about process.

[5.04] D: It-s kind of a list of best practices or criteria that should be in an interface—stress on user interface. {5.038}

[5.041] B: It does touch on some principles that are useful in this course—he talks about them in the first few pages of the book. {5.04}

[5.042] C: He-s got them [usability design principles] at a higher level. {5.041}

[5.04201] For example: usability—he-s talking about the importance of usability, or the importance of feedback. {5.042} *5.04202 But what is the process that a team would go through to explore or address an issue of say visibility.

[5.043] B: He doesn-t address every principle in detail. {5.042} *5.04301 He does for a couple, like the 7 stages of action. *5.04302 To go through an iterative process of applying constraints to decide whether the information structure is narrow and deep, or shallow and wide.

[5.04303] [B mentions the models of human thought] _t{} {5.03606} .

[5.044] C: The models of human thought, though, are very general. {5.04303 5.038} _o{s}

[5.04401] For a book like this they need to be general. {5.044}

[5.04402] It opens up a place for us to decide where we want to be more specific. {5.044}

[5.04403] But how cog sci do we want to be? It-s not our job to get into it [cog sci]. *5.04404 This is a thinking course, so we-re going to look at ways of thinking. {2.1380204}

[5.04405] But we have to be very aware about how close we are to cognitive science. *5.04406 How do we talk about it in a way that relates to critical thinking, but not in a way that-s overly scientific. *5.04407 We want to touch a cognitive science course. *5.04408 We don-t want to teach cog sci, but we want to acknowledge that there are these links. {5.04403}

[5.045] B: When I looked at the syllabus, it was an exercise how can I sprinkle some of these principles in some of the weeks-looking for a fit between Norman and the course, with variable success. {5.038}

[5.046] C: Not everything fits. {5.045}

[5.047] B: [mentions some bits a pieces from the book that could fit, and the lightness of the language]. {5.045 5.046}

[5.048] C: This is first year readable. *5.04801 Other courses here are using this book as well. *5.04802 There are places that can map. {4.17 5.047}

[5.04803] There-s not going to be reading for week 1, so the introduction this book would be in week 2-Design is all around us-what [Norman] is talking about. {5.048}

[5.04804] One concern is: I love Design is Historical, I love the idea of talking about precedent-I imagine slides of designs, and asking why is this precedent setting. {5.046} _t{}

[5.04805] Also moving beyond the object. *5.04806 [The Norman book] is located in objects, in products. *5.04807 Good early on for students to interrogate the things around them. {5.047} _t{}

[5.04808] He doesn-t talk about precedent. {5.046 2.1380204} _t{}

[5.049] D: He touches on it in chapter 6. {5.04808}

[5.05] C: He touches on it. {5.049 5.03902} *5.05001 It-s too quick. *5.05002 That is a place that we would have to stretch out. *5.05003 We would have to go somewhere else for the material for that week.

[5.051] C: One concern is his critical grouchiness. *5.05101 It-s good for a critical thinking course because we-re looking at the position that this writer is taking, but I have a concern about the general way he talks about design and designers-separates them from engineers and computer programmers. {5.046 1.00701} _t{}

[5.052] D: That is exactly opposite from what we are up to. {5.051}

[5.053] C: He says we need people in teams to bridge the differences, but still separates professional designers. {5.051}

[5.05301] We need to be clear about what is a designer. {5.053 2.1380205}

[5.05302] We need to be ready in week one. {5.05301}

[5.054] D: I was more worried about this problem than I am now, because the sense of design that Norman uses could be used as a metaphor or lead-in to other kinds of design. {5.051}

[5.05401] But we would have to lead into them pretty quickly. {5.054}

[5.05402] Some of the things that I have looked at in terms of design don-t resemble Norman at all, for example, what if you are going to design a standard, or an act of parliament, or a design course. {5.054}

[5.055] C: I agree with you. *5.05501 The interest at a first year level is the concentration of things. *5.05502 What we need to get clear about is helping our students to read this book. {5.054}

[5.05503] How do we address this text critically. {5.055 2.1380204}

[5.05504] This might be a place for the teamwork and communication course to help facilitate that. {5.05503 5.054 5.053 }

[5.056] D: Even in the course the students will be doing a community project that may not have any explicitly user interfaces. {5.05402}

[5.057] B: Re: the separation of designers and engineers: The book was written in the late 80-s; *5.05701 he-s talking about the status-quo. {5.051}

[5.058] C: This book reads out of date. *5.05801 Does the dating of this book somehow undermine our credibility. {5.057} .t{}

[5.059] D: Actually it could help us. *5.05901 We could say: here-s the evolution of the idea of design. {5.05801}

[5.06] C: That-s what I thought. {5.05901} *5.06001 Re: telephones: our student-s are already here, but let-s place the book historically. *5.06002 This is an important book in terms of discussion of design, but it-s dated.

[5.061] B: Like the pictures designs, even the photographs. {5.06}

[5.062] C: When we get to the part about the phones, the students could take out their phones and continue the discussion. *5.06201 There-s a blank space here for us to play. *5.06202 Treat the book as the historical document that it is. {5.06}

[5.063] B: Great point. {5.062}

[5.064] C: And the speed that we change. {5.062}

[5.065] B: We can talk about the natural evolution of designs. {5.062}

[5.066] C: Our students can speak to these technologies as the users first, and then see them through the lens of the designer. {5.058}

[5.067] C: The reading has to count, has to be appropriate for the course material. $_i\{C\}$ {5.045}_t{}

[5.06701] How married are we going to be to this terminology. $_t\{ \}$ {5.067 5.058 5.03608} *5.06702 Are Norman-s terms mappable to other terms?.

[5.068] B: These are high level principles. *5.06801 They should permeate different phases of the process. {5.06701}

[5.069] D: Let-s focus on affordances. (I love the idea of affordances, by the way.) In designing a business process, where does the idea of affordance come in?. {5.06701}

[5.07] C: That-s a good question. $_p\{5.069\}$ *5.07001 That-s how we start thinking about these terms, though. *5.07002 Do they work across the board. $_o\{s i a\}$

[5.071] D: I think some do and some don-t. {5.07 5.046}

[5.072] B: It varies with the context, and within the process. {5.072}

[5.073] C: Re: the idea of the conceptual model. {5.043 3.02605}_t{ } *5.07301 But this course will also have to provide conceptual models for reading and understanding this course-it has to be that transparent.

[5.07302] What other kinds of conceptual models are there? Compare the conceptual model for designing a teapot and designing a business system, or being a student a designing your on-line learning web space-would those models look the same? Or an experienced designer. {5.073}

[5.074] D: This book is useful at saying there is such a thing as a conceptual model, and here is an example of one, and then we can go on. {5.073}

[5.075] C: That-s what I appreciate about it. *5.07501 It gives us these umbrella points, and then we can decide where we focus the lens or develop it. {5.074 5.03902}

[5.07502] The idea of the conceptual model stood out for me—we are going to be showing them and using them. *5.07503 How does the conceptual model reflect the approach taken towards it. *5.07504 For me that maps, because we are going to be talking about process. {5.073}

[5.076] C: We are in agreement that we can go to Norman for higher level ideas, and then we can begin to flush those ideas out with other kinds of readings or supplemental course material. {5.074 5.069 5.058 5.04805 5.041} .t{}

[5.077] B: Can we agree about explicit material that can cover most of some weeks?. {5.076}

[5.078] C: I don-t have it in place yet. {5.077}

[5.07801] Chapter 1 I see in week 2..t{ } {5.045 5.03902 5.038 2.1380202} *5.07802 Which maps to Design is all around us.

[5.07803] What-s the core information? I put: visibility, conceptual models, good mapping, and feedback, as areas that would appear in my lecture.{5.07801}

[5.079] D: I have Chapter one at the beginning [weeks 1 and 2]. {5.07803}

[5.08] C: They can get their reading, and before they come to the workshop, they would have their reading read. {5.07801} *5.08001 We cover the idea in the lecture, and then they go to the workshop. *5.08002 In week one most student-s don-t have all of their books.

[5.081] D: For week 2, I also had a snippet from chapter 2, cultural constraints. {5.07801} *5.08101 Also marked down chapter 3—knowledge in the head and in the world.

[5.08102] (B likes that one) All of that is social. {5.081}

[5.08103] Chapter 6 also. {5.081 2.1380203}

[5.082] C: That-s the thing about this book is its in bits an pieces. {5.03606 2.1380202} .t{}

[5.083] D: Chapter 6 goes on about the social aspects of design. {5.08103}

[5.084] C: That-s one paragraph. {5.083}

[5.08401] D: the forces that work against evolution in design) I made a note to myself that Chapter 6 stuff needed to be presented earlier. {5.08103}

- [5.085] D: Chapter 6 certainly hits a lot of the big ideas. {5.08401}
- [5.086] C: Chapter 6 is coming up for all of us for near the beginning of the course. {5.085}
- [5.08601] And chapter 1 as an introduction to the course. {5.086 2.1380202}
- [5.087] D: a snippet from chapter 2–cultural constraints, and chapter 3 Knowledge in the head and knowledge in the world–how social is that?. {5.08601 2.1380203}
- [5.088] C: I put down that chapter 3 should come near the beginning also, because we have to look at our own thinking habits–looking at the way we think, how do yo gather information. {5.087 2.1380204 }
- [5.089] C: If you are going to be in a critical thinking course, you have to read. *5.08901 We don-t want them to read stuff that we are not going to cover. *5.08902 I have no problems with them picking their way–we don-t need to read linearly. {5.082 }
- [5.09] C: S and I are going to mock up the first two weeks. _p{5.03605 5.076}_t{}
- [5.091] C: What-s missing for me in Norman is how design is used to help facilitate communication. {5.09}
- [5.09101] We agree about certain kinds of designs so we can function together. {5.091} *5.09102 When design is bad, when we misinterpret, that-s when we have problems.
- [5.09103] For example, we agree on the stop lights. {5.09101} *5.09104 These are everyday objects that were designed with the bigger understanding of the social implication of everybody has to agree or else there-s chaos or danger.
- [5.09105] I think that-s important in making the connection to your community. {5.09101 2.1380203} *5.09106 Design helps us become community members.
- [5.092] D: We-re touching on the development of standards. {5.09101}
- [5.093] [team looks up mention of standards in Norman] (C: Designers are not typical users–I like that idea. {5.092}
- [5.09301] D: I put that one in Design is collaborative, because you need to collaborate with other people who are not designers in order to complete the design). {5.093 2.1380209}
- [5.094] Chapter 6 {5.093} . *5.09401 Non-standard faucets: page 158. *5.09402 The complexity of the design process–faucets, the screw, the pen.

[5.09403] The idea of standards could be at the beginning of Design is Social—the difference between a pen working in your hand and knowing hot and cold, which, if you don't know, presents a safety issue. {5.092 2.1380203}

[5.095] C: Re: Norman cranky: he often talks about design as captive or constrained. {5.058 5.09105 5.051} .t{} *5.096 Parts of chapter 6 can go into Design is Social, but we need to open this discussion to examples in the community, because we want to make that link really quickly, and that way this will link to the final project.

[5.097] D: I think so too. {5.095}

[5.098] D: (mentions upcoming lecture by Alan Newell about designing for extraordinary people) .t{} {5.076}.

[5.099] Re: Collaborative: D: because designers are a special audience then the designer must collaborate with people who are not designers in order to complete the design. .t{} {5.09301} *5.09901 –That-s awfully oblique.

[5.1] C: There-s a reference to teams, but there-s no discussion of teams. {5.046 5.099 5.045 2.1380209} .t{} *5.10001 There-s reference to collaboration, but there-s no discussion of collaboration.

[5.101] B: Chapter 6 should be read earlier. {5.086 5.094} .t{}

[5.102] C: I blocked off weeks 7, 8 and 9—these are all related. *5.10201 These are not going to be all that cut and dry. *5.10202 And the collaborative nature needs to stretch across these 3 weeks. {5.101 5.1}

[5.10203] The role of looking at the user. *5.10204 Recognizing the designer-s limitations are what cue the process. {5.102}

[5.103] B: Permeating this notion that design is social or collaborative: you have to look at the designer, audience, and client. {5.1 2.1380203 2.1380209}

[5.104] B: Norman doesn-t stress the collaboration in teams. *5.10401 That would link it to the process, which Norman also doesn-t talk about—the micro level. {5.104}

[5.105] C: chapter 6 is a big chapter for us..t{} {5.085}

[5.106] D: I have it spread over almost everything. {5.105}

[5.107] C: If we are mashing it up, we can have them read the entire chapter in the beginning, and then we make reference back. {5.106}

[5.108] B: Re: Interaction: designers with peers within the team; *t* *5.10801 user; *5.10802 client (C: that-s what we get out of Norman. *5.10803 What we-re missing is an exploration of team process). {5.076 5.04201 2.13802071}

[5.109] C: If we can find movies and stuff on interdisciplinary team. {5.108} *5.10901 that would help the bigger cause here.

[5.11] C: Design satisfies its audience, chap 6 pp 161-2, talks about the complexity of an audience *t*.{5.105 5.076 2.1380211}

[5.11001] eg [extra-ordinary users] – that idea maps well when it comes to argument– when you present an argument in a paper, you have to look at all the stakeholders in the issue. {5.11}

[5.11002] You can have more than one kind of user; {5.11}

[5.11003] for example business students writing a report have to make it very general for a wide audience, not just executives, but it might be employees. {5.11002}

[5.11004] Design in the world has to accommodate the diversity of the people.{5.11}

[5.11005] *t* This is a good way to talk about public design, because eventually we have to get to that [train station] issue. {5.11}

[5.111] D: Re: Good designs are measured by the quality of the ideas they provoke: we-re touching on week 11. {5.11 2.1380212}

[5.11101] (By example:) Let-s say you have a door handle that-s designed for handicapped people, well if you are carrying a box of wine and you have to get through the door, then you can lean on the door handle with your elbow and you don-t have to put the box down. {5.111}

[5.11102] Similar analogy, let-s say you have a web-page where you can push a button and it becomes big font and high contrast for people who can-t see very well–that-s also useful when you have a projection for a large audience and you have to increase the font and contrast. {5.111}

[5.11103] Designing for special people isn-t necessarily limited to them: a good design has other implications. {5.111}

[5.112] B: Re: Week 11 and -Good designs are measured by the quality of the ideas they provoke and invoke-: emphasizes -designers are not typical users- in that the design is not limited to the single point of view of the designer. {5.111}

[5.113] C: chapter 6 is loaded for us. {5.112}

[5.114] C: re: week 11: good design can find new audiences *t*{ } {5.076}

[5.115] C: didn't like: his discussion of the designer-s ego-paints too wide a view {5.114 2.1380212} *5.11501 Many designers are faceless and nameless. *5.11502 Sometimes the successful outcome of a design is the way people move through it—the designer is invisible.

[5.11503] Contrast types of design that are attached to people, can be associated with an identity. {5.115} *5.11504 We-re not trying to dismiss ego in design. {5.11503} *5.11505 Want to have a moment when we look at certain kinds of designs and students identify the way of designing.

[5.116] B: comments on weeks 5 and 6: 5: Design enables understanding. *t*{ } *5.11601 conceptual models may be covered here. *t*{ } {2.13802051 5.07502 5.074 5.073}

[5.117] C: mental models in chap 3, conceptual models in chap 1. {5.116 }

[5.118] [J arrives]. J: Does he only use mental models when he is talking about faulty mental models?. {5.117} *5.119 J: [quotes from Norman, then:] Conceptual models are a part of mental models.

[5.12] C: Comes up in chap 3, 6 and 7; {5.118} *5.12001 throughout.

[5.121] B: week 5—conceptual models. *5.122 C: this is where we want to talk about strategies. *5.123 B: the principle of mapping, the use of natural mappings, conceptual models. {5.116}

[5.124] *t*{ } B: week 6 (design invites inquiry): under the theme of manipulating ideas, he discusses the principle of constraints, in the design you lead the user to do one action. {5.076 2.1380206}

[5.12401] This use of constraints falls into looking at the structure of the tasks enabled by this design. {5.124}

[5.125] D: I think that-s a pretty generalizable idea too. {5.12401}

[5.12501] In the patent wars between companies, a company will put patents out to prevent other companies from going there eventually, kind of like advance chess pieces. {5.125} *5.12502 Those are constraints on the behaviour of other companies.

[5.126] J: getting the dot com name before your competitor. {5.12502}

[5.127] Constraints in chapters 3, 4, 6. {5.124}

[5.128] C: the angle that we are taking in this course is all about the thinking; {5.124 3.05301 4.102} *5.12801 in other critical thinking classes we do mapping processes to help students how to write an essay [and so on]. *5.12802 [This] sets up that designers are critical thinkers; *5.12803 it-s doing all of the due diligence, tangible or not, to come forth. *5.12804 A constraint is a way of creating information, generating knowledge. *5.12805 If you put a constraint here, you begin to ask different kinds of questions, and most critical thinking classes are all about asking questions; *5.12806 they-re about invention processes.

[5.12807] If we-re looking at this kind of terminology is that these are thinking words; *5.12808 they-re not necessarily -doing- words. {5.128}

[5.12809] Which may be different in other kinds of design courses where they have to do stuff. {5.12807 2.0082}

[5.129] B: could add another section, -source of information-: classification of constraints: physical, semantic, cultural. {5.12807}

[5.13] $t\{1\}$ $t\{\}$ {5.118 5.03902} C explains to J: Have agreed Norman has umbrella approach and terminology that we can use in general ways to thread into more specific topics for each week.

[5.13001] One concern is it is a how to deal with little discussion of process, so we have to come out with other material. {5.13 5.03902}

[5.13002] The other is there is little discussion about teamwork. {5.1 5.13001}

[5.13003] Talked about the datedness of the book. {5.06 5.13}

[5.13004] We should locate the book as an historical but relevant document. {5.13003}

[5.13005] [mentions phones in the future as an opportunity for students to fill in the rest of the story]. {5.13004}

[5.131] J: which they should have some grounding in doing because the previous course is a historical . {5.13005}

[5.132] C: exactly, that-s the kind of connections we want to have. *5.13201 They will want us to talk about mobile technologies. {5.131}

[5.133] C: Concerned about Norman-s crustiness; {5.051 5.13} *5.13301

[5.13302] he assumes some kind of a battle or struggle is happening. {5.133}

[5.13303] The way he separates designers from engineers and software programmers—is pedantic and heavy, whereas we are trying to locate the engineer as a kind of designer. {5.13302} *5.13304 He is not clear about what a professional designer is, and most of the design is objects.

[5.134] J: [mentions the forward, which claims the relevance of the book]. {5.133}

[5.135] C: we have to be conscious of how the past is framed. *5.13501 He-s talking from a particular design perspective. *5.13502 Let-s open it up a little bit. {5.076}

[5.136] _t{} J: The usefulness of this book for design thinking is when that terminology maps; {5.13 5.06701}

[5.13601] talking about mental models; {5.136 5.117} *5.13602 difference between mental model and conceptual model; *5.13603 are mental models an umbrella for conceptual models, affordances, constraints, mappings, that sort of thing?.

[5.137] C: I think so. {5.13601} *5.13701 He distinguishes between the model that the designer has and the model that the user has. *5.13702 The user-s mental model could be totally different from the designer-s.

[5.138] C: the key work for me is -model-, which is a transferable term, a big ticket term, to use in another class, or to use in your new discipline—I know what a model is, and I have an understanding that there are some models that come pre-packaged, and there are others that I can create in my own process. {5.136 5.137}

[5.13801] That-s the thinking part. {5.136}

[5.13802] In that week maybe their activity is to map something, or model something. {5.138}

[5.139] _t{} C: He talks about aesthetics toward the end; *5.13901 week 12 (Joy of use). *5.13902 Lovely way to end the course, looking at what makes us feel good or safe, but it would need to be introduced earlier. {5.076 2.1380213}

[5.13903] Week 1 is mostly about introducing students to the syllabus; *5.13904 they-re going to be introduced to all the big ideas in the first week. *5.13905 We can-t separate them. *5.13906 They-re all integrated. *5.13907 The idea of aesthetics would be introduced in week 1, but as they are nearing the end of the project and they are evaluating their project, this is where it could come back. {5.139 5.03604}

[5.14] _t{} J: (inquires whether we talked about Knowledge in the head and knowledge of the world) Thinking is situated in the environment and the things you are interacting with. {5.076}

[5.14001] That-s a big topic that comes out with John Seely Brown-s stuff as well. {5.14}
 *5.14002 Distributed cognition and distributed collaboration and how that takes places.

[5.141] B: you want to take advantage of readily available knowledge in the world. {5.14}

[5.142] J: your actions can be looked as collaborating with the design, rather than being forced into it. {5.14}

[5.143] B: [mentions Normans lack of coverage of the process]. {5.13001 5.142}

[5.144] J: the trade off between knowledge in the head and knowledge in the world, you could give them an example of writing an exam as opposed to writing a paper. _i{J} _i{i} {5.14}

[5.145] _t{} C: we want the design of the course to be transparent. {5.144 5.073 3.02605}

[5.14501] They can look at the difference between an assignment and an exam-what makes an exam an exam. {5.145}

[5.14502] It-s because it has so many constraints on it. {5.14501 5.128}

[5.14503] I like the idea of getting them to look at their assignments as the out comes of a design process. {5.145} *5.14504 Even when we are framing the projects, use design language to give them their projects. *5.14505 Its a transparent way to show that we are designing this process.

[5.146] B: how do you show that you possess the qualities of a design thinker? By communicating that way. {5.14503}

[5.147] J: you need it in your head to be able to do that. {5.146 5.14}

[5.148] D: so they have to employ the terminology. {5.147}

[5.149] C: but we will use it. {5.148} *5.14901 So if we continually use it.

[5.14902] An issue for instructors that don-t take design into account is they don-t think about the user. {5.149 5.14901 5.145} *5.14903 Once you study instructional design, you start to anticipate the resistance of the user. *5.14904 [Want to show, through instructional design, the design process in action.].

[5.15] J: An exercise might be: here-s a reading, design an exam. {5.14501 5.14902}

[5.151] C: One of the activities that popped into my head is: here-s a reading, design a set of instructions. {5.14902 5.15} *5.15101 [mentions reading the box for a large LCD].

- [5.152] B: [mentions an 4th year assignment to look a user manuals]. {5.151}
- [5.153] C: In second year I-ve got them doing technical writing. {5.152 5.151} *5.15301
In first year they-re not even close to that. *5.15302 But writing a set of instructions, or writing some way of testing something.
- [5.15303] Maybe writing a set of instructions would be something that they do at the beginning of the term, and then creating some way of testing their knowledge. {5.15302}
- [5.15304] How might you explore your evaluation. {5.15303}
- [5.15305] We wont have an exam, but we could have them do. {5.15304}
- [5.154] J: There-s no final exam in this course, but we .{5.15305}
- [5.155] C: write the exam for this course. {5.154}
- [5.156] J: they-ve already got a mental model of exam taking, so let-s look at that activity from a side that they-re not necessarily familiar with, which is actually the creation of the exam; {5.155 5.13601 }
- [5.15601] how do you recognize all these users. {5.156}
- [5.158] C: Each team is responsible for coming up with one exam for the term. {5.155}
- [5.15801] And we would give them a set of constraints for what the exam would look like.{5.158 5.14502}
- [5.15802] Then each team writes an exam and gives it to another team, who does the exam and evaluates the exam. {5.15801} *5.15803 Not just writing the exam, but evaluating it.
- [5.15804] If you are using multiple choice, then you have to think about why multiple choice is chosen for this part [and so on].{5.15803}
- [5.15807] And what kind of information do you learn [from the different formats]. {5.15803}
- [5.15808] That would be a midterm. {5.15803}
- [5.15809] Because you can use the toolbox, and they-re already working in teams. {5.15808 5.03604}
- [5.1581] Their midterm is to write the exam and evaluate. {5.15808 5.15802}
- [5.15811] That could be a class session. {5.1581}

[5.15812] Individually (individual students) they would write the exam, and as a team they would compare, and do a write up. {5.15811}

[5.15813] Did they do badly on the exam because design flaws?. {5.15812}

[5.159] [good midterm!]. {5.15808}

[5.16] _t{} C: They would use the tool kit. *5.16001 The tool kit from week 1 to 7. {5.15809}

[5.16002] Week 8 midterm. {5.16001}

[5.16003] 9-13 team community project. {5.16001}

[5.161] J: it-s a good hook in terms of explaining what the course is trying to do, not about taking an exam, its about the thinking that goes on in design. {5.159}

[5.162] C: If they take the design, it doesn-t matter if it is pretend—we say: you have 45 minutes to answer these questions—you can-t help feel anxiety. {5.161}

[5.163] _t{} C: We-ve done a pretty good first pass at Norman. {5.07}

[5.164] [Resource books handed out]. {5.163}

[5.165] C: Norman will influence our terminology even if we don-t subscribe to his terminology, so when we read other things we can say -those terms map. 5.163

[5.16501] S and I are working on a template, and a week one mock up _p{5.165 5.037}

[5.166] [discussion of the resource books]. {5.164}

[5.167] C: would rather have books because they have an ethos in a way that course packages don-t. *5.16701 Would like students to move on with the books [that they would be useful in other situations]. {5.166}

[5.169] Upcoming goals: dump content into the template. _p{5.16501}

[5.16901] Understand the readings first. *5.16902 Know the constraints around language—what we-re going to be responsible for. _p{5.169}

[5.16903] Decide what might a lecture look like—a set of big ideas; _p{5.169}

[5.16904] draft up a set of slides. _p{5.169}

[5.16905] E.g. for chapter 1 we need the principles, so we mock-up a slide that shows the principles. {5.16904} *5.16908 It may look different for each one of use, but we know that the principles have been covered, or we know that the material that they need to know for their assignment has been covered.

[5.16909] The process will begin to look non-linear very quickly. {5.16904}

[5.1691] The weeks may be divided amongst the team. *5.16911 Each puts their stuff in, and then hands it off to somebody else. *5.16912 At some point we go through them—what-s missing; *5.16913 what do we like. _p{5.169}

[5.17] _t{}[about the resource books] whether or not they are all included for the students, they are good for the teacher to have.{5.166}

[5.171] _t{} C: the only thing that-s incomplete at this point is design is historical, the idea of precedent. {5.163 2.1380204}

[6.001] Design Thinking: Meeting Notes: 26 March 2007. *6.002 Present: C, J, B, D, S, JF.

[6.003] AGENDA ITEMS {6.001}

[6.0030101] 1. JF is going to briefly update the team on recent press releases about the course. _p{6.003}

[6.0030201] 2. S will introduce us to our course development template. _p{6.003 5.169}

[6.0030301] 3. C will hand out text-s from [] and []. _p{6.003}

[6.0030401] 4. Team will discuss the usefulness off the Lawson and Aspelund texts in relation to syllabus big ideas. _p{6.003 3.37008}

[6.0030501] 5. Wrap up: future directions and next meeting time. _p{6.003}

[6.004] BEGIN SUMMARY. {6.001} ACTION ITEMS. *6.005 –Want to find out more about speaker from Stanford at the interdisciplinary charrette. *6.006 –J: to bring photocopies of the article by John Sealy Brown in which he discusses design as conversation. *6.007 –D: send reference to The Reflective Practitioner. *6.008 –Team: to go back to Design Thinking with the view of using this as text. *6.009 AGREEMENTS. *6.01 –okay with S and C taking the first pass on the first unit and describing the learner, and also with S and I working on the template. *6.011 –Norman is in–constraint. *6.012 – [see: [final project]] If we can agree that our project will look like that, then we can start saying that. *6.013 – to go back to Design Thinking with the view of using this as text. *6.014 TEAM VALUES. *6.015 –Want to value the interest of our colleagues. *6.016 –Our job here is citizenship;

*6.01601 it-s not just academia. *6.017 GENERAL ISSUES. *6.018 –Do not want to be constrained by news reports of this project. *6.019 –projected fear is that at the time of launch we will still be trying to wrangle things in; *6.01901 Perhaps part of the delivery of the weekly face to face session is to stop at the beginning of the class to pull in topical material; *6.01902 if design is a conversation, then how do you introduce that idea right away. *6.02 –we want them over time to start noticing everyday design problems and bring that into a discussion, but the conversation would be about what are you learning about design in the course that is changing the way you see the world, and reporting it; *6.02001 If this course is framed as a kind of discussion about design–design in the world–I hope we get students to see their communities, or the everyday things that they use, differently, as designers. *6.021 –Any activity that we do will have to be framed carefully and front loaded. *6.022 FINAL PROJECT. *6.023 –We have an enormous cohort, if every class is working on the problem; *6.02301 a lot of management has to happen; *6.02302 An idea that I suggested is that they don-t come up with a product, they use their critical thinking to come up with proposals–suggestions. *6.02303 Their final project could be some kind of display that they make that demonstrates the kinds of activities–mapping, using visual stuff–and a short report. *6.02304 The report could be supported in the writing course. *6.02305 The report would outline their research. *6.02306 We could have a [a program in the school] community show. *6.02307 Maybe a winning class from an internal competition. *6.02308 They-re going to -think- about it. *6.02309 We are creating good community thinkers. *6.0231 The final thing is going to be a demo and a proposal. *6.02311 They have to make stuff. *6.02312 Don-t worry about the crit in the design. *6.02313 Just get them thinking about their ideas. *6.02314 It can still be visually appealing, but it doesn-t have to be about Photoshop. *6.02315 It is how we are demonstrating our good ideas. *6.02316 And it could be a community event; *6.02317 Can you imagine 8 teams bothering the police? That becomes an issue. *6.02318 This becomes an opportunity to bring the people from the community into our classroom. *6.02319 We can video tape it, or whatever. *6.0232 The students listen, and do their research collectively. *6.024 –And we are only going to be able to do this one time. *6.02401 The project next year will have to be something different; *6.02402 Applying a bit of design thinking to this problem, the solutions that class would come up with probes the problem a bit deeper, and reveals more about the problem, which may give rise to further design problems that future class can work on. *6.02403 It would be a related body of problems; *6.02404 We could do a one-off and focus on [the local municipality]. *6.02405 But next year we can ask -How many of you live in [a neighbouring municipality]?- Maybe groups take on different dynamics every year. *6.02406 They get to wear the label of good citizen. *6.025 –This is a campus initiative. *6.02501 If you say the doors are open, eventually they will come, and they will want to be heard. *6.02502 It-s got to be structured so we can communicate with them, and they can communicate with us effectively. *6.02503 As soon as you say the work community; *6.02504 there are so many groups that we will have to liaise with, even before the students do it. *6.02505 It-s going to be a big design problem for us to do that. *6.026 – And then hopefully we have a repository at the end. *6.02601 The -Close to Home- Web site 2007; *6.02602 Every

course should have some sort of visual output; *6.02603 When we start looking at the kinds of activities, that will be one of our questions: what does the think look like, and how does it connect to something. *6.027 POTENTIAL READING MATERIAL FOR COURSE. *6.028 Are Designers the Enemy of Design?;. *6.029 –Key idea: Is everyone a designer, or not?. *6.03 –Simply handing this to a student in the first week would indicate that this topic is appropriate for this time and place. *6.031 Design Process. *6.032 –their framework: the stages of inspiration, identification, conceptualization, exploration and refinement, definition and modeling, communication and production. *6.03201 There is a chapter on each stage; *6.03202 No explicit mention of evaluation; *6.03203 There is overlap with design in the world and design in the mind; *6.03204 They provide limited perspectives of design from particular individuals. *6.033 – Would be useful as a resource for interesting activities; *6.03301 looked at what kind of questions they asked, especially before they frame an exercise–page 65: re collage in corner: using images to communication–this could be about using signs in the world, or creating new signs–they can use found objects or photographs that they have taken. *6.03302 Our students could probably do -this-. *6.03303 What do we get them to make?. *6.034 – Page 97 got me thinking about interactivity and doing something on a large scale, and something team based–that-s all. *6.03401 There may be lots of activities in here that we could modify; *6.03402 put our own learning objectives on. *6.035 Design Thinking. *6.036 —the idea of seeking similarities in design situations, and differences. *6.03601 - They are often defined by the differences between them. *6.037 – he is quick to say that the design steps are non-sequential, there-s a looping effect; *6.03701 you might skip some stages to get to what you need to go back to start again. *6.03702 He-s got several models in here; *6.03703 the analysis versus synthesis I thought was a good idea. *6.038 – He draws upon the central moving figures in the discourse of design, and he himself is very well situated in the discourse of design; *6.03801 I would put THIS as the textbook for the course. *6.039 – The beginning introduces what we are doing in the beginning in a way that Norman doesn-t. *6.03901 What-s lacking for me are real world examples. *6.03902 The team section use the same terminology–forming, storming, norming and performing–we do these activities in [program in this school]00; *6.03903 this is a real validation. *6.03904 If they can read it here and do an activity in another class that demonstrates that process. *6.03905 I found there were these great links, though I would have liked to have seen samples of real teams. *6.03906 But the general idea of what teams do I though was really helpful, and would make for good integration with 101. *6.04 – What-s missing for me is systems and intangible kinds of things–most of the discussion are around seeable things. *6.04001 So do we need to look some other place for designing a system, something that you don-t necessarily see; *6.04002 or do we even care about experience design at this point. *6.041 – His way of talking is different than Norman-s way of talking. *6.04101 We-re going to have to talk about constraints–pages 92-111. *6.04102 If we had both of these overlapping–we would have to consider these two writers in dialog every week. *6.042 – He-s trying to use multiple lenses to view design. *6.043 IDEAS. *6.044 – Answering questions with as much visual material as possible. *6.045 – One activity is to get the class to go out and research other perspectives and create a book of these perspectives; *6.04501 We will have to be

aware that they are first year. *6.04502 We'll take into consideration the Teamwork and Communication course, which has a research element, with is meant to support this course. *6.04503 (running concurrently). *6.046 –reverse designing requires that you choose an object and trace its progress back through the stages. *6.04601 . *6.04602 You are looking at the object and take this model and step back from where it was produced to its inspiration; *6.04603 That-s fun. *6.04604 And it can be something that-s personal to them; *6.04605 Somebody has used that as a research method in the design process, where they gave a product or scenario to some expert designers, and asked them to imagine how the design process went. *6.04606 And they came up with very plausible stories. *6.047 – [discussion around chapter 3 of Lawson] designing instructions: we could have students use a design process model to design the instructions for a board game. *6.04701 Maybe we would give them the subject of the game. *6.04702 I would be an interesting way to take something that they do in their regular lives. *6.04703 and link it to some kind of a process; *6.04704 What about the famous IKEA instructions–this design by drawing, where they can-t have words; *6.04705 get them to attempt to follow a process in the design, but at the end write a paragraph about how the process broke down, how it didn-t quite fit. *6.04706 One of the points of that chapter is that all of the pictures of the design process have failed in one way or another; *6.04707 That-s an idea that needs to be woven through everything that they do, that there should be some place of reflection. *6.048 – What-s missing is precedent. *6.04801 Their activity could be taking something that has set a precedent, and they try to do something with it. *6.049 – that how fashion designers do it is very similar to how the old wooden ship builders did it. *6.04901 That is, if you want a ship, you would go to a ship builder and say, I would like one like that one over there, but with the features of this one over here, and I would like it to sail in a certain kind of water. *6.04902 So they would take bits and pieces of precedent and re-shuffle them; *6.04903 maybe that-s how we talk about it in the classroom. *6.04904 Maybe we do a little research and look at the fashion designer and compare it. *6.04905 I see something that is colourful, visual, material that we could do. *6.05 TABLED IDEAS. *6.051 –a design proposal as a way of probing a problem; *6.05101 that you don-t really understand what the problem is, so you make a solution, and the solution fails half way, and reveals more about the problem, and you continue that way. *6.052 –We could give them in-class problems, for example, here is a software engineering like problem. *6.05201 It-s very simple, and a small group of people work it out, and then tell us how the negotiated. *6.05202 And similarly an architecture like problem. *6.053 – We may want to relate the different perspectives to the final 5 weeks where the different teams play different roles. *6.054 – It-s easy for us in this abstract thinking to for us to portray -reflection on action-, but it-s hard for us to think of things where they do -reflection in action-. *6.05401 If we can somehow get them to come to the realization of reflecting IN practice as they are doing it on the very physical things; *6.05402 That-s one of those ideas that we want to bullet and put for our larger objectives for our activities. *6.05403 And maybe not in the beginning, but once they have enough coaching and a few tools, maybe that-s part of the process of whatever deliverables for the team activity. END SUMMARY.

[6.056] C: re (1) a lot of press; {6.0030101}_t{} *6.05601 what she-s doing, how she-s talking about the course.

[6.05602] [Some things in some news articles] will affect how we think and design. {6.056}

[6.05603] What she-s doing is offering general ideas—not committed. {6.05602}

[6.05604] We want to be clear how these things affect what we are doing. {6.05603}

[6.05605] I really don-t want them to. {6.05604}

[6.05606] The reporter-s spin puts a tall order. {6.05604}

[6.057] C: Want to value the interest of our colleagues, whether or not we actually use what they give us. {6.0030301}_t{}

[6.05701] Made copies of item from []. {6.057}

[6.05702] Sent out electronic copy of -Are Designers the Enemy of Design?- What is interesting is the discussion underneath it. {6.057}

[6.05703] In a brief way it talks about the everydayness of design; *6.05704 people want to participate in the design of their lives. {6.05702 2.1380202 2.1380205}

[6.05705] And then it talks about design education. {6.05702}

[6.05706] We should keep current with whatever is being published, but I think this could be an interesting introductory article for students to read—how is design currently being talked about. {6.05702}

[6.05707] Tell what you think about this article. _p{6.05702} _t{}

[6.058] J: Key idea: Is everyone a designer, or not? To get the students to think about: Am I going toward a professionalization of my design skills, or is everyone doing the same thing. {6.05707 6.05703}

[6.059] B: Also confirms that we are doing the right thing—choosing a course around this subject matter at the introductory level. {6.05707}

[6.06] J: That word -design- has gone beyond professional enclaves. *6.06001 How do we wrangle with that word beyond what somebody from a design profession would argue is design. {6.05703}

[6.061] C: Simply handing this to a student in the first week would indicate that this topic is appropriate for this time and place, because people are actually talking about it and publishing about it. {6.06 5.09 5.13903} *-i{} -t{}*

[6.062] B: Likes the concept that it is such an interdisciplinary subject. {6.058}

[6.06201] Mentioned significant interest and support for interdisciplinary research talked about by speaker from Stanford. {6.062} *6.06202 We are at the forefront, and should take advantage of that.

[6.063] C: Would like to find out more about the speaker and the work. {6.05702} *-t{}*

[6.064] C: Every week we get more and more buy in to what we are doing. {6.063 6.059} *-t{}*

[6.065] C: My projected fear is that at the time of launch we will still be trying to wrangle things in. *-p{6.063 1.022} -o{s}*

[6.06501] One of the things in Lawson is a design skill is knowing when to let go. {6.065}

[6.06502] [made reference to similar experience in course Critical and Creative Thinking.]. {6.065} *-o{i}*

[6.066] J: How can you build in that openness. *-t{}* {6.065}

[6.067] C: It-s going to have to be part of our larger conversation. {6.066}

[6.068] J: Perhaps part of the delivery of the weekly face to face session is to stop at the beginning of the class to pull in topical material. {6.066}

[6.069] C: Again its this idea of design as a conversation. {6.066 6.067}

[6.06901] If we can articulate that with students; {6.069 3.02605} *-o{i} -t{}*

[6.06902] if that-s a goal for us—our next step after this is to set the objectives and goals—we-ve got this foundational stuff to work with—if design is a conversation, then how do you introduce that idea right away. {6.06901}

[6.06903] If this is about the everydayness of design, it-s like getting students to come to class every week with whatever they learn, or their content—their particular experiences, things they read in the newspaper. *6.06904 as they start to recognize what design problems are. {5.03902 6.06902}

[6.07] D: Who would the students be conversing with? That is, a designer is usually in a conversation with the client and the design representation. {6.06902 }

[6.071] C: If the course is a design, we actually want students to reflect back on what they are doing. *6.07101 If the course is also about design in the world, we want them over time to start noticing everyday design problems and bring that into a discussion, but the conversation would be about what are you learning about design in the course that is changing the way you see the world, and reporting it. {6.07 3.052 6.06903} *6.07102 Does that make sense?.

[6.072] D: It does make sense, but I would have to hear it embodied in some imaginary scenario. {6.071}

[6.073] J: With -design is a conversation-, the object that you are designing is a way for you to have a conversation with the world, having feedback through this design object. {6.069}

[6.074] D: A designer would be in a conversation with a drawing—the drawing in a sense would talk back. *6.07401 That-s something very particular, but you are talking about -the world-. {6.073}

[6.075] C: No, I-m not talking about the world. *6.07501 The designer is in multiple conversations. {6.07401}

[6.07502] If this course is framed as a kind of discussion about design—design in the world—I hope we get students to see their communities, or the everyday things that they use, differently, as designers. {6.073} *6.07503 Having room in the course for students to talk about things they-ve read or the experiences they-ve had. *6.07504 [gives examples of coffee cup and stop sign] –To see the world differently or critically.

[6.076] J: To clarify that about the world, it is the world of the object, not the global world. *6.07601 [gives example of making a video piece]. {6.074} _i{J}

[6.077] D: I really like the idea of a design proposal as a way of probing a problem; *6.07701 that you don-t really understand what the problem is, so you make a solution, and the solution fails half way, and reveals more about the problem, and you continue that way. {6.07502}

[6.078] C: This is big stuff which we will get to, cause even our own definitions of -conversation- are slightly different, so let-s table the big stuff. _p{6.077} _t{}

[6.07801] If we frame students as designers, what kinds of conversations can they have with the things that they use every day. {3.052 6.06 6.069}

[6.079] J: [Promises to bring photocopies of the article by John Sealy Brown in which he discusses design as conversation] {6.07801}

[6.08] Course development template. .t{}{6.0030201}

[6.081] S combined a few different course maps into the one she handed out. {6.08}

[6.08101] It-s not meant to be restrictive or tedious, but to help us get onto the same track of what we want learners to do a the end of it, what are the overall goals, and breaking it down into smaller steps.{6.081} *6.08102 Make sure that everything in the course is integrated as best as possible. *6.082 Necessary first page: To know who your learner is, where you want them to go, how you will help them get there, what is the philosophy or principles of the approach;

[6.08201] what terminology are you using? Putting it down on paper will show overlaps, disagreements, and where we see thing differently. {6.081}

[6.083] It-s an iterative process. {6.082}

[6.08301] You may want to work in a linear fashion, or drop things in as they come to you. .p{6.082 5.1691 5.169} --o{s i a}

[6.084] The development template includes, as a first draft, S-s interpretation of the group decisions so far. *6.08401 The template indicates the kind things that need to be considered. .p{6.08301} --o{i}

[6.085] It will be sent to everyone electronically. .p{6.084} --o{}

[6.086] Don-t know what process your group will use to share individual plans, or at what point it will want to do that. {6.084}

[6.087] C: I am assuming that this [the people around the table] is the team. {6.086}

[6.08701] After this meeting, we will begin this process (of filling in the template). .p{6.08301 } --o{s i a}

[6.08702] C and S to mock up the introduction. .p{5.16501 6.08701}

[6.08703] We-ll get to the point of taking on a particular unit or ideas that we have. {6.08701}

[6.088] S: Offers resources for things like how to write good objectives, or differences between goals and outcomes, or ideas for instructional methods. .p{6.08701}

[6.089] C: Are you (the group) okay with S and I taking the first pass on the first unit and describing the learner, and also with S and I working on the template?. *6.09 Group: yes. _p{6.08702}

[6.091] C: [a program in the school] has a lot of considerations for what the first week will look like, because the students do not have their books. {6.08702 6.089} *6.09101 First weeks are about introductions, and giving them lots of background information. *6.09102 I don-t expect you to know the issues of a [a program in the school] student.

[6.092] S meeting weekly with the LEDC team. _o{i} {6.091}

[6.093] C: I-ve learned from the past that It-s often better if the learning objectives for the week or the learning objectives for the activity are done first as a sample provided and we talk about them, or they are done as a group, rather than sending somebody off to think of objectives. *6.09301 I find it-s easier to use the syllabus as a way to fill in objectives and make sure that they all connect. *6.09302 I look at an activity that meets the objective and then worry about readings and the other stuff. _p{6.08701}

[6.094] C: Okay, got the infrastructure. {6.084}

[6.095] _t{} 4. Usefulness off the Lawson and Aspelund texts in relation to syllabus big ideas. {2.029 2.13802 6.0030401}

[6.096] Purpose of looking at the readings: Start to think about the kinds of ideas that we would like to bring into the course. {6.095} *6.09601 What we think about the text.

[6.097] C: Norman is in - constraint. {2.029001 2.137 6.096}

[6.09701] Contrast and compare with Lawson. _p{6.097 6.095}

[6.098] B: Read preface of Design Process book; {6.095}

[6.09801] contacted representative about support material–cannot get samples, need to agree on adopting first. {6.098}

[6.099] C: Please CC me on things like that. _p{6.09801} _o{i}

[6.1] J: re Design Process: discussion of a particular process–their framework: the stages of inspiration, identification, conceptualization, exploration and refinement, definition and modelling, communication and production. {6.095} *6.10001 Their is a chapter on each stage. *6.10002 No explicit mention of evaluation, implies there is a constant evaluation.

[6.10004] If we use this, we can ask our students where they think evaluation comes in. {6.1}

- [6.10005] There is overlap with design in the world and design in the mind. {6.1}
- [6.10006] They provide limited perspectives of design from particular individuals—fashion, art, architect, design director. {6.1}
- [6.10007] What other perspectives can we get students to think about?. {6.10006 4.142}
- [6.101] C: Grabbed this book because of the activities. {6.095}
- [6.10101] We don-t know how the students will specialize. {6.101}
- [6.10102] Nevertheless, we are advised that the students need interesting things to do; *6.10103 they have to make stuff. *6.10104 Design is about making and doing, as well as about thinking. {6.10101 2.1380208 2.1380204}
- [6.10105] What can we get them to do that is thinking related but not necessarily discipline specific. {6.10104 6.10101}
- [6.10106] Would be useful as a resource for interesting activities; {6.101}
- [6.10107] looked at what kind of questions they asked, especially before they frame an exercise—page 65: re collage in corner: using images to communication—this could be about using signs in the world, or creating new signs—they can use found objects or photographs that they have taken. {6.10106} *6.10108 Our students could probably do -this-. *6.10109 What do we get them to make?. {6.10106}
- [6.102] J: Answering questions with as much visual material as possible. {6.10107} _i{J}
- [6.103] C: We could use this idea at any number of points. {6.102} *6.10301 [I can reuse the visual sense of things, but with different meanings and in different contexts.] Re page 97: doing physical stuff.
- [6.104] J: SCAMPER stands for substitute, combine, adapt, minimize/magnify, put to other uses, eliminate/elaborate, reverse/rearrange. {6.1}
- [6.105] C: We may or may not choose to do SCAMPER, but we may like the look of the product. {6.104}
- [6.10501] Page 97 got me thinking about interactivity and doing something on a large scale, and something team based—that-s all. {6.105 6.10301}
- [6.10502] There may be lots of activities in here that we could modify; *6.10503 put our own learning objectives on. {6.10501}

[6.106] C: There designs that we can ask them to do that reflect their thinking processes. {6.10105} _o{i}

[6.10601] One of the things we have to be aware of is evaluation. *6.10602 The evaluation is of critical thinking and how ideas are represented, and not necessarily whether it is good looking, because we are not that kind of a course. {6.106 5.12809} _o{i}

[6.107] B: We can also bring in activities from other sources. {6.10502}

[6.108] J: To use this book as a text book would require us to use a week for each of these stages, which is not going to happen, because this is just one model, but we can pull stuff from it. {6.1 }

[6.109] C: So you think its a decent resource for us. {6.108}

[6.11] J: We could pull out these perspective sections. {6.109 6.095} *6.11001 and complement them with software design, or whatever, which is missing from this.

[6.111] B: We could collect different materials to put into a course package. {6.11}

[6.11101] [mentions copyright issues]. {6.111}

[6.112] J: One activity is to get the class to go out and research other perspectives and create a book of these perspectives. {6.11 6.10502}

[6.113] D: That-s a pretty tall order. {6.112}

[6.11301] It has taken me a huge amount of time to even get an idea of the perspectives, and even knowing where to start is difficult. {6.113}

[6.114] C: It-s a suggestion, and it-s something we put on the table. {6.113}

[6.11401] We will have to be aware that they are first year. {6.114}

[6.11402] We-ll take into consideration the Teamwork and Communication course, which has a research element, with is meant to support this course. (running concurrently). {6.114}

[6.115] J: We do have a pool of perspectives that we can list off, that we can assign to a student or a group. {6.112}

[6.116] C: If we find that that-s an activity that we want to do, and these are first year students, we-re going to have to front load it, and be very careful about how we frame it. {6.11401 6.115}

- [6.11601] Any activity that we do will have to be framed carefully and front loaded. {6.116}
- [6.11602] This course is going to take a lot of background work. {6.11601}
- [6.11603] We are going to have to have all of the sources. {6.11602}
- [6.117] D: We could give them in-class problems, for example, here is a software engineering like problem. *6.11701 It-s very simple, and a small group of people work it out, and then tell us how they negotiated. *6.11702 And similarly an architecture like problem. {6.107}
- [6.118] C: We-re already thinking about activities. {6.117 6.112} .t{}
- [6.11801] We might want to table it, and think where we would like to do something like that. {6.118}
- [6.11802] We need to keep this in mind before the big team activity. {6.118}
- [6.11803] We may want to relate the different perspectives to the final 5 weeks where the different teams play different roles. {6.11802}
- [6.11804] We-re not there yet. .p{6.118} .o{s}
- [6.119] 1. Press releases about the course. {6.0030101} .t{} *6.12 JF: Went to a [the local municipality] coordinating meeting, 3-4 weeks ago. *6.12001 [a teacher in the school] was there. *6.12002 Talked about redevelopment of [a program in the school]. *6.12003 [a teacher in the school] suggested press releases. *6.12004 2 press releases went out. *6.12005 1 was specific to the redesign of the program—why we are redeveloping the program and what the new courses are and what the model is. *6.12006 That was front page of [this university] news this week.
- [6.12007] We have an opportunity to turn the [a program in the school] program around. {6.119}.t{}
- [6.12009] One of the things that can happen is that you lose any support that you had initially. {6.12007}
- [6.1201] If we don-t have students in this program this fall, we-re probably toast. {6.12009}
- [6.12012] You guys are here to insure that the quality of the program is there. {6.12009}
- [6.12013] I have to make sure that we get bums in seats. {6.1201}

[6.12014] That said, B and I were both at the interdisciplinary charrette day on Friday. {6.12007}

[6.12015] I think all the signs are that this university is headed in the direction that we've been headed for a few years. *6.12016 Two department chairs said that we have to get these first year programs up in [this university main campus]. {6.12014}

[6.121] The other press release—did not talk to C about before hand; {6.119}_t{} *6.12101 just a side-conversation with [a manager with the school]. *6.12102 We went to a [the local municipality] chamber of commerce lunch where the mayor was talking about her new crime reduction strategy, in particular [another neighbouring municipality], but other town centers as well. *6.12103 This is a community partnership model, not just the city, the RCMP, or [the metropolis transportation organization]. *6.12104 We had a one paragraph generic blurb to talk about what might the design project look like. *6.12105 We sent out a second press release saying that our students were going to get involved in a community-relevant project to look at the issue of how to design a safe and secure access between the [train] station and the front door of the campus.

[6.12106] That- the one that really caught on. {6.121} *6.12107 I got a phone call from [] radio on the 14th, and I got invited to do a live 6 minute segment on the 4 o'clock On the [radio program] piece. *6.12108 Unfortunately the lead in to that was the 2 kids who killed the 16 year old at the [the local municipality] Central [train] station had just gone on trial. *6.12109 It wasn't until 2 minutes before I went on that someone who I hadn't met came to me and said -could you just approve this intro that we've done?- *6.1211 The host turned it around to a positive note that there is a group of students at [this university] who are trying to do something in a positive way and contribute to the community. *6.12111 Met with reporters from [the local municipality] Now, [the local municipality] Leader, and the Province.

[6.122] The reporters get carried away. {6.12106} *6.12201 They have no idea what this kind of project would actually mean, how would you actually do it. *6.12202 They asked if the students are going to design a covered walkway, or new lights for the pedestrian crossing. *6.12203 These are first year students; *6.12204 they are going to be helping us think about these things. {3.048}

[6.123] C: You are our biggest constraint right now. {6.122}_t{} *6.12301 Concerning the blurb, it was just -one- idea. *6.12303 We know what it is now.

[6.12304] Can you create a different spin if they want to know what a final product might be? We have an enormous cohort, if every class is working on the problem; {6.123}

[6.12305] a lot of management has to happen. {6.12304}

[6.12306] An idea that I suggested is that they don-t come up with a product, they use their critical thinking to come up with proposals-suggestions. {6.123}_t{}

[6.12307] Their final project could be some kind of display that they make that demonstrates the kinds of activities-mapping, using visual stuff-and a short report. *6.12308 The report could be supported in the writing course. *6.12309 The report would outline their research. {6.12306}

[6.1231] But what do they give back to the mayor? Like, Our class really thought about this, and we want to give this to you. {6.12306}

[6.12311] That will get you more press, it hooks up with the mayor, and it is something that they can do. *6.124 We could have a [a program in the school] community show. *6.12401 Imagine we have this whole galleria, and every team gets a table. *6.12402 The mayor comes, and look at these kids who contributed. {6.1231}

[6.12403] I know we can-t have 400 of them down there. {6.12311}

[6.12404] Maybe a class, an internal competition. {6.12403} *6.12405 The mayor could judge, and the winning class can do a show.

[6.125] They-re going to -think- about it. {6.12306 2.0082} *6.12501 We are creating good community thinkers. *6.12502 The final thing is going to be a demo and a proposal. *6.12503 They have to make stuff. *6.12504 Don-t worry about the crit in the design. *6.12505 Just get them thinking about their ideas. *6.12506 It can still be visually appealing, but it doesn-t have to be about Photoshop. *6.12507 It is how we are demonstrating our good ideas.

[6.12508] And it could be a community event. {6.12311}

[6.12509] That would solve all your problems. {6.12009 6.12508}

[6.1251] And you could exploit it afterwards. {6.12508}

[6.12511] You could have a show. {6.12306 }

[6.12512] One thing that we are lacking in [a program in the school] is that we don-t have stuff to show. _i{C} {6.12512} _o{}

[6.126] JF: It-s my job to find the resources to do that. _p{6.12511} _i{JF}

[6.127] C: If we can agree that our project will look like that, then we can start saying that. {6.12306}

[6.12701] And we are only going to be able to do this one time. {6.127} *6.12702 The project next year will have to be something different.

[6.128] D: Applying a bit of design thinking to this problem, the solutions that class would come up with probes the problem a bit deeper, and reveals more about the problem, which may give rise to further design problems that future classes can work on. *6.12801 It would be a related body of problems. {6.077 6.12701}

[6.129] B: It-s also an input to the policy makers—the mayor to the. {6.128}

[6.13] JF: And these are 18 to 24 year old kids. {6.129}

[6.131] C: They-re not -just- 18 to 24 year old kids, they-re -citizens-. {6.13 2.01301} *6.13101 Our job here is citizenship; *6.13102 it-s not just academia. *6.13103 We talk about personal responsibility and learning in [a program in the school], but it-s also what is your responsibility to your community. {6.12403 2.01301 2.1380301}

[6.13104] [Mentions students from different locations.] We could do a one-off and focus on [the local municipality]. {6.12701} *6.13106 But next year we can ask -How many of you live in [a neighbouring municipality]?- Maybe groups take on different dynamics every year.

[6.13107] They get to wear the label of good citizen. {6.131 6.13104}

[6.132] $t\{\}$ JF: re Presentation on Learning City happening at [a campus co-managed by multiple post secondary schools]: they-ve tried to have those programs focus in on a design problem that has been brought to them by the community. *6.13201 They have issues figuring out how to get the community in their door. {6.1201}

[6.133] $t\{1\}$ C: What we have to understand is that we have one class of 48 students that is working on this problem. *6.13301 And then we multiply it by 6 (or more—hopefully 8 max). *6.13302 That-s a huge number of students all working on the same problem. *6.13303 I started thinking of the logistics. {6.12305 }

[6.13304] A critical thinking idea is: who are the stakeholders. {6.133} *6.13305 We have the everyday user, the mall, the police, the mayor-s office—we have all these different points of view. *6.13306 Each team could take on one. *6.13307 Can you imagine 8 teams bothering the police? That becomes an issue. *6.13308 This becomes an opportunity to bring the people from the community into our classroom. *6.13309 We can video tape it, or whatever. *6.1331 The students listen, and do their research collectively. *6.13311 This project is huge. *6.13312 It has to be managed and massaged.

[6.134] JF: I-m trying to push the campus to think about how we will need some resources, if we-re really going to be focused on the community like we say we are. {6.133}

[6.13401] This is a campus initiative. {6.134} *6.13402 If you say the doors are open, eventually they will come, and they will want to be heard. *6.13403 It-s got to be structured so we can communicate with them, and they can communicate with us effectively.

[6.135] C: As soon as you say the word -community-, *6.13501 there are so many groups that we will have to liaise with, even before the students do it. *6.13502 It-s going to be a big design problem for us to do that. _p{6.134 6.133}

[6.136] JF: [a school manager] talked to a couple of [the metropolis transportation organization] people; *6.13601 they were all totally taken by this concept that somebody might actually be interested in paying attention to them. {6.135}

[6.137] C: I thought (and previously mentioned) that it should be called -The Close to Home Project- [general agreement] Every year it could be called the -The Close to Home Project- {6.134}

[6.138] JF: You could offer a section of this course down at the [a neighbouring municipality] campus. {6.137 1.008}

[6.139] J: So this is what we-re going with?. *6.14 C: We-re going with it. {6.12306}

[6.14001] JF should not tell them anything, because we haven-t designed it yet. {6.139}

[6.14002] If people ask what we are going to do, then talk about citizenship; *6.14003 you can link it to the mayor. *6.14004 We want them to come up with an informed proposal for the mayor. *6.14005 And we will get them to make something—a visual display, and a written report. {6.14001}

[6.141] JF: And then hopefully we have a repository at the end. *6.14101 The -Close to Home- Web site 2007. {6.12311}

[6.142] C: One of the concerns that came into this course; _o{} {6.141} *6.14201 [] had said we don-t have [a program in the school] projects to show. *6.14202 It used to be [former program name].

[6.14203] That-s why I-m pointing at these very visual projects; {6.142}

[6.14205] they have to make stuff, not prototypes. {6.14203} *6.14206 We-ve have to start putting artefacts out, so that when people come they can see the work.

[6.14207] We can have our own shows. {6.14203}

[6.143] JF: Every course should have some sort of visual output. {6.14207}

[6.144] C: When we start looking at the kinds of activities, that will be one of our questions: what does the thing look like, and how does it connect to something. {6.11601 6.14203}

[6.145] J: Is the mayor-s office aware that the students- could create something that is critical of the mayor-s proposals? {6.1231}

[6.146] JF: I haven-t asked her that specific question. *6.14601 I-m sure that she realizes that the minute you let these things loose you-re going to get ideas that are critical as well as positive. {6.145}

[6.147] J: The surveillance camera thing is part of her pitch. {6.14601 6.12106}

[6.148] C: We would encourage that. {6.145}

[6.14801] This is where we start talking about audience. {6.148}

[6.14802] You want to be persuasive. *6.14803 You-re not going to get what you want simply by slugging an idea; *6.14804 you have to logically present an argument—what are the pros, what are the cons, and what is your list of recommendations. *6.14805 We want them to have that kind of passion, but learn how to restrain their ideas, and massage them into very well articulated arguments. {6.14801 2.012 2.1380304 2.1380305} --o{i}

[6.149] [discussion about a related incident from the past]. {6.147}

[6.15001] .t{} 4. Usefulness of the Lawson text. .p{6.09701} --o{i}

[6.151] C: We-ll take a pass about what we-re liking and not liking, then go back and read it closer for the next meeting. .p{6.15001}

[6.152] B: I like chapter 3, because it talks about the design process, phases, gives different plans from different perspectives.{6.151}

[6.15201] From a process it has about 12 phases to one, narrow it down to, the one I recommend is the one with the analysis, synthesis, evaluation. {6.152} *6.15202 He put that into the end, especially how they interact with each other. *6.15203 In the end he gives you what he thinks as a process, given a couple of perspectives on it. *6.15204 Which I think is applicable to a lot of context.

[6.15205] Part 3 at the end of the book, talk about more individually, more in depth, components of these process itself. {6.152}

[6.153] *t*{1} C: I had a question for you because he mentions engineers—you get engineers, architects and fashion designers; {6.151} *6.15301 they kind of come up as this weird trio—I wondered how you felt about the representation of the engineer in here. *6.15302 It-s mostly in chapter 1.

[6.154] B: Up to this point maybe not enough, but I think chapter 3 was a good come back way of give different perspective, I think had better idea. {6.153}

[6.155] *t*{1} C: What I liked (about chapter 3) is there-s attempt at defining design, but it never really happens because it-s too difficult, so you get these different components of the way design is approached. {6.154}

[6.15501] I like the idea of seeking similarities in design situations, and differences. {6.155} *6.15502 They are often defined by the differences between them. *6.15503 I thought that is an important idea to explore. *6.15504 There are vague skills that are common to all kinds of design, and then there are context specific skills. *6.15505 That often becomes the thing that defines the kind of design that-s happening.

[6.15506] *t*{1} What I get from the models; {6.155 5.138 }

[6.15507] I like how he is quick to say that the design steps are non-sequential, there-s a looping effect; *6.15508 you might skip some stages to get to what you need to go back to start again. {6.15506}

[6.15509] He-s got several models in here; {6.15506}

[6.1551] the analysis versus synthesis I thought was a good idea. {6.15509}

[6.15511] *t*{1} Re cool activities: designing instructions: could we have students use a design process model to design the instructions for a board game. {6.116 6.1551}

[6.15512] Maybe we would give them the subject of the game. {6.15511} *6.15513 It would be an interesting way to take something that they do in their regular lives. *6.15514 and link it to some kind of a process.

[6.156] J: What about the famous IKEA instructions—this design by drawing, where they can-t have words. {6.15511}

[6.157] C: Absolutely! A great thing is the use of icons. {6.156}

[6.158] D: I would like to amend that idea a little bit. {6.15511} *6.15801 That is to get them to attempt to follow a process in the design, but at the end write a paragraph about how the process broke down, how it didn-t quite fit. *6.15802 One of the points of that chapter is that all of the pictures of the design process have failed in one way or another.

[6.159] B: The one size fits all. {6.158}

[6.16] C: That-s an idea that needs to be woven through everything that they do, that there should be some place of reflection. {6.158 2.013 2.1380204 6.071}

[6.161] D: It-s easy for us in this abstract thinking to for us to portray -reflection on action-, but it-s hard for us to think of things where they do -reflection in action-. *6.16101 Those are ideas from Shoen that Lawson brings up at the end of the book. *6.16102 Designers will reflect on the design as they are working with it. *6.16103 To give an example, I was working on a Web site that was supposed to be uploaded soon-if I would make a change to the CSS or the information structure, I deploy every 5 seconds (I-m using something that deploys very easily), I make a tiny change and then look at it, so I-m not thinking about the change except as I see it in its embodied state. *6.16104 Then later on, on the bus or something, I-ll reflect on it. *6.16105 If we can somehow get them to come to the realization of reflecting IN practice as they are doing it on the very physical things. {6.151 6.1511} --i{D}

[6.162] C: That-s one of those ideas that we want to bullet and put for our larger objectives for our activities. *6.16201 And maybe not in the beginning, but once they have enough coaching and a few tools, maybe that-s part of the process of whatever deliverables for the team activity. _p{6.161 6.116}

[6.163] D: Shoen-s example of reflection in action was, I think, a tight rope walker. *6.16301 That is, as the person is thinking about walking on the tight rope, all that thinking happening in the body; *6.16302 it-s not happening in the head at all. {6.161 }

[6.164] C: Can you send me the reference?. {6.163} *6.165 J: The Reflective Practitioner book?. *6.166 D: Ya.

[6.167] D: I must say that I have a very high opinion of this book [Lawson]. {6.151} *6.16701 He draws upon the central moving figures in the discourse of design, and he himself is very well situated in the discourse of design.

[6.168] J: He-s a key person. {6.167}

[6.16901] If I had my druthers, I would put THIS as the textbook for the course. {6.167}

[6.17] C: That-s actually my question. {6.151 6.16901}

[6.17001] This book does something that Norman doesn-t. {6.17}

[6.17002] The idea was for us to start thinking about a course package, or another text. {6.17001} *6.17003 I don-t think we want to have both. *6.17004 This is a first year course; *6.17005 two text books, or one text book and a course package. *6.17006 I actually really like this book.

[6.17007] The beginning introduces what we are doing in the beginning in a way that Norman doesn't. {6.17001}

[6.17008] What-s lacking for me are real world examples. {6.17001}

[6.17009] The team section use the same terminology—forming, storming, norming and performing—we do these activities in [program in this school]00; *6.1701 this is a real validation. *6.17011 If they can read it here and do an activity in another class that demonstrates that process. {6.17001 1.00701 2.03401} *6.17012 I found there were these great links, though I would have liked to have seen samples of real teams. *6.17013 But the general idea of what teams do I though was really helpful, and would make for good integration with 101.

[6.17014] What-s missing for me is systems and intangible kinds of things—most of the discussion are around seeable things. {6.17001}

[6.17015] So do we need to look some other place for designing a system, something that you don't necessarily see; *6.17016 or do we even care about experience design at this point. {6.17014 5.07302}

[6.171] .t{} The question for B, for everybody to think about, the section on constraints, do you find that helpful.

[6.17101] His way of talking is different than Norman-s way of talking. {6.171}

[6.17102] We-re going to have to talk about constraints—pages 92-111. {6.171 5.124 5.128 5.136}

[6.17103] If we had both of these overlapping—we would have to consider these two writers in dialogue every week. {6.17101}

[6.172] I like that it talks about process, and thinking, and includes critical thinkers. {6.17001} *6.17201 He-s trying to use multiple lenses to view design.

[6.173] Can we agree to go back to this with the view of using this as text. {6.16901 }

[6.17301] It-s not a hard read. {6.173}

[6.17302] What-s missing is precedent. {6.173 5.171}

[6.17303] Their activity could be taking something that has set a precedent, and they try to do something with it. {6.17302 }

[6.174] D: He does talk a little bit about precedent with the fashion designers—HOW they go about designing, and I realize that how fashion designers do it is very similar to how the old wooden ship builders did it. {6.17303} *6.17401 That is, if you want a ship, you would go to a ship builder and say, I would like one like that one over there, but with the features of this one over here, and I would like it to sail in a certain kind of water. *6.17402 So they would take bits and pieces of precedent and re-shuffle them.

[6.175] J: Remix. {3.07 6.174}

[6.176] D: And that-s exactly how he talks about knitwear designers. {6.174} _i{D}

[6.177] C: Let-s take that idea. *6.17701 I-m getting really nice visuals, and I think, maybe that-s how we talk about it in the classroom. *6.17702 Maybe we do a little research and look at the fashion designer and compare it. *6.17703 I see something that is colourful, visual, material that we could do. {6.174 6.102}

[6.178] J: One thing that might apply to that out of this book is {6.17303} *6.17801 he-s got a reverse engineered thing—reverse designing requires that you choose an object and trace its progress back through the stages. *6.17802 You are looking at the object and take this model and step back from where it was produced to its inspiration.

[6.179] C: That-s fun. {6.178}

[6.17901] And it can be something that-s personal to them. {6.179}

[6.18] D: Somebody has used that as a research method in the design process, where they gave a product or scenario to some expert designers, and asked them to imagine how the design process went. *6.18001 And they came up with very plausible stories. {6.178}

[6.181] C: Let-s mark that down too. {6.18}

[7.001] Design Thinking: Meeting Notes: 16 April 2007 10AM to 1PM

[7.002] Present: C, S, B, R, D. {7.001}

[7.003] AGENDA. {7.001}

[7.004] 1. C and S: discuss change to WebCT; {7.003} *7.00403 team will go over student profile information and course outline and objectives.

[7.00404] 2. Team: will return to the Lawson text and specifically pick out areas that match up or are appropriate to the big ideas on the syllabus. {7.003}

[7.00406] 3. Discuss sample of unit 1 mock up. {7.003}

[7.00408] 4. Discuss date and deliverables for next meeting and strategy for designing weekly unit outlines. {7.003} *7.0041 1pm to 2pm (if necessary).

[7.00411] C, D and S to discuss organization of online materials and [repository at online college]. _p{6.003 6.15001 6.16901 6.089 7.003}

[7.005] BEGIN SUMMARY. {7.001} *7.006 NEXT MEETING. *7.00601 23 April, 10AM - 2PM. *7.007 ACTION ITEMS. *7.00701 - C: another crack at the objectives. *7.00702 - D: put material on [repository at online college]; *7.00703 experiment with other scenario. *7.00704 - R: send URL for Adelaide project about tracing design issue from newspaper. *7.00705 - Everyone: How are we going to frame design? Read Lawson chapters 1 and 2 and Norman 1, 2 and 6 for unit 1 for next week. *7.008 OBJECTIVES. *7.009 - Uncomfortable with generality of current course objectives. *7.00901 - To re-frame objectives in terms of visual and textual communication. *7.00902 - Still need to know what the students will be doing in the first term, then can look their objectives, projects and softwares. *7.00903 - students have to represent a problem or process visually. *7.00904 They also have to write about the problem and process, meaning they have to articulate in a textual format. *7.00905 As teams, they will explore problems and team processes. *7.00906 The objects must conform to what the 1st year students are capable of, and be framed from the general to the specific. *7.00907 - Developing the designers eyes; *7.00908 one of the key outcomes of a first year design education. *7.01 NEED FOR REPOSISTORY. *7.011 - Would like to have a seamless space where students can come back to their work, or compare their work with someone else-s. *7.01101 - Looking and talking, comparing and contrasting. *7.01102 This kind of space should also be part of our process. *7.01103 - Our documents should be in one place and secure, but also can be a demonstration of our design process to be used a pedagogical tool. *7.01104 Need to reference each other-s work, proof read it, add ideas. *7.01105 - Hard to provide: secure, password-enabled, appropriate group structure, structure for uploading, storing and managing student work. *7.01106 Easy to provide is: way you want to reformat it. *7.01107 - Has drag and drop up-loader. *7.01108 Only takes the stuff that meets the template. *7.01109 Not easy to build the secure accounts and non-rigid group structures. *7.0111 Every object needs a URL; *7.01111 allows back links (who else has used my resource); *7.01112 if a student changes a resource, it changes on the other sites that use it. *7.01113 One component is a well managed FTP site, and the other component is what you do with that FTP site. *7.01114 Can now be built in less than a week. *7.01115 - -Learning Games for Design- (used by several thousand students and several dozen instructors): Concept (design concept, active concept), Interpretation, References, Design Task, Proto Design (digital model; *7.01116 get students operating at higher level right away), Critique Guide (list of things to be evaluated; *7.01117 larger reflective critique guide). *7.01118 [B: template with content] The template was as much a product of the group work as the content. *7.01119 Reasons for showing this: (1) Began to understand how to frame first year student design work in a common way; *7.0112 and (2) When students hand work back in, they should be handing in the same thing, presented in the same way that we presented it to them. *7.01121 It elevates their standard of

accomplishment, so that no matter what they submit, it looks okay. *7.01122 You build confidence. *7.01123 What the students contribute: they might be asked to: build a better set of references; *7.01124 do the reflective critique of their own work, or their peers work; *7.01125 they hand in their design. *7.01126 How to organize design tasks to lower the barriers to entry and increase the chances of success. *7.01127 Don't want to lock yourself into a particular system, like a webCT system. *7.01128 The hard part is to support the traffic between the students and the teacher. *7.01129 Have learned a lot of the Use Cases that need to be supported. *7.0113 - We have to show that it is a course where the students develop skills. *7.01131 We care about the thinking, the process, articulating why they did what they did, or what strategies they used. *7.01132 I'm interested in capturing all that work. *7.01133 We want them to have some kind of portfolio (for all of [program in this school]). *7.01134 Can be a public space. *7.01135 But we should be able to pull material for say an open house. *7.01136 - link to community. *7.01137 - Its all about the assignments—interesting, engaging, doable, set students up to succeed. *7.01138 May have to test 3 or 4 technologies. *7.012 OTHER ISSUES. *7.013 - students will double (to 800) in the following year; *7.01301 this consideration should be built in from the beginning. *7.01302 - Course is recruiting tool. *7.01303 - variations on the course: [program in this school], less intense version of this course be offered at [this university main campus] and high schools. *7.01304 - When you make specific plans, like how you deliver and collect student work, that-s where you make sure this thing can scale. *7.01305 - Trying to teach them the cycle of critique and design; *7.01306 have to set critical frameworks and discuss the work within them at every step along the way, but that activity follows the design activity. *7.01307 The reading has to make sense with respect to the design activity. *7.01308 The critique is around the way in which you frame the design activity. *7.01309 - . *7.0131 Each big idea can be an introduction to design through a certain lens. *7.01311 For example -precedent- in our time—focus on everydayness—has to be relevant for the students. *7.01312 What is Precedent—examples? Next session they would have to do something. *7.01313 How do we meet at every level all of these constraints so that they are consistent. *7.01314 - Its all about the assignments—interesting, engaging, doable, set students up to succeed. *7.01315 - Assessment drives the learning process. *7.01316 Should start with the things we ask the students to do in each unit, then how do the big ideas of the course correspond to those, how do Lawson and Norman relate to those specific things. *7.01317 - Would like the students to abstract the idea of affordances. *7.01318 Which is the same idea as the students designing their exam. *7.01319 - Big lesson about the design process: it is nothing mysterious; *7.0132 you can work on it; *7.01321 you can become a designer, by learning how designers think and what they do, and practising those skills. *7.01322 - overarching lessons: -design is made by doing-; *7.01323 -design is improved by talking about it—critical analysis; *7.01324 the 2 come hand in hand. *7.01325 This might be something that you reinforce in every week; *7.01326 the cycle of doing and critiquing—might be the biggest lesson in the course. *7.01327 Everything they do in the course has that structure, and they are told about it at every opportunity. *7.01328 Therefore does not have to become its own unit. *7.01329 - Have to make sure there is a skill attached to each of the projects,

so these design thinking skills can be distributed over all the units of the toolbox. *7.0133 E. *7.01331 g. *7.01332 we know there is this idea of evaluation. *7.01333 Important to cover the skills of design thinking. *7.01334 - combine 3 and 4, thereby free up a unit, touch on social things? for their evaluation, must have a week in which there is no new material. *7.01335 If we collapse too much, can we demonstrate that the controlling big ideas are inclusive. *7.01336 - Assessment is very important. *7.01337 At the end of the workshop session, they should be responsible for having something on line; *7.01338 they produce something. *7.01339 - Everything you do in a design course is a project. *7.0134 You always have roughly the same information technology. *7.014 LAWSON. *7.015 - Generally good to go, despite the book being a little advanced; *7.01501 general consensus to use the Lawson text. *7.01502 - the ideas here can be lived by the students, for example a couple of design games. *7.01503 If the students play the game and live through some of the things Lawson talks about, then the ideas are no longer abstract. *7.01504 - like more real life examples, but there is enough of a framework. *7.01505 We can research examples. *7.01506 - leave out the creative thinking part. *7.01507 - examples missing from Lawson. *7.01508 - Lawson text is written about a third year level. *7.01509 - The chapter (8) on design thinking (cog sci, behaviorism, . *7.0151) not appropriate for this course. *7.01511 May make the link, and that-s all. *7.016 UNIT 1 and 2 (intro, what is design, what is designer, design in the world, the course, design is all around us). *7.017 - chaps 1, 2. *7.01701 - week one and two can be done together. *7.01702 - re Unit 1: What do we think students can do, given the 2 texts that we are agreeing on, and our own experience?. *7.01703 - do we agree with Norman and bring the principles into the assignment, or do we have a dialogue between Norman-s book and Lawson-s book. *7.01704 Like the everydayness of Norman, but not quick to adopt all the terminology. *7.01705 Individually we can go in more specifically and interrogate the material. *7.01706 In week one, we have to be clear about what our conversation is in the classroom, which will set the tone for the rest of the material. *7.01707 The course will be framed in unit one. *7.01708 - What do we mean by design in this particular course?. *7.01709 - R claims that the Norman book is about affordances only. *7.0171 - C: but the goal of the book is to explain to a lay audience about the ubiquitous presence of design—what kinds of questions does the designed object beg. *7.01711 - R: The book is about how the world tells us how designs can function, and we ignore what the world tells us at our own peril. *7.01712 - C: None of these big ideas exist on their own. *7.01713 His primary discussion is affordances, but it also goes back to unit what is design and who is a designer—that moment when I have an encounter with that (badly designed) door and I change the way that I think about myself, that is the everyday. *7.01714 Its not just about the door, but my interaction with the door, and it made me change the way I thought about myself. *7.01715 That is a critical moment, and relates to unit one. *7.01716 . *7.01717 One chapter can touch on three different units. *7.018 UNIT 3 (design is social). *7.019 - Chap 6 has hierarchy of criteria, which pulls in social levels. *7.01901 - Have to qualify what we mean by design is social. *7.01902 - famous failures of design illustrate their social nature: To illustrate criticism of Norman-s focus on products and not processes, C discussed the documentary -Bombay Calling-, which is

about the rise and fall of telemarketing in a particular city. *7.01903 - relates to -design satisfies its audience-. *7.01904 - Should distinguish between the design process (Lawson unit 3) and the design artifact. *7.01905 - Examples. *7.01906 - International highway sign system. *7.01907 - technology for meetings. *7.01908 - architectural entrance-also hits on Precedent-can link back to the activity -look at the precedent setting designs in your house-. *7.01909 - designs that mediate couples. *7.0191 - car seats, breakfast nooks, tables for 2, ichtat, text message. *7.01911 Activity: Everybody text that person. *7.02 UNIT 4 (design is historical). *7.021 - -What Designers Know- has chapter 8 on precedent. *7.02101 Not satisfied with examples. *7.02102 - designs come from other designs, make sense in the context of other designs, can always learn from other designs. *7.02103 - Understanding the problem is an important part of the overall design process. *7.02104 By dividing up the project between preliminary analysis and broad exposure phase, you are increasing the opportunities to reinterpret the problem. *7.02105 That-s a very powerful lesson. *7.02106 If you can get that across in first year, you have done something great. *7.02107 - That-s a big Lawson idea. *7.02108 I hope by week 4 that they are paying enough attention to their process that they are noting those things. *7.02109 - Precedent: (Important principle: find a way to link the making and the critique, through language) 18 year olds understand design precedent-the suburban house; *7.0211 where do the things you see in your house come from? Example, the picture window. *7.02111 How do you link that to action? -apply the idea forward in an innovative way: how would Frank Lloyd Wright have done the picture window? Or replace that precedent idea. *7.02112 Use readings and logical arguments to connect that with what they have done. *7.02113 - C: Take pictures. *7.02114 Make physical things. *7.02115 What does your house look like if you describe it in terms of design-set of criteria. *7.02116 (re Frank Lloyd Wright-the students themselves, not us, will get that specific-part of their research). *7.02117 - Adelaide project: find design issue in Adelaide newspaper, trace it back 3 or 4 weeks, collect everything from every stakeholder-s perspective, and present it to the class. *7.022 UNIT 5 and 6 (design enables understanding, design invites inquiry). *7.023 Chapters 3, 6 and 7. *7.024 - Focus on the designer. *7.02401 What are the things that you do that make you a designer. *7.02402 - get into specifics. *7.02403 - What does the designer do that others don-t? -is this the right structure; *7.02404 are there other ways to think about the problem; *7.02405 are there other designs that will work just as well; *7.02406 do we understand everything that we want this design to do; *7.02407 are there other things that we want it to do-all questions about getting outside a box. *7.02408 -this is picked up in week 6 (inquiry and perspectives). *7.02409 - urban transportation; *7.0241 different perspectives have dramatically different solutions. *7.02411 - Conservation is always the cheapest source of new energy. *7.02412 - Got to look for examples here that have counter intuitive insights. *7.02413 - [this may link logically back to the week 4 project]. *7.02414 - designers use models and processes to ask questions. *7.02415 If the model of design helps you pinpoint questions that you should be asking. *7.02416 wouldn-t some of those questions be about constraints? Chapter 6 is coming back again. *7.02417 - One (design enables understanding?) is about the artefact, and the other (design invites inquiry?) is about play with the idea as it goes forward. *7.02418 - The

nature of questions, why we ask questions. *7.02419 We need to have some strategies that they can practices. *7.0242 They ask questions, evaluate questions, look at the artefact and it makes them ask more questions. *7.02421 - they also draw/sketch. *7.02422 UNIT 7 and 8 (process and collaboration). *7.02423 - team process taught elsewhere will support team-based design projects. *7.02424 Getting the teams ready to do the team project; *7.02425 already collaborating; *7.02426 running along side is [program in this school]101. *7.02427 - The biggest reason you have design teams is that you need more than one kind of knowledge to get the job done. *7.025 PROJECT. *7.026 Understanding the problem is an important part of the overall design process. *7.02601 By dividing up the project between preliminary analysis and broad exposure phase, you are increasing the opportunities to reinterpret the problem. *7.02602 That-s a very powerful lesson. *7.02603 If you can get that across in first year, you have done something great. *7.027 END SUMMARY.

[7.028] PREMEETING DISCUSSION. {7.001}

[7.029] Uncomfortable with generality of current course objectives. {7.028}

[7.02901] Team to specify -fundamental- design concepts. {7.029} *7.02902 To re-frame objectives in terms of visual and textual communication.

[7.03] re Unit 1: What do we think students can do, given the 2 texts that we are agreeing on, and our own experience?.

[7.031] re: teamwork: team process taught elsewhere will support team-based design projects. {7.028}

[7.032] Epiphany on [train station]: re: placing content: what is the skill based on the objective?. {7.029}

[7.034] Presentation of C and S-s initial student profile; {7.004 }

[7.03401] what are the skills the students are going to leave with? Still need to know what the students will be doing in the first term, then can look their objectives, projects and software. _p{6.089 7.0032 4.162} _o{s}

[7.035] Course goals: What do we keep or change from syllabus? Big ideas combine together. {7.03401}

[7.03501] There is a complexity to the objectives: students have to represent a problem or process visually. {7.02901 7.035}

[7.03502] They also have to write about the problem and process, meaning they have to articulate in a textual format. *7.03503 As teams, they will explore problems and team processes. {7.035}

[7.03504] The objects must conform to what the 1st year students are capable of, and be framed from the general to the specific. {7.03 7.03401 1.016 2.01 1.016}

[7.037] R: Since the course will be offered at the other campuses, the number of students will double (to 800) in the following year; *7.03701 this consideration should be built in from the beginning. {7.03401 1.008}

[7.038] Natural course for high schools, so students pre-select into the courses and take them in high school rather than at SFU Surrey. {7.037}

[7.039] D: The teachers will be learning the material themselves in order to teach it. {7.038}

[7.04] R: In every high school there are now digital media teachers. {7.039}

[7.04001] These are not things that directly affect this level of planning. {7.04}

[7.04002] This and also the Spatial Thinking and Communicating course need to grow down into the high schools and broadly across the campuses. {7.038}

[7.041] B: Course is recruiting tool. {7.037}

[7.042] R: Other faculties have breadth courses. {7.037 7.041}

[7.043] B: These are variations on the course. {7.037}

[7.044] R: One can see a less intense version of this course be offered at [this university main campus]. {7.037}

[7.045] D: How do we lay it out so someone can come along and turn up or turn down the dial of intensity?. {7.044}

[7.046] B: Variations: [program in this school]; {7.043} *7.04601 broader audience.

[7.047] R: Presently design the course for the indicated student population, but keep in mind the other possible vectors of growth. *7.04701 When you make specific plans, like how you deliver and collect student work, that-s where you make sure this thing can scale. {7.045} --o{s}

[7.048] C: Would like to have a seamless space where students can come back to their work, or compare their work with someone else-s. {2.02302 7.047} --o{a}

[7.04801] Short attention span; *7.04802 need for fun; *7.04803 need for engagement. {7.03504}

[7.04804] C-s agenda is to make sure that they come out of the course with transferable skills—thinking skills—but also have an awesome learning experience. {4.162 7.03401}

[7.04805] Looking and talking, comparing and contrasting. *7.04806 This kind of space should also be part of our process. {7.048} _o{a}

[7.049] R: Points out historical context of design schools now with computer-based media do not have enough work on the walls. *7.04901 Design learning comes from looking at the work of your peers and the discourse around it. {7.048} _i{R}

[7.04902] Posters defeat that computers enable the work to be seen anywhere. {7.049} _i{R}

[7.04903] Need to have repository with easy: in, out, re-organization, re-presentation, display. {7.048} _o{i}

[7.05] C: What do we do with OUR information? Make our info available in the same space that the students will use. _p{7.04805} _o{a}

[7.051] R: Avoid software development. {7.05}

[7.052] Discussion of [repository at online college] —used by JM-s team. {7.05}

[7.05201] Now not using Moodle, which had facility to archive student work. {7.052}

[7.05202] Is there a learning object repository that we can use?. {7.05201}

[7.05203] -Discussion of Avire (not recommended presently; {7.05202}

[7.05204] got Use Cases for student submission of work; {7.05203} *7.05205 not scalable presently.

[7.05207] —Discussion of CrowdTrust (does not hold digital objects). {7.05202}

[7.05208] —Our documents should be in one place and secure, but also can be a demonstration of our design process to be used a pedagogical tool. _o{i} {7.05}

[7.05209] Need to reference each other-s work, proof read it, add ideas. {7.05208}

[7.0521] We may practice the assignments, and document the process. _o{a} {7.05208}

[7.053] B: your requirements are good, and ambitious. {7.05208}

[7.054] R: [repository at online college] is a project management space; {7.05208}

[7.05401] ust a space for setting tasks, sending messages, setting milestones—it-s not going to be a student repository. {7.054}

[7.055] C: [repository at online college] was suggested so that the [program in this school] course design teams can see each other-s work, but want more. {7.054}

[7.05501] It would be losing so much if we could not capture key moments in our process and use them in the classroom. {7.055}

[7.05502] Say we video tape us using Lawson-s five principles for this particular exercise—some of the stuff we do here—I don-t want to waste it [B: you want it to be share] But for us first, but when we start fine-tuning the course, we can bring in that part of the meeting where we used Lawson. {7.05208}

[7.05503] Why can-t there be one place?. _o{ia} {7.05208}

[7.056] R: Unfortunately there can-t be. {7.05502}

[7.057] D: To do an experiment, and demonstrate it. *7.05701 The -one place- could be the Internet; {7.05503} *7.05702 say you upload a document to anywhere on the Internet; *7.05703 if it is secure, when you go there you are faced with a login screen. *7.05704 Then the social collaboration space is where you talk about it. *7.05705 Will try to show the kind of discourse that we are trying to have here.

[7.05706] If that was the case—the repository is the Internet itself—that widens it to the other campuses, high schools and so on. {7.057}

[7.058] R: Hard to provide: secure, password-enabled, appropriate group structure, structure for uploading, storing and managing student work. {7.057} *7.05801 Easy to provide is: way you want to reformat it.

[7.05802] Shows XML(template) based system for uploading content with a joint understanding of how to present that content. {7.058}

[7.05803] Has drag and drop up-loader. {7.05802}

[7.05804] Only takes the stuff that meets the template. {7.05803}

[7.05805] Not easy to build the secure accounts and non-rigid group structures. {7.058}

[7.05806] Every object needs a URL; {05805}

[7.05807] allows back links (who else has used my resource); {7.05806}

[7.05808] if a student changes a resource, it changes on the other sites that use it. --o{ia}
{7.05806}

[7.05809] One component is a well managed FTP site, and the other component is what you do with that FTP site. {7.05802}

[7.0581] Can now be built in less than a week. {7.05802}

[7.05811] Shows -Learning Games for Design- (used by several thousand students and several dozen instructors): Concept (design concept, active concept), Interpretation, References, Design Task, Proto Design (digital model; get students operating at higher level right away), Critique Guide (list of things to be evaluated; larger reflective critique guide).

[7.05814] [B: template with content] The template was as much a product of the group work as the content. {7.05811}

[7.05815] Reasons for showing this: (1) Began to understand how to frame first year student design work in a common way; *7.05816 and (2) When students hand work back in, they should be handing in the same thing, presented in the same way that we presented it to them. *7.05817 It elevates their standard of accomplishment, so that no matter what they submit, it looks okay. *7.05818 You build confidence. *7.05819 What the students contribute: they might be asked to: build a better set of references; *7.0582 do the reflective critique of their own work, or their peers work; *7.05821 they hand in their design. *7.05822 How to organize design tasks to lower the barriers to entry and increase the chances of success. {7.05811}

[7.05823] Don't want to lock yourself into a particular system, like a webCT system. --o{} {7.05814}

[7.05824] The hard part is to support the traffic between the students and the teacher. {7.05823}

[7.05825] Have learned a lot of the Use Cases that need to be supported. {7.05824}

[7.059] R: Everything you do in a design course is a project. {7.05825 7.05811}

[7.05901] You always have roughly the same information technology. {7.059}

[7.06] re Design Thinking (the Lawson book). *7.06001 Generally good to go, despite the book being a little advanced. {7.00404 6.15001 6.16901}

[7.061] D: the ideas here can be lived by the students, for example a couple of design games. *7.06101 If the students play the game and live through some of the things Lawson talks about, then the ideas are no longer abstract. {1.016 7.06}

[7.06102] C: The material they read every week has to be directly applied to the design activity for the workshop. $_r\{7.061\ 5.089\}$

[7.06103] I would like more real life examples, but there is enough of a framework. $\{6.17008\ 7.06102\}$

[7.06104] We can research examples. $\{7.06103\}$

[7.06105] We don-t want renegade activities. $\{6.10102\ 7.06104\}$

[7.062] R: You want to engage the students in the first year in active, doing courses. *7.06201 Less about talking about design, and more about doing design. *7.06202 Trying to teach them the cycle of critique and design; *7.06203 have to set critical frameworks and discuss the work within them at every step along the way, but that activity follows the design activity. *7.06204 The reading has to make sense with respect to the design activity. *7.06205 The critique is around the way in which you frame the design activity. $\{7.06102\ 7.04801\ 2.01\ 1.016\ 2.015\}$

[7.063] C: We don-t know what they are going to make. *7.06301 Each big idea can be an introduction to design through a certain lens. *7.06302 For example -precedent-in our time-focus on everydayness-has to be relevant for the students. *7.06303 What is Precedent-examples? Next session they would have to do something. *7.06304 How do we meet at every level all of these constraints so that they are consistent. $\{7.062\ 4.142\ 2.024\}$

[7.06305] The activities will not overlap with []-s course (volume, shape,) $_o\{a\}\ \{7.063\}$

[7.064] R: re Precedent: (Important principle: find a way to link the making and the critique, through language) 18 year olds understand design precedent-the suburban house; *7.06401 where do the things you see in your house come from? Example, the picture window. *7.06402 How do you link that to action? -apply the idea forward in an innovative way: how would Frank Lloyd Wright have done the picture window? Or replace that precedent idea. *7.06403 Use readings and logical arguments to connect that with what they have done. $_i\{R\}\ \{7.063\}$

[7.065] C: Take pictures. *7.06501 Make physical things. *7.06502 What does your house look like if you describe it in terms of design-set of criteria. *7.06503 (re Frank Lloyd Wright-the students themselves, not us, will get that specific-part of their research). $\{7.06305\ 7.064\ 2.015\}$

[7.06504] [R: Developing the designers eyes; *7.06505 one of the key outcomes of a first year design education]. $\{2.01401\ 7.065\}$

[7.066] C: Weeks 1-8: toolkit; *7.06601 every week contributes to final project - scaffolded. $\{5.03603\ 5.03604\ 7.06504\}$

[7.067] R: shows Adelaide project: find design issue in Adelaide newspaper, trace it back 3 or 4 weeks, collect everything from every stakeholder-s perspective, and present it to the class. {7.06504}

[7.068] C: That-s what we-re doing. {7.066 7.067}

[7.06801] Project product: visual representation and recommendations (professional, juried, top presented at mayor-s office with design) and myth busting. {6.125 7.068}

[7.06802] How has the image of this space been constructed in the news. {7.06801}
*7.06803 What are the things that we know have happened. *7.06804 What are the things in this space that may or may not be a threat to safety.

[7.06805] Important to have an opportunity to look at real situations. {7.068}

[7.069] R: Illustrates slip in design problems: the problem you are trying to solve is seldom the one that you think you are trying to solve when you start. {7.066}

[7.06901] Understanding the problem is an important part of the overall design process. {7.069}

[7.06902] By dividing up the project between preliminary analysis and broad exposure phase, you are increasing the opportunities to reinterpret the problem. {7.06901}

[7.06903] That-s a very powerful lesson. {7.069} *7.06904 If you can get that across in first year, you have done something great.

[7.07] C: That-s a big Lawson idea. {7.06901}

[7.07001] I hope by week 4 that they are paying enough attention to their process that they are noting those things. {7.07 }

[7.071] C: Still stuck with what are we going to do with our information that we are collecting weekly. .t{} .p{7.05 3.102}

[7.072] D: I think the summary (of the very detailed meeting notes) at the head should be printed and laid out during the meeting. .p{7.071 2.028}

[7.073] C: Where is all of our information going to be?. .p{7.071}

[7.074] R: Why does this have to be secure at this point. *7.07401 Why not something simple like a wiki. *7.075 C: no problem with that. *7.07501 Want the weekly material to be posted. *7.07502 I-m in the spirit of sharing. *7.07503 I don-t think there is anything to steal. *7.07504 I think it is okay for our colleagues see our work. {7.071 7.073} --o{}

- [7.076] R: [repository at online college] is a bulletin board; *7.07601 you will drive each other nuts. {7.074}
- [7.077] D: My intention is to duplicate these folders in. {7.071}
- [7.078] B: Because of the immediacy of the work, many emails, plan of action. {7.071}
- [7.079] C: Everything should be channelled through the instructional designer. {7.078}
- [7.08] B: can narrow communications to those directly affected. {7.079}
- [7.08001] [repository at online college] temporary solution. {7.076}
- [7.081] R: re [repository at online college]: Overview, bulletin board, add tasks–assigned to people; *7.08101 milestones–agreements on time; *7.08102 add in files; *7.08103 tags; *7.08104 people involved. *7.08105 No space for authoring material. {7.08001}
- [7.082] C: don-t need that at this point. {7.081}
- [7.08201] Uploaded eventually gets composed into a course. {7.082}
- [7.08202] Will divide up weeks amongst team members, then critique. _p{7.082 5.1691}
- [7.083] C: re course: only online component is repository–funner in the classroom. _o{s}{7.08201}
- [7.084] R: What are we agreed on, WRT the repository?. {7.08001}
- [7.085] C: That we need one. {7.084}
- [7.08501] Its a constraint. {7.085}
- [7.086] R: Told by whom? Why do you buy in to the idea?. {7.08501}
- [7.087] C: If we wanted the resources for students to be able to story their work, you (R) would be able to help us with that. {7.086}
- [7.08701] This has got to be a course where we have stuff to show at the end. {6.12512 7.087}
- [7.08702] We have to show that it is a course where the students develop skills. {7.08701}
- [7.08703] We care about the thinking, the process, articulating why they did what they did, or what strategies they used. {6.125 7.08702}

- [7.08704] I-m interested in capturing all that work. {7.08703}
- [7.08705] We want them to have some kind of portfolio (for all of [program in this school]).
{7.08704}
- [7.08706] Can be a public space. {7.08704}
- [7.08707] But we should be able to pull material for say an open house. {7.08704}
- [7.088] B: recapped tech requirements. {7.08001 }
- [7.089] C: JF wants link to community. {6.12508 7.08701}
- [7.08901] Good visual information will sell. {7.089}
- [7.08902] Don-t want technology to determine what we will do. {7.087 7.08901}
- [7.08903] Want to experiment. {7.08902}
- [7.08904] Its all about the assignments—interesting, engaging, doable, set students up to
succeed. _p{7.08901 3.02911 6.12403 6.12512 6.14204} _o{a}
- [7.08905] May have to test 3 or 4 technologies. {7.08903}
- [7.09] S: helping to facilitate putting all the pieces together. {7.08905}
- [7.091] R: [this university school] needs this information handling capability. *7.09101
We cannot even find our own work to use it to promote ourselves. {7.084} _o{a}
- [7.093] R: To have something done, you need someone who is responsible and capable to
do it. *7.09301 Who is taking care of the repository part of the project right now. *7.09302
. *7.09303 Should we bring somebody in to work on this part of the project?. _p{7.085}
- [7.094] C: []-s input would be good, but he-s not here right now. *7.09401 Will talk to
JF about it. _p{7.093}
- [7.095] Discussion about team-s roles and purpose for reading, and progress of project to
date. {7.00404}
- [7.096] THE LAWSON TEXT. *7.097 C: What parts are strong?. {7.095}
- [7.098] D: Would leave out the creative thinking part. *7.09801 There-s a great deal of
research about creative thinking, and very few conclusions. *7.09802 It seem irrelevant to
the learning outcomes. {7.096}

[7.09803] Would like students to go into any number of situations and recognize them as what they practiced in this course, even if they don't think they are doing creative thinking. *7.09804 Most people enter situations that they don't think of as design, and don't realize how much of it is up for negotiation, and how deeply it can be negotiated even at the worst possible times. *7.09805 But if people have the expectation and tools to deal with it, and are in command of the situation when it happens, that would be a good learning outcome. {7.098} _i{D}

[7.09806] E.g. research design in which people fail to understand how much it is design and freak-out when they discover how deep negotiations go, especially if they are holding to a positivistic paradigm. {7.09803}

[7.09809] Eg. business; {7.09803} *7.09811 people obtain commitment to a product, and then the product starts shifting; *7.09812 people are not using it; *7.09813 parts are not being made quickly enough; *7.09814 so it turns into a messy situation.

[7.099] C: To illustrate criticism of Norman-s focus on products and not processes, C discussed the documentary -Bombay Calling-, which is about the rise and fall of telemarketing in a particular city. {7.096} _i{C}

[7.1] B: Likes the section that offers a model of design. {7.096}

[7.101] D: Mentions that the model is about a continuous negotiation between problem and solution; *7.10101 that the solution tests the problem and thereby more information about the problem is derived. {7.1}

[7.102] B: Mentions chapters 5 and 6. {7.096}

[7.103] D: Especially the social stuff can be built into exercises. {7.102}

[7.104] B: Part 3; *7.10401 likes the last chapter. *7.10402 Likes the way Lawson breaks down and frames the aspects of design. {7.096}

[7.105] D: We should discover the ideas that are not covered by Lawson - precedent. {7.096}

[7.106] B: Constraints are well developed. {7.096}

[7.107] D: If we get the students to use a model like that, how do they use it?. {7.106}

[7.108] B: In context. *7.10801 Introduce the ideas to the students. {7.107}

[7.109] C: Want to map Lawson sections to units and big ideas. *7.10901 Next meeting divide up the units. *7.10902 Will have the draft of the learning objectives then. {7.003 7.096}

[7.10903] Would like us to find practices that we learn early on and we continue to use, fine tune or develop so that we get to the team project {7.109 7.066}

[7.109031] Frightened by Norman-s -principles-, when we read Norman again, do we agree with Norman and bring the principles into the assignment, or do we have a dialogue between Norman-s book and Lawson-s book. *7.10904 Like the everydayness of Norman, but not quick to adopt all the terminology. {7.10903 5.076 6.09701}

[7.10905] Individually we can go in more specifically and interrogate the material. -p {7.109031}

[7.10906] In week one, we have to be clear about what our conversation is in the classroom, which will set the tone for the rest of the material. *7.10907 The course will be framed in unit one. {7.10903}

[7.11] B/C: week one and two can be done together. {7.10906}

[7.111] What do we mean by design in this particular course?. {7.10906 2.01902 2.00602 2.021}

[7.112] Big ideas not combined/collapsed in syllabus as yet, but that is what will happen. {7.111}

[7.113] The first 8 weeks are set up as a toolkit, some kind of critical thinking tool or process that they can learn each week and be evaluated on, and then apply those to the larger project. {5.03604 7.112}

[7.11301] Part of their evaluation would be their ability to use their design thinking strategies to work through this community development project. {7.113}

[7.114] R: What-s missing from Lawson. {7.109}

[7.115] C: Examples. {7.114}

[7.116] D: re examples: about conversation from last meeting: knitwear designers and wooden ship builders followed nearly the same process of design. {7.115}

[7.11601] C thought this would be a visually interesting presentation. {7.116 6.174 6.177}

[7.117] R: Observations: (1) Lawson text is written about a third year level. *7.11701 (2) Assessment drives the learning process. *7.11702 Should start with the things we ask the students to do in each unit, then how do the big ideas of the course correspond to those, how do Lawson and Norman relate to those specific things. {7.109 6.093}

[7.118] D: The difficult part is that in all this we are trying to discover what we will get them to do. {7.117}

[7.119] C explains that the big ideas came from several design thinkers, and that we are trying to locate them. *7.11901 Do we see the big ideas (in the Lawson text)–yes, though not always fore grounded–except precedent. _p{7.117}

[7.12] R claims that the Norman book is about affordances only. {7.109031}

[7.121] C: but the goal of the book is to explain to a lay audience about the ubiquitous presence of design–what kinds of questions does the designed object beg. {7.12}

[7.122] R: The book is about how the world tells us how designs can function, and we ignore what the world tells us at our own peril. {7.121}

[7.123] C: None of these big ideas exist on their own. *7.12301 His primary discussion is affordances, but it also goes back to unit one – what is design and who is a designer–that moment when I have an encounter with that (badly designed) door and I change the way that I think about myself, that is the everyday. *7.12302 Its not just about the door, but my interaction with the door, and it made me change the way I thought about myself. *7.12303 That is a critical moment, and relates to unit one. {7.112 7.122}

[7.12305] One chapter can touch on three different units. {7.123}

[7.124] B: mentions Norman-s mental models and examples. {7.123}

[7.125] Discussion about how the use of the Norman book is not set in stone despite that it was passed by the Senate. {7.12 5.076}

[7.126] C: The goal is for students to have critical thinking tools that they can use in any area that they go in to. {7.125 2.01401 3.087}

[7.127] D: Would like the students to abstract the idea of affordances. *7.12701 Gives example of affordance in survey design–the metaphors and language that the intended audience can grab to provide the required information. {7.126 }

[7.128] C: Which is the same idea as the students designing their exam. *7.12801 Would like students to henceforth (after this course) see exams differently. *7.12802 [Explains to R the team-s idea of the students team design of an exam on the big ideas as their midterm. {7.127 5.145 5.15}

[7.129] R: Mentions small projects (the midterm exam) that can be referred back to. *7.13 R: Agrees that the Lawson lacks examples. {7.128 7.124} _o{a}

- [7.131] C: Examples will be sought while doing the individual units. _p{7.129 7.06103}
- [7.132] Believe there is a general consensus to use the Lawson text. {7.096}
- [7.133] Unit 1(intro, what is design, what is designer, design in the world, the course): chaps 1, 2. {7.00404}
- [7.134] Unit 2 (design is all around us, explores how design helps us negotiate our lives.): 1, 2. {7.133 2.1380202}
- [7.135] U 1 and 2 may collapse together. {7.112 7.133 7.134}
- [7.136] Unit 3 (design is social):. {2.1380203 7.133} *7.137 design is a means of communication between people; *7.13701 the way design is done is social.
- [7.13702] Have to qualify what we mean by design is social. {7.136}
- [7.13703] Interaction between people; {7.13702}
- [7.13704] famous failures of design illustrate their social nature. {7.13702}
- [7.13705] Design affects real people. {7.13702}
- [7.13706] Relates to or foreshadows week 10 (design satisfies its audience). { 7.136}
- [7.13707] Week 10 should referencing back. { 7.13706}
- [7.13708] Should distinguish between the design process (Lawson unit 3) and the design artifact (unit 10) [R: International highway sign system—good e.g. of design as communication. {7.13707}
- [7.13711] C: will get students to examine why signs {7.136 7.13707}
- [7.13712] Chap 6 has hierarchy of criteria, which pulls in social levels. {7.136}
- [7.13713] Can introduce stakeholders. {7.13712 1.029 }
- [7.13714] R: good topic for [this university school]: e.g. the design of technology for meetings (covered in [program in this school]01). {7.13713}
- [7.13717] R: e.g. architectural entrance—also hits on Precedent—can link back to the activity -look at the precedent setting designs in your house-. {7.13714}
- [7.1372] Scale: those designs that mediate couples, as opposed to other social units: car seats, breakfast nooks, tables for 2, ichtat, text message. {7.13714}

[7.13721] Activity: Everybody text that person. {7.1372}

[7.13722] R: Connect to next unit (4) (design is historical): designs come from other designs, make sense in the context of other designs, can always learn from other designs. {7.13714}

[7.138] Unit 4 (design is historical): C: What Designers Know has chapter 8 on precedent. {7.136 2.1380204}

[7.13801] Not satisfied with examples. {7.138}

[7.139] Unit 5 (design enables understanding):. *7.13901 Focus on the designer. *7.13902 What are the things that you do that make you a designer. {2.13802051 7.138}

[7.14] Unit 6 (design invites inquiry): lumping parts of syllabus together. 1 and 2 are what is design. A shift after week 4. {7.139}

[7.141] re 5 and 6: Design enables understanding and design invites inquiry—what does design do? Here get into specifics, designers from different backgrounds; *7.14101 put on the designer lens. {7.138 7.139 7.112 2.1380206}

[7.14102] R: What does the designer do that others don't? How do they avoid traps? B: reflect on problem and solution. {7.141}

[7.14103] R: is this the right structure; {7.14102}

[7.14104] are there other ways to think about the problem; {7.14102}

[7.14105] are there other designs that will work just as well; {7.14102}

[7.14106] do we understand everything that we want this design to do; {7.14102}

[7.14107] are there other things that we want it to do—all questions about getting outside a box. {7.14102}

[7.14108] C: this is picked up in week 6—inquiry and perspectives—this is where the units can collapse. *7.14109 We hope the students will continue to ask questions. {7.14102 7.14}

[7.142] R: urban transportation; *7.14201 different perspectives have dramatically different solutions. *7.14202 Conservation is always the cheapest source of new energy. *7.14203 Got to look for examples here that have counter intuitive insights. *7.14204 03:19:01 [this may link logically back to the four week project]. {7.141}

[7.143] A model of design problems designers use models and processes to ask questions. *7.14301 If the model of design helps you pinpoint questions that you should be asking. {7.141}

[7.14302] re Urban transportation, isn't this where we start to get into the model of constraints? What do designers do that others don't: wouldn't some of those questions be about constraints? Chapter 6 is coming back again. *7.14303 This is design process, before collaborative process. *7.14304 chp 6 is a contender for unit 6. {7.142 }

[7.144] The chapter (8) on design thinking (cog sci, behaviorism) not appropriate for this course. May make the link, and that-s all. {7.098}

[7.145] R: Big lesson about the design process: it is nothing mysterious; *7.14501 you can work on it; *7.14502 you can become a designer, by learning how designers think and what they do, and practicing those skills. _i{R} {7.14102}

[7.146] Units 5 and 6 lumped together; *7.14601 utilizes chps 3,6,7 03:24:37 May have enough material for 2 units. {7.112 7.139 7.14}

[7.14602] R: One is about the artifact, and the other is about play with the idea as it goes forward; *7.14603 they are 2 sides of the same coin. {7.146}

[7.14604] C: we may see these as parts 1 and 2 and not separate. {7.14602}

[7.14605] When we get to unit 6, we have to be quite specific. {7.146}

[7.14606] The nature of questions, why we ask questions. {7.14605} *7.14607 We need to have some strategies that they can practices. *7.14608 They ask questions, evaluate questions, look at the artifact and it makes them ask more questions.

[7.14609] B: they also draw/sketch. {7.14606}

[7.1461] All of the tools revolve around asking critical questions. {7.14609 7.126}

[7.147] Unit 7 (process and collaboration): weeks 9, 10, 11, 12 set aside for project, 7 and 8 need to move into the team stuff; *7.14701 talk about the nature of collaboration. {7.146 2.00817 6.139}

[7.14702] -design is made by doing—kind of general. {7.147 2.1380208}

[7.14703] R: 2 overarching lessons: -design is made by doing-; *7.14704 -design is improved by talking about it—critical analysis; *7.14705 the 2 come hand in hand. {7.14702}

[7.14706] This might be something that you reinforce in every week; {7.14703}

[7.14707] the cycle of doing and critiquing—might be the biggest lesson in the course. {7.14706}

[7.14708] Everything they do in the course has that structure, and they are told about it at every opportunity. *7.14709 Therefore does not have to become its own unit. {7.14707} --i{R}

[7.1471] C: that would be built into the evaluation. {7.14707 7.14708}

[7.148] Unit 8. *7.149 Getting the teams ready to do the team project; *7.14901 already collaborating; {7.147 2.00817 6.139 2.1380209}

[7.14902] running along side is [program in this school]01—start with their individual communication styles, and then work into pairs, and then teams. *7.14903 When we start talking about conflict resolution, we start about working in teams in design. {7.148}

[7.15] R: where does the notion of disciplinary expertise come up?. {7.098}

[7.151] C: That is pretty generalized in [program in this school]. {7.15}

[7.152] D: Mentions the disciplinary-like division of work in the final project. {7.15}

[7.153] C: In their final papers they explore different stakeholders points of view and look at arguments and counter arguments. {7.15}

[7.154] R: The biggest reason you have design teams is that you need more than one kind of knowledge to get the job done. {7.153 2.1380209}

[7.155] C: design thinking cannot teach conflict resolution, time management and so on. {7.154}

[7.156] R: How do we give an example that brings this to the fore. {7.154}

[7.157] D: Was concerned that all the examples of -guiding principles- were architectural, then realized that all political parties have guiding principles, so this aspect of design thinking abstracts beyond the domain of architects. {7.098 7.156}

[7.15701] Important to cover the skills of design thinking. {7.154 7.157}

[7.158] C: Have to make sure there is a skill attached to each of the projects, so these design thinking skills can be distributed over all the units of the toolbox. {7.15 7.15701}

[7.15801] E.g. we know there is this idea of evaluation. {7.158}

[7.159] What are the primary 8 things that you need to do as a team to make this successful, how do we start here (i.e. unit 1—looking at themselves as design users in the world, what is their experience of the [train station] space? Then ask questions based on what they think they know, then moving through processes of doing research (supported by 101)—but what-s the toolkit? {7.157 7.113}

[7.15901] How do we break this down into tangible skills?. {7.159}

[7.16] B: combine 3 and 4, combine 5 and 6, thereby free up a unit, touch on social things. {7.148 7.112}

[7.161] C: for their evaluation, must have a week in which there is no new material. *7.16101 If we collapse too much, can we demonstrate that the remainder are demonstratively inclusive. {7.16}

[7.162] R: Assessment is very important. {2.138021}

[7.16201] At the end of the workshop session, they should be responsible for having something on line; *7.16202 they produce something. {7.162}

[7.163] C: if it is not assessed, it may not get the attention it needs. {7.162 }

[7.16301] We also have to think of the workload. {7.162 6.133}

[7.16302] I-m an advocate for peer assessment—ask and answer critical questions. {7.162 7.16301}

[7.164] NEXT WEEK. {7.00408}

[7.165] C: another crack at the objectives. {7.164}

[7.16501] Next week we can work on unit 1, collaboratively. {7.165}

[7.16502] How are we going to frame design? 10-2 next week. {7.165}

[7.16503] Read Lawson ch 1 and 2 and Norman 1, 2 and 6 for unit 1 for next week. {7.16501}

[7.166] D: put stuff into [repository at online college], folder for each meeting; {7.164}

[7.16601] get notes to C for Thursday meeting. _p{7.166 5.1691 6.089 } _o{s}

[7.167] R: The material for the folders can be looked at by someone toward answering the question: how could a repository support material of this kind?. {7.166}

[8.001] Design Thinking Meeting Notes: 7th May 2007.

[8.002] Present: C, J, B, S. {8.001}

[8.003] BEGIN SUMMARY. {8.001} *8.004 COURSE LEVEL. *8.005 Assumptions about critical thinking. *8.00501 - metaphor of tool kit, giving them some skill to apply to the final project; *8.00502 no new concepts in the final 4 weeks, rather, reviewing and integrating. *8.00503 - there is an element of student reflection. *8.00504 - Course activities will flow from individual, to institutional to community. *8.00505 From discussions about design in everyday life to design of the midterm, which is institutional, to the community project. *8.00506 - Everything has to relate to the student-s life. *8.00507 - assessment is of the ideas and the delivery of the ideas, but not assessing them on how the designed something. *8.006 Issues. *8.007 - Some of the big ideas might be saying the same thing. *8.00701 - -institutional- can be replaced by other words. *8.00702 - don-t know enough about actual process that we can map on. *8.00703 Tabled Ideas. *8.008 re: Do you keep that card hidden until after they have done the activity, or at the beginning- wait till we are putting the assignments together. *8.009 Resolutions. *8.01 - 1-4: general to specific. *8.01001 - 3, 7 and 9 connect. *8.01002 - Looking at concrete ways of demonstrating communication. *8.01003 Unit 1: me; *8.01004 unit 2 me in my home; *8.01005 unit 3 neighborhood. *8.01006 Signs that we agree on to be safe. *8.01007 Communication tools. *8.011 UNIT 1. *8.012 Resources: Buchanan concepts plus chaps 1 and 2 of both Norman and Lawson. *8.013 Skills and knowledge. *8.014 - Issue: do not want to overload students. *8.01401 Answer: Complete component in workshop. *8.01402 - Skill: apply course material to their lives; *8.01403 apply the strategies and processes; *8.01404 sketch draw map. *8.01405 Map home in terms of Buchanan concepts. *8.01406 - Skill: Able to answer -How do designs show evidence of the thinking that went into them?-. *8.01407 Issue: What kind of questions to you have to ask [to read a design that way]?. *8.015 Goals. *8.016 - - Learn and apply design thinking strategies and processes to interrogate the role of design in their everyday lives-. *8.01601 - we want them to learn some strategies, processes, then we want apply the strategies and processes, and then we want them to document their understanding of these processes through visual or written assignments. *8.01602 - I-m going to tag this word problem. *8.01603 - -apply collaborative and teamwork strategies to an iterative design process-. *8.017 Content points. *8.018 - Develop course intro. *8.01801 , look at home, space, interactions. *8.01802 Talk about constraints and affordances and use those terms and map them on to our assignments. *8.01803 - 1 Introduce course in terms of topic, overview. *8.01804 Goal: present overview in terms of content. *8.01805 - 2 Context: Logistics and mechanics of course: policies. *8.01806 WebCT, academic honesty, services, resources. *8.01807 Syllabus, reading, expectations, grading, assessment. *8.01808 Constraint: Everything has to matter to them. *8.01809 Issue: How to present design thinking and design in this way?. *8.0181 - Define role of design, designer (then can address parts of design thinking). *8.01811 Goal: define roles, process, context, then design thinking attributes, not necessarily common, but the union of attributes. *8.01812 Embrace all designers. *8.01813 The -attributes- of design, role of design, designer. *8.01814 Issue: alts

for -attributes-: characteristics, aims, arguments, concrete integration—difference between theme, argument and characteristic. *8.01815 - Demonstrate that 1. *8.01816 symbolic and visual communications; *8.01817 2. *8.01818 material objects; *8.01819 3. *8.0182 activities and organized services; *8.01821 and 4. *8.01822 complex systems or environments all serve each other. *8.01823 - -What do you think is a designer?- e. *8.01824 g. *8.01825 designing an interior. *8.01826 -Designer to client: What are your needs?- We need to see lots of process. *8.01827 re process: -When you approach an object, there-s a number of these levels of questions. *8.01828 At the simplest level you ask what is it, just what is this thing. *8.01829 And that was the origin of my design to get away from the black box where all the products looks the same and try to get them to identify what they are more effectively. *8.0183 Then in the next level you ask, how do you use it, can the product walk you through its use. *8.01831 -. *8.01832 - Design is an argument. *8.01833 - design as a body of measurable knowledge (expanded in Unit 4). *8.01834 - solving a problem is a key concept is a definition of design. *8.01835 - -Argument is the central theme that cuts across many technical methodologies employed in each design profession-. *8.01836 - Integration: -designers are exploring concrete integrations of knowledge that will combine theory with practice for new productive purposes, and this is the reason we turn to design thinking for insight into the new liberal arts of technological culture-. *8.01837 - to get at design thinking: first define design, roles of designers in different contexts. *8.01838 - meet the designers. *8.019 Assignment/workshop. *8.02 Map home in terms of Buchanan concepts. *8.02001 Make the familiar unfamiliar by deconstructing it. *8.02002 Sketch draw map out their living space—look at semantic relationship in their space—materials symbols activities that take place in their space—map out home as environment for living working playing and learning. *8.021 Issues. *8.022 the difficulty is defining design aside from the artifact. *8.02201 the written or visual product is proof that they have engaged in these strategies. *8.02202 -it-s the -assess-. *8.02203 re -adapt design thinking strategies to situations outside of the course—it-s one of those things we can-t measure. *8.02204 re: promotes understanding; *8.02205 generates discussion and critique – not sure about -critique-. *8.02206 -reflect on and articulate role of self as designer. *8.023 Tabled. *8.024 - re Learning outcomes: let-s take out the -gather and process information- – what about -generate-, is that the same as -gather-? -generate and gather-?– we-ll have to come back to that one. *8.02401 - -use critical thinking strategies to gather and process information about design problems— we have to be careful about -design problems- because that-s different for everybody—what-s the design problem. *8.02402 – I-m going to tag this word problem. *8.025 UNIT 2. *8.026 - the 2nd time around they can bring the camera. *8.02601 - Also we should be getting into terms like -affordances- -constraints- That stuff has got to be layered on to here as well. *8.02602 We could be introducing that stuff here [week 2?] when they go back to look at their house again. *8.027 UNIT 3. *8.028 - -the design holds the idea—the design does all the communicating of what their idea was—so -the design as communication-. *8.02801 - Understand the social significance of the communication. *8.02802 The big word is -communication- -design a set of instructions using signs that communicate. *8.02803 - I-m under the impression that talking about the social environ

outside of the house is a good idea. *8.02804 It-s the transition from the individual to the team. *8.02805 We mention all of these, but we say my focus is -design in the world-communicating information-. *8.02806 - but also design as a medium, and design as a process. *8.02807 - We-re going to look at that here [x] but we want to acknowledge it here [y] and it involves stakeholders; *8.02808 we-re going to focus on it, but we-re bring it up now, but want we want to focus on [here now] is this. *8.02809 That-s a way of framing it, because the same thing is going to come up again and again. *8.0281 And I think that if by week 3 its really important that we look at this idea of design in the world all around us every day. *8.02811 This is the focus. *8.02812 - Everyday example (stop sign). *8.02813 pedestrian, driver Example of system? Buchanan: system engineering, architecture, urban planning. *8.02814 - symbols as instructions- find some kind of sign to communicate an idea; *8.02815 maybe a collaborative activity by week 3, combining the signs; *8.02816 write a set of instructions. *8.02817 - design of layout of tables in a restaurant-mediates interactions. *8.02818 How many 2 and 4 person tables, where you put them, views. *8.02819 - design a set of instructions using signs. *8.0282 - What are other things besides sign that communicate meaning to other people, for example the shape of the chair communicates that I can sit into it. *8.02821 - this is design facilitating interpersonal communication. *8.02822 Which is different than the stop sign. *8.02823 I think we would need to look at ideas of implicit the communication the message is implicit and explicit. *8.029 UNIT 4. *8.03 - Historical: president generates knowledge. *8.03001 Not about the history of design. *8.03002 Eg. *8.03003 fridge, telephone-what are the elements that work? If last year your instructor gave you an A, what are you supposed to learn from that, take from that (week 4). *8.03004 - unit 4: looking at exploring design over time as precedent. *8.03005 E. *8.03006 g. *8.03007 the phone over time; *8.03008 the computer vs. *8.03009 calculator (about math); *8.0301 record player (playing or recording); *8.03011 TV; *8.03012 games; *8.03013 eye glasses [things they can go and research and write about]. *8.03014 - precedent (when something is so important or influential that everything after is measured against it, then what is there to learn-that embodies a kind of knowledge that can be used again and again) Or it measures right and wrong (Law-if there is no precedent, that can be problematic). *8.03015 - We get knowledge; *8.03016 put that back in process and design something else with the new knowledge. *8.03017 - design as a body of measurable knowledge- in the home it could be the refrigerator- What are the key components of the precedent setting telephone. *8.03018 The phone has only recently left our hand. *8.03019 - Issue: precedent-how would you show that in an interesting way in class or what is an interesting activity. *8.0302 - how did the technology change me. *8.03021 - the evolution of design over time [B: technological advances, component technologies, packaging; *8.03022 C: phones]. *8.03023 - What about trends We-ll come back to that. *8.03024 - fashion shifts are also cultural shifts in thinking and seeing the world. *8.031 END SUMMARY.

[8.032] S: re Instructional Design Process. *8.033 Shared assumptions: terms, activities, assignments, content. *8.034 Assumptions about critical thinking. *8.03401 gathering and processing information. *8.03402 how students will. *8.035 metaphor of tool kit, giving them some skill to apply to the final project. {8.001 4.102 3.05301 2.012 2.01401 5.03604

7.06 5.076 7.066 5.03602}

[8.036] C: Since the proposal stage, the concept of the course has changed from one of the big ideas being spread over 13 weeks to one of the ideas being presented early on, with a 4 week project and a midterm in week 9. {8.032}

[8.03601] Some of the big ideas might be saying the same thing. {8.036}

[8.03602] Do we have agreement on the first 8 week toolkit, and then they use the toolkit, and then they use the tool kit on the iterative project. {8.036}

[8.03603] No new concepts in the final 4 weeks, rather, reviewing and integrating. {8.03602}

[8.037] J: Do we still have that bookend thing going on? 00:04:51 Broad intro; *8.03701 middle: how one person would teach the course; *8.03702 at the end the students have enough in their toolkit to form their own perceptions. {4.146}

[8.038] C: I assume whoever is teaching the course will bring their perspective to all of the material. {8.037}

[8.039] J: But this is an explicit part in the course where the teacher is taking in the direction that they know, and letting the students know. {8.038}

[8.04] C: I did not see it that way. *8.04001 If I was teaching this course it would be about writing. {8.039}

[8.041] B: I think it was a stimulating discussion in the beginning that evolved into these big ideas. *8.04101 There are some units that can be flavoured with your own perspective. {8.039}

[8.042] J: To summarized: 3 equal parts: 1 perspectives, 2 particular perspectives—might be different according to the different instructors, 3 students form own perspective. {8.037} *8.04201 Maybe this fits that.

[8.043] C: Anyone teaching this will teach it through their own perspective anyway. {8.042} *8.04301 Not everyone will teach it the same.

[8.04302] The first 8 weeks needs to be a concrete toolkit. {8.043 8.03602} *8.04303 The instructor can still look at it from their own lens.

[8.044] J: It was more the explicitness—the instructor going: let-s look at how I-m framing this. {8.04302}

[8.045] C: I don-t remember that. {8.044 }

[8.046] B: As we get back to a normal schedule I think we will bring some of that focus back. *8.04601 Some good ideas came out of the last meeting. {8.045}

[8.04602] Some concrete examples of big ideas: ichtat, design is collaborative. {8.046 7.1372}

[8.04603] We want to connect now what we did in the past to what we will do in the future. {8.046} -p{}

[8.047] C: Let-s table that idea, because we want to create a course that is a skeleton that someone can tailor, not just a one off. *8.04701 We want to have a good solid foundation. -p{8.04603 8.037}

[8.048] J: It-s actually still there. {8.04701 8.037}

[8.04801] The first 4 weeks–design is a conversation, design is all around us, social interactions, historical–the big stuff. {8.048 7.133 7.136 }

[8.04802] Then it goes into what does that do in a specific sense, it enables us to understand something, enables us to question, to develop a process. {8.048 7.139}

[8.049] S.: *8.05 –We agree that there is an element of student reflection. {8.032 6.071 }

[8.05001] –Course activities will flow from individual, to institutional to community. {8.05 2.1380203}

[8.05002] From discussions about design in everyday life to design of the midterm, which is institutional, to the community project. {8.05001 5.14501}

[8.051] C: Everything has to relate to the student-s life. {8.049 3.052 2.024}

[8.052] J and C: discussion of how the term -institutional- can be replaced by other words. {8.05001}

[8.053] S.: *8.054 –assessment is of the ideas and the delivery of the ideas, but not assessing them on how they designed something. {2.01401 7.126 8.049 7.1461}

[8.055] J: Do we want to get them on the page that they are not going to be creating design artefacts. *8.05501 But hopefully in the activities they will reflect back and see that this is a design process that they have been doing. *8.05502 Rather than saying -you are going to design a midterm-, and then after the fact point out that what they did is design. {2.015 8.053}

[8.056] C: That raises an interesting point. *8.05601 They are designing. {8.055}

[8.05602] The thing we need to tackle in unit 1 is how the definition of design is so closely related to the thing that gets produced. *8.05603 But they will be doing design. {8.056}

[8.05604] In the final project they go through a design process to generate a list of questions to generate some recommendations. *8.05605 It doesn't have to be a thing, it can be more questions. {8.05602}

[8.05606] We frame this course in such a way that every design you do gets you to look back on your role here and what you are doing, but is not the same as say building a web site. {8.05605}

[8.057] J: We need to bring up traditional ideas of design, to show that what they are doing in this course is not traditionally seen as design. {8.05606}

[8.05701] Do you keep that card hidden until after they have done the activity, or at the beginning. {8.057}

[8.058] C: I would clearly frame that in the assignment objectives. *8.05801 -You will use this design process to- {8.05602}

[8.059] J: (With the hidden approach) The students would find their own way how to do it, and then see how that fits with ideas of design thinking. {8.05701}

[8.06] C: We have to wait till we are putting the assignments together. {8.059}

[8.061] B: We don't want to constrain ourselves. {8.059}

[8.062] J: What they do in an everyday context, frame that in a design context. {8.057}

[8.063] C: Examples: how do you behave in your home, interact, things you do in your home. {8.8.062 }

[8.06301] If we take a closer look at what we want to cover in unit 1 will help us with the first activity could be. *8.06302 Because they haven't done the readings yet—something that relates to their personal space. _p{8.06 8.062 7.165}

[8.06303] Week 2 exercise can look back at the process. {8.06301}

[8.064] J: 1st: Find a way to document your process, list of things to choose from, communicate that in a written form. *8.06401 Then look at how that maps on to these design processes. {8.062 8.06303}

[8.065] C: We need to get clear on what we need to cover. _r{8.06301}

[8.066] J: re Unit 1–Document the process of a design activity that they do in an everyday context. *8.06601 In week 2 point out how it is design. {8.064}

[8.067] C: This conversation is premature. *8.06701 The objectives will better inform the approach. *8.06702 We will not have the end products for them to compare and contrast; *8.06703 that will happen in the tutorials. _p{8.066 8.065}

[8.06704] Unit 1: Develop course intro. {8.067 7.16501} *8.06705 , look at home, space, interactions.

[8.06706] Talk about constraints and affordances and use those terms and map them on to our assignments. {7.16503 8.06704}

[8.06707] The unit topics get bigger. {8.05001 8.06706}

[8.068] J: reiterates: individual to social to historical. {8.06707}

[8.069] C: Looking at concrete ways of demonstrating communication. {8.06707}

[8.06901] Unit 1: me; *8.06902 unit 2 me in my home; *8.06903 unit 3 neighborhood. {8.069}

[8.06904] Signs that we agree on to be safe. {8.069}

[8.06905] Communication tools. {8.069}

[8.06906] Historical: president generates knowledge. {8.06905 2.1380204} *8.06907 Not about the history of design.

[8.06908] Eg. fridge, telephone–what are the elements that work? If last year your instructor gave you an A, what are you supposed to learn from that, take from that (week 4). {8.06907}

[8.07] B: Points out how signs affect how you solve a problem. {8.06904}

[8.071] S: set wall board with units 1-8 left to right, and top to bottom: concepts, readings, workshops; *8.07101 skills and knowledge; *8.07102 activities–workshop, assignment. *8.072 Different colors for different contributors. _p{7.165 8.049}

[8.073] C: unit 3: design some kind of sign that communicates an idea. {8.06707 7.136}

[8.074] C unit 4: looking at exploring design over time as precedent. {8.06707 7.138}

[**8.07401**] E.g. the phone over time; *8.07404 the computer vs. *8.07405 calculator (about math); *8.07406 record player (playing or recording); *8.07407 TV; *8.07408 games; *8.07409 eye glasses [things they can go and research and write about] –J: in terms of what does it do?. {8.074}

[**8.0741**] C: how did the technology change me. {8.074}

[**8.07411**] J: How does design build on precedent. {8.074}

[**8.07412**] C: We get knowledge; *8.07413 put that back in process and design something else with the new knowledge. *8.07414 -Design precedent: old knowledge + new knowledge = design-. {8.07411}

[**8.075**] C: Let-s go back to unit one and develop a process to go through the units. _p{7.165 8.071}

[**8.07501**] Unit 1: what is design thinking the concept, and what is design thinking the course. {8.075}

[**8.076**] [looking at books wrt unit 1]. _p{8.07501}

[**8.077**] B-s book on processes could be valuable because current literature has very little about actual processes. {8.076}

[**8.07701**] Everything is written by people from architecture. {8.077} *8.07702 A sign of the times: now people are not necessarily making things, rather: ideas, systems. *8.07703 Maybe that literature is the next phase.

[**8.078**] B: we-ve had architecture for thousands of years. {8.077}

[**8.079**] B: solving a problem is a key concept is a definition of design. {8.07501}

[**8.08**] -When you approach an object, there-s a number of these levels of questions. *8.08001 At the simplest level you ask what is it, just what is this thing. *8.08002 And that was the origin of my design to get away from the black box where all the products looks the same and try to get them to identify what they are more effectively. *8.08003 Then in the next level you ask, how do you use it, can the product walk you through its use. *8.08004 - –C: this was a glimpse of a designer talking about their process. {8.077}

[**8.08005**] gives a good idea of how to start. *8.08006 How do designs show evidence of the thinking that went into them. *8.08007 What kind of questions do you have to ask [to read a design that way]?. {8.08}

[**8.081**] C: Need process how to decide: Like strong enough to give to students to read, or summarize and put in the course material. {8.08005}

- [8.08101] S: Answer: presently just gather, then later decide what gets used. _p{8.081}
- [8.082] Unit 1. {8.07501 8.075}
- [8.08201] Intro. {8.082}
- [8.08202] 1 Introduce course in terms of topic, overview. {8.08201}
- [8.08203] Goal: present overview in terms of content. {8.08202}
- [8.08204] 2 Context: Logistics and mechanics of course: policies. {8.08201}
- [8.08205] WebCT, academic honesty, services, resources. {8.08204}
- [8.08206] Syllabus, reading, expectations, grading, assessment. {8.08201}
- [8.08207] Everything has to matter to them. {8.08201 }
- [8.08208] How to present design thinking and design in this way?. {8.08207}
- [8.083] B: Definitions of: role of design, designer. {8.08202} *8.08301 Then can address parts of design thinking.
- [8.084] C: is the commonality between designers what we present? We are interested in what they do to create. {8.083}
- [8.085] B: 1st: def roles process context, then design thinking attributes, not necessarily common, but the union of attributes. *8.08501 Embrace all designers. {8.084}
- [8.086] C: -What do you think is a designer?- {8.083}
- [8.08601] e.g. designing an interior. {8.086} *8.08603 -Designer to client: What are your needs?- We need to see lots of process.
- [8.087] C: (Unit_Goal=what are the attributes)?. {8.08203}
- [8.088] C: are there other words that we can use? Characteristics, [J] themes. {8.087}
- [8.089] J: -Argument is the central theme that cuts across many technical methodologies employed in each design profession-. {8.088} _o{i}
- [8.09] C: Difference between theme, argument and characteristic. {8.089}

[8.091] B: Integration: -designers are exploring concrete integrations of knowledge that will combine theory with practice for new productive purposes, and this is the reason we turn to design thinking for insight into the new liberal arts of technological culture- *8.092
alts for attributes: Characteristics, aims, arguments, concrete integration. *8.093 to get at
design thinking: design, roles of designers in different contexts. {8.088}

[8.094] This is where we (the students) can meet the designers. {8.091 6.108 2.01101}

[8.095] J: we need to address the design as the end artefact. {8.087}

[8.096] C: the difficulty is defining design aside from the artefact. {8.095 7.14602 2.00815
}

[8.097] J: -this- reading (-Discovering design- By Richard Buchanan, Victor Margolin):
There are 4 kinds of objects, all integrated. *8.09701 Makes it difficult to pull out designer
activities outside of those categories: 4: symbolic and visual communications; *8.09702
material objects; *8.09703 activities and organized services; *8.09704 complex systems or
environments. {8.012 8.096}

[8.09705] Still comes down to output. {8.097}

[8.098] C: all those happen in the home. {8.097}

[8.1] C: what about the kitchen and the dining room? social spaces {8.098}

[8.101] Buchanan becoming an important resource. {8.097 8.098 8.08207 2.024}

[8.102] B: working, living, playing and learning. {8.1}

[8.103] C: We are demonstrating that these things do not happen independently of each
other, but is service of each other. {8.097}

[8.104] C: re: In the home, or the university. *8.10401 Get them to eval home in terms
of these 4 things, they get a chance to do it again at the university level. {8.103}

[8.10402] (activity section) workshop=exploring design in your everyday life: some kind
of making of a map: space, tools, furniture. *8.10403 Taking core concepts ie Buchanan:
look at your home. {8.10401}

[8.10404] Make the familiar unfamiliar by deconstructing it. {8.10403}

[8.105] J: they start analysing what goes on in the home: the house would be a complex
system and architecture an environ that people are working playing in; {8.097 8.103}

[8.10502] what are the material objects in the house (cat 2); {8.105}

- [**8.10503**] cat 3: kitchen-cook a meal sort of things; {8.105}
- [**8.10504**] then see how materials and activities influence the design of the house. {8.105}
- [**8.10505**] Symbolically: what does the house mean-social status, need for central location. {8.105} *8.10506 Interconnectedness.
- [**8.106**] Unit 1: the 4 broads (broad areas); {8.082}
- [**8.10601**] readings: chaps 1and2 of both Norman and Lawson. {8.106}
- [**8.107**] B: re: recommended reading; {8.10601} *8.10701 bring ideas to class.
- [**8.108**] C: informs content for 1st lecture. {8.10601}
- [**8.10802**] re: skills and knowledge; *8.10803 do not want to overload students. {8.106 5.03603}
- [**8.10804**] Complete component in workshop. {8.106}
- [**8.10805**] Idea of reflecting; *8.10806 apply course material to their lives; {8.10804 8.049 }
- [**8.10807**] sketch draw map out their living space (look at semantic relationship in their space, (J: materials symbols activities that take place in their space)) map out home as environment for living working playing and learning; {8.10804 5.03602 8.10805 2.015} _o{i}
- [**8.10808**] [C: limited because of 1st week nature]. {8.10807}
- [**8.109**] C: will learn from spatial thinking course what materials to use-BandJ:pencil and paper. {8.10807} _i{C}
- [**8.11**] J : this was workshop activity at conf in Australia -recall the moment in your life when you got interested in grassroots media—draw that out; *8.11001 people were having to communicate personal moments—this idea of home is a point of discussion: personal. {8.10807}
- [**8.111**] C: re activity assignment: [B: age? transfer translate] good starter [B: promotes understanding; *8.11101 generates discussion and critique]. {8.10807}
- [**8.112**] C: not sure about -critique-; *8.11201 not worried about that; {8.111}
- [**8.11202**] engage student interest; {8.111}

[8.11203] because they are swamped, I like them doing something at a macro level, then in week 2 coming back and doing something with it at a micro level—come at that problem twice. {8.11202} *8.11204 1 and 2 can be together.

[8.11205] Show iteration. {8.111}

[8.113] B: the home is complex and thereby amenable to selecting issues. {8.10807}

[8.114] C: the 2nd time around they can bring the camera (show at open houses etc.) week 1: paper and pencil; {8.11203} *8.11401 week. *8.11402 2: mixed media.

[8.115] J: perhaps some do not want to talk about their home. {8.114}

[8.116] C: but we are not focusing on the people in the home, rather, the space. {8.115}

[8.117] J: don-t know if that is separable; {8.116} *8.11701 living is a place in town or space that they don-t want to talk about.

[8.118] C: I would lie. {8.117}

[8.119] J: your home or your future home. {8.118}

[8.12] C: doesn-t that pull it out of the everyday? Students ways of coping, this is university in the 2nd term We-re not going to their home to check their drawing are accurate. {8.118}

[8.12001] How they talk about it is what we are interested in. {8.10805 8.169}

[8.121] B: shopping mall. {8.115}

[8.122] C: then we are making a big leap; *8.12201 they have a place that they are in; *8.12202 we won-t ask like show us your big screen TV; *8.12203 we will ask more general things. {8.121}

[8.123] J: we are getting into material objects in the home; *8.12301 feels a bit off. {8.122 8.115}

[8.124] C: we don-t want to make assumptions. {8.123} --o{i}

[8.125] J: shared across all the students?. {8.124}

[8.126] C: it is something individual, something that they sit and work on. { 8.123}

[8.127] B: home can be house, apartment, dormitory. {8.114} *8.12701 some other country.

- [8.12702] Issues: social status; {8.127}
- [8.12703] can frame instructions sensitively; {8.12702}
- [8.12704] at end discussion can be held by volunteers. {8.12702}
- [8.128] J: re presented across whole class: someone may be reluctant to discuss where they live; {8.12704} *8.12801 someone else may brag.
- [8.129] C: this is adult school; {8.128} *8.12901 we had to go through hierarchies in high school; *8.12902 as long as our pedagogy keeps that in mind; *8.12903 we can-t do anything about the one student who decides mine is not good enough—it still happens in other classes.
- [8.12904] We will put this concern out to other people. _o{i} _p{8.115}
- [8.13] Talk about schedules and deliverables. {7.165 8.071}
- [8.131] Overview 1-4: general to specific; {8.106 8.13}
- [8.13101] C interested in precedent—how would you show that in an interesting way in class or what is an interesting activity. *8.13102 I love the idea of signs. {8.131 8.07412}
- [8.132] Everybody has the outline that S sent around. _p{4.172 8.131}
- [8.133] [S has been recording all of this (notes on board) down]. {8.132 8.071}
- [8.134] C: putting a bibliography. {8.13 8.132}
- [8.13401] Each set aside time and give book report—how it may be useful in specific ways—and if not useful, say that as well. {8.134}
- [8.135] Meeting set for Monday 14th May at 3-6pm. _p{} {8.13}
- [8.136] C: More than look at course map?; {8.132}
- [8.13601] [S:] general course flow and learning outcomes. {8.136}
- [8.137] Meeting set for Wednesday 30th 10am to 2pm. _p{} {8.13}
- [8.138] S: Course Goal: understand how design thinking strategies can be used to gather and process information and solve problems. {8.13601 }
- [8.139] C: change -solve- to -interrogate the designs that affect their everyday lives-. {8.138}

- [8.14] C: We-re giving them strategies to gather information and do research. {8.138}
- [8.141] C: There are other kinds of tools to process it and put it back out. *8.14101 writing mapping . *8.14102 Some method of collecting, some information on how to write or draw the final product to convey their message. {8.14}
- [8.142] B: apply out design strategies can be use together to process information. {8.14}
- [8.143] C: Learn and apply design thinking strategies to interrogate the designs; *8.14301 and probably want to frame what the designs are. *8.14302 or Interrogate the role that design plays in their everyday lives. {8.142}
- [8.144] B: I want to have -Design thinking strategies- like to see -roles- and I would like to see -the process- ; *8.14401 -everyday context- is also useful. {8.143}
- [8.145] C: We can t measure understanding. *8.14501 -Understanding- is a weak. {8.144 8.138}
- [8.146] S: re Goal: we can be concrete if you want. {8.138} *8.14601 It-s just sort of a broad.
- [8.147] C: So they learn and apply design thinking strategies (We re not using critical thinking, we re using design thinking) . {8.144}
- [8.148] B: -design process-. {8.147}
- [8.149] C: -design thinking processes- Lets use -processes- instead of -strategies-. {8.148}
- [8.15] B: -strategies and processes-. {8.149}
- [8.151] C: -to interrogate the role design plays in their everyday lives-; *8.15101 -the role of design in their everyday lives-?. {8.143}
- [8.152] S: -Learn and apply design thinking strategies and processes to interrogate the role of design in their everyday lives-. *8.153 Agreement. {8.151}
- [8.154] B: another iteration, but we can get feedback from 2 other people next time. _o{i} {8.152}
- [8.155] C: re Learning outcomes: let-s take out the -gather and process information-. {8.13601}
- [8.156] B: its okay to use -process- in the learning outcomes because the goal is high level; *8.15601 in learning outcomes its okay to go into details. {8.155}

- [8.157] C: what about -generate-, is that the same as -gather-? -generate and gather-?. {8.155}
- [8.158] B: -gather process and generate-. {8.157}
- [8.159] C: we-ll have to come back to that one. {8.157}
- [8.16] C: re -the 2nd one-, -demonstrate application of critical thinking strategies through a visual and/or written product- They have to demonstrate how they used a strategy, we re going to ask them to do it visually, but they will also have to write about it. {8.155}
- [8.16002] that-s what we evaluate; *8.16003 we-re not design teachers evaluating the design; *8.16004 we-re looking at the package—here-s the thing I made and here-s me talking about it. {8.16 2.01401 2.03105}
- [8.161] C: Demonstrate application of critical thinking strategies through visual and/or written—not -products-, -outcomes-?. *8.16101 demonstrate knowledge of critical thinking strategies (they-re demonstrating their knowledge of these strategies). *8.16102 (it-s the application part). {8.16002 }
- [8.162] S: cause I think I had -knowledge- before but then it was to do with the application. {8.161}
- [8.163] C: cause there-s 2 things: 1. *8.16301 we want them to engage in these design thinking processes, we want to apply them; *8.16302 the other thing is we want them to process that information in a way that we can evaluate it, or that somebody can look at it. {8.161}
- [8.164] S: so the written or visual product is proof that they have engaged in these strategies. {8.163}
- [8.165] C: and B: it-s the -assess-. {8.164}
- [8.166] C: there-s 3 components: there-s learning outcome, apply critical thinking strategies to what. *8.16602 Then we want them to. {8.163}
- [8.167] B: generate! visual or written. *8.16701 avoid using -product- and -artefact-. {8.161}
- [8.168] C: can we just use -assignment- or -activity- right now? We-ll word-smith it down later. _p{8.161}
- [8.169] C: they be demonstrating their understanding of the strategy the process, communicating it through some written or visual assignment, and then the other part which is the applying—it seems there-s a lot packed into this little. {8.164}

[8.17] S: maybe we need a couple of breaks in it. {8.169}

[8.171] C: cause there-s -using critical thinking strategies to gather and process information- There-s nothing about problems here, right? We-ve talked about problem solving strategies. {8.169}

[8.172] B: -use critical thinking strategies to gather and process information about design problems-. {8.171}

[8.173] C: we have to be careful about -design problems- because that-s different for everybody—what-s the design problem. {8.172}

[8.174] C: I-m going to tag this word problem. _p{8.161 8.168} _o{s i}

[8.175] C: we want them to learn some strategies, processes, then we want apply the strategies and processes, and then we want them to document their understanding of these processes through visual or written assignments. {8.166}

[8.176] B: 5 is good. *8.177 C: -reflect on and articulate role of self as designer-? B: yes; *8.17701 C: cool. {8.13601 }

[8.178] C: the overall learning outcomes: -adapt design thinking strategies to situations outside of the course-. {8.13601 }

[8.179] S: I know it-s been mentioned as a general goal, but it-s one of those things we can-t measure. {8.178}

[8.18] C: maybe we get rid of that one, and take 2 out of 2. {8.179}

[8.18001] The whole idea is if this is a FAS feeder course foundational in nature, it should take the skill and apply them elsewhere. {8.178}

[8.181] C: -engaging collaborative processes to complete an iterative design project—that-s the teamwork element, we have to have that. {8.13601 }

[8.18101] -complete- is a problem, because often things are not completed; {8.181} *8.18102 so -engaging collaborative processes to –something– in an iterative design- Should not be -project-, it should be about -process- something about an iterative design process. *8.18103 I would say -apply collaborative and teamwork strategies to an iterative design process-. *8.182 agreement.

[8.183] B: I like 3 and 5 now. {8.18101}

[8.184] C: this is going to change what the unit 1 stuff looks at; {8.18101} *8.18401 the course generally, the topics, may change a little bit, but not very much at this point.

[8.185] S: we talked about the learning activities and the instructional methods; {8.032 8.13601}

[8.18501] you may have something to add to that, and the topics will probably fluctuate a little bit. *8.18502 It was mostly getting at the goals and the learning outcomes. {8.185}

[8.186] C to S: when you send this back to us, can you send the whole document again?. -p{8.185} -o{}

[8.187] C: design is collaborative, but this [?] can live on its own for talking about team process; {8.18101 7.148 }

[8.18701] it makes sense in week 9 if they begin the 4 week process. {8.187}

[8.18702] It has to come up here [?] We have to be clear about -social-, if it-s social by nature, that has several implications: {8.18701 7.136}

[8.18703] 1. the way it-s done is social, but design is social in the way communication is facilitated [by the designed artefact]. {8.18702 }

[8.188] B: it-s a process which involves collaboration; *8.18801 it involves stakeholders; *8.18802 sometimes the relationship is of negotiation. {8.187}

[8.189] C: this has to talk about teamwork, stakeholders, and then interaction in social environments. {8.188 8.187}

[8.18901] We can say early on that the process is a team process. *8.18902 We-re going to look at that here [x] but we want to acknowledge it here [y] and it involves stakeholders; *8.18903 we-re going to focus on it, but we-re bring it up now, but want we want to focus on [here now] is this. *8.18904 That-s a way of framing it, because the same thing is going to come up again and again. {8.189}

[8.18905] And I think that if by week 3 its really important that we look at this idea of design in the world all around us every day. *8.18906 This is the focus. {8.131 8.18901}

[8.19] C: 3, 7 and 9 connect. {8.18905 7.147}

[8.191] C: I-m under the impression that talking about the social environ outside of the house is a good idea. *8.19101 It-s the transition from the individual to the team. {8.06901}

[8.19102] We mention all of these, but we say my focus is design in the world, communicating information. {8.19101 8.18901}

[8.192] B: person to person, or person to group. {8.19102}

[8.193] C: quote -the design holds the idea- He designs experiential interactive spaces–big libraries. *8.19301 Here-s the client their idea, the design and the end user. *8.19302 The design has their idea, the design does all the communicating of what their idea was, and these guys [end users] receive it. *8.19303 so -the design as communication-?. {8.19 8.06707 7.13708 }

[8.194] B: yes. {8.193}

[8.195] C: but also design as a medium, and design as a process. {8.193 2.00813 2.13802071}

[8.19501] If we look at examples: {8.193}

[8.19502] e.g. stop sign: me and the stop sign, others and the stop sign. {8.19501 5.09103} *8.19504 any design; *8.19505 what about a system? Everyday example (stop sign). *8.19506 pedestrian, driver Example of system?.

[8.196] B: Buchanan: system engineering, architecture, urban planning. {8.19501}

[8.197] C: your neighbourhood or on a larger scale. {8.19501}

[8.19701] The ikea instructions use pictures rather than words. {8.19501} *8.19702 How do you get something done; *8.19703 symbols as instructions. *8.19704 Giant TV, giant box with giant pictures. *8.19705 Ikea, icons.

[8.198] C: find some kind of sign to communicate an idea; {8.193}

[8.19801] maybe a collaborative activity by week 3, combining the signs; {8.198} *8.19802 write a set of instructions. *8.199 B: E.g. : design of layout of tables in a restaurant–mediates interactions. *8.19903 How many 2 and 4 person tables, where you put them, views. {8.198}

[8.2] C: design a set of instructions using signs. {8.193 }

[8.20001] Understand the social significance of the communication. *8.20002 The big word is -communication- -design a set of instructions using signs that communicate. *8.20003 - -design a social space-? -design a social space that requires. {8.193 8.198}

[8.20004] - Also we should be getting into terms like -affordances- -constraints- That stuff has got to be layered on to here as well. *8.20005 We could be introducing that stuff here [week 2?] when they go back to look at their house again. {8.20001 5.03603}

[8.20006] -design a social space that requires mediated audience. {8.193}

[8.20007] - What are other things besides sign that communicate meaning to other people, for example the shape of the chair communicates that I can sit into it. {8.20004}

- [8.201] B: from technology enhance the social side: text messaging, video conferencing. {8.20006}
- [8.202] C: will we be looking at the design of the text message or the phone?. {8.201}
- [8.203] B: or the ichtat. *8.20301 Technology itself enables this one to one communication. {8.201}
- [8.204] C: this is just a different point of view: this is design facilitating interpersonal communication. *8.20401 Which is different than the stop sign. {8.201 8.19502}
- [8.20402] I think we would need to look at ideas of implicit the communication the message is implicit and explicit. {8.201 8.204 8.193}
- [8.20403] [writes notes at board] And then we mean social as process. {8.20402 8.195}
- [8.205] C: in the history of tech course they will be analysing some piece of technology. {8.203}
- [8.206] C: what are some examples of precedence. {8.19501 8.13101}
- [8.20601] B: also the evolution of designs, different generation of designs. *8.20602 We have classifications of different designs different computers into generations of systems. {8.206}
- [8.207] C [writing]: one component [of design is historical] is the evolution of design over time [B: technological advances, component technologies, packaging; {8.20601 8.06906 7.138}
- [8.20701] C: phones] What about trends We-ll come back to that. _o{s i} {8.207}
- [8.208] B: you have trends in architecture. {8.20701}
- [8.209] C: fashion. {8.20701}
- [8.21] CandB: historical reduction of computer size; {8.20701} *8.21001 mainframe to laptop; *8.21002 smaller but more powerful.
- [8.211] C: fashion shifts are also cultural shifts in thinking and seeing the world. {8.209}
- [8.21101] Victoria and Edwardian homes. *8.212 design is historical: evolution of design over time; *8.21201 technological advances; {8.211 8.207}

[8.21202] precedent (when something is so important or influential that everything after is measured against it, then what is there to learn—that embodies a kind of knowledge that can be used again and again) Or it measures right and wrong (Law—if there is no precedent, that can be problematic). {8.206 }

[8.213] B: Design is an argument. {8.21202 8.089}

[8.214] C: design as a body of measurable knowledge. {8.21202}

[8.21401] B: stuff evaluated against it. {8.214}

[8.215] C: in the home it could be the refrigerator, because it hasn't changed much. *8.21501 There-s no precedent setting computer. *8.21502 What are the key components of the precedent setting telephone. *8.21503 The phone has only recently left our hand. {8.21202}

[8.216] C: its funny that we have nothing on unit 2 right now. _p{8.131}

[8.217] S: I-ve got it all copied down. _p{8.216} _o{}

[8.21701] The part that we are missing is skills. _p{8.216 8.131 8.18001}

[8.21702] If we define some basic objects when you come to put your lecture stuff together it will help. {8.21701}

[8.218] C: The skills will come when we learn more about process. *8.21801 I don-t know enough about actual process that we can map on. *8.21802 So this week we use the process of -x-. *8.21803 I don-t know what the exact skill. {8.21701 }

[8.219] C: I started finding news articles about the [train station]. *8.21901 If you see anything just copy it and I-ll stick it up. _o{i} {8.13601 6.139}

[9.0001] EMAIL _p{3.043 6.09501 7.10905 8.032 2.01902} Hi Team, Thank you for a very productive meeting. Here is a brief summary of action items and deliverables for next week and a summary of May Schedule adjustments: Action Items and Deliverables:

[9.0002] 1. Book Report Summaries: 1st hour of next meeting {9.0001}

[9.0003] B will present brief summary of Chapter 11 of Engineering Text and specific reasons how it may be useful for the course. He will bring copies if he can-t obtain a soft copy. {9.0002}

[9.0004] J will present a brief summary of Bill Moggridge text and specific reasons for its usefulness. {9.0002}

[9.0005] C will do the same with a summary of the Mitchel text. {9.0002}

[9.0006] Suggestion: S suggests that we write out our responses and hand them out for more focused discussion—like C did with her Unit 1 document. {9.0002}

[9.0007] 2. Continue ID work on Units 1 to Unit 4 {9.0001}

[9.0008] Come to the meeting next week with suggestions for Topics, Concepts, Skills / Knowledge and Assignments for the first 4 Units of the syllabus. (Use the work we did on Unit 1 as a guide for our process). {9.0007}

[9.0009] As well, highlight any terms that may be problematic, controversial, provocative, or slippery and any others we should begin to include in our Course List of Terms. {9.0007}

[9.00091] May Schedule Adjustments: {9.0001} *9.00092 Monday May 14th: due to scheduling conflicts, this meeting will be held from 3pm to 6pm. C will check with Sy to see if the [regular meeting room] is free. If not, she will book another room and contact the team. *9.00093 Wednesday May 23rd: Since Monday is a holiday, the meeting has been moved to Wednesday from 10am to 2pm. C will update on room availability. *9.00094 Thursday May 24th: Fall course show and tell. *9.00095 Wednesday May 30th: due to scheduling conflicts, the meeting will be held from 10am to 2pm on Wednesday. C will check room availability. *9.00096 BestC

[9.001] Design Thinking Meeting Notes: 23 May 2007. {9.0001} *9.00101 Present: C, B, J, S, D.

[9.002] BEGIN SUMMARY. {9.001} *9.003 ACTION ITEMS. *9.004 - we are to grab as much [train station] stuff as possible. *9.00401 - C to find out about []-s online research component. *9.00402 - J: will look at 2,3,4. *9.00403 - C: unit 1; *9.00404 +activities: map of activities wks 1,2; *9.00405 each wk til midterm, wk 4 timeline + written element; *9.00406 rest get ready for midterm. *9.00407 - D: 5 and 6. *9.00408 - B: 7 and 8. *9.00409 - Come back with: objectives for unit; *9.0041 B: main concepts for lecture; *9.00411 designer de jour; *9.00412 5 20-min blocks plan for 1 and 1/2 hours; *9.00413 includes: intro, designer de jour; *9.00414 activity; *9.00415 discussion; *9.00416 etc; *9.00417 format=paper written. *9.005 OVERALL READINGS. *9.006 - Constraint: Should be read in first 4 weeks, because they range back and forth with respect to the big ideas. *9.00601 Issue: the 2 books are piecemealed out, yet making the students read the whole thing is also problematic. *9.00602 - Book recommended by [] about people in the world and what they do—photographs of affordances that people unconsciously create—interesting with respect to 1st and 2nd unit assignments. *9.00603 - end of chapter 14 (Lawson) too advanced—could be optional. *9.00604 - Agreement: that they have readings from weeks 1-8 only. *9.00605 And then use the final part as reviewing, with no new material. *9.00606 Front loading for the 1st 2/3 of the course. *9.007 OVERALL RESOURCES. *9.008 - B bought the 20 min shopping cart video. *9.00801 - we are going for snapshots of different designers and looking at the process

they use to achieve different outcomes that students will experience. *9.00802 - designer de jour—limit it to FAS designers— we have to think about the types of design with respect to the [train station] project. *9.009 OVERALL FLOW, FOCUS, CONSTRAINTS. *9.01 - moving from private to the world community (unit 8); *9.01001 Re: private to community, C working on a concept map, so the activities for the midterm also move outward. *9.01002 - Design has a number of dialects: information architect; *9.01003 interaction design; *9.01004 the units talk about paradigms frameworks lenses and views; *9.01005 that [clips of designers] is a way of introducing these concepts; *9.01006 giving students a sense of how different designers would approach the same problem; *9.01007 doesn't hurt to go with it because it is easy to pull stuff back. *9.01008 - They have to have something every week that they are evaluated on. *9.01009 - In the write up of the activity we talk about constraints, so we are using that design language and applying it to what they are doing. *9.0101 - Midterm is to design an exam; *9.01011 evaluate another-s exam. *9.01012 - wk 2 instrumental individual aspect how we use something; *9.01013 then how we are part of systems—social, community; *9.01014 wk 4 cultural historical aspect. *9.011 UNIT 1. *9.012 Focus and Constraints. *9.013 need to introduce the instructional designer right away. *9.014 Reading. *9.015 Lawson-s little section on design education can work with the instructional designer. *9.016 Resources. *9.017 3 minute clip about interaction design; *9.01701 a great introduction; *9.01702 things that the students can relate to; *9.01703 puts a face to the ideas; *9.01704 your choices about things reflect you. *9.018 Assignment (units 1 and 2). *9.019 - unit 1 home doing=sketching drawing designing, 1 version 1st week, another version 2nd week—doing similar in spatial thinking: 3d sketch of living space, then look at how they represented things side by side in space. *9.01901 Most students will come with training in drawing. *9.01902 something tangible, product at the end. *9.01903 - in each workshop, what we would have to do to prepare them for midterm: scope is huge. *9.01904 - working backwards. *9.01905 - wk 1: close to home; *9.01906 content for lecture=intro to designer, how set up course; *9.01907 can we do this in class 2 hr workshop, if we specific about what we want them to do. *9.01908 - wk 2: they do something to change it, produce an iteration (can be on own as bigger proj). *9.01909 - wk 2: workshop=little quizzes. *9.0191 - wk 1: how does the design dictate how they move through the house; *9.01911 determine how many people fit in the space; *9.01912 determine public and private; *9.01913 or leave open—architect and product designer lenses. *9.01914 - space affects family structure; *9.01915 how family structure deploys artefacts in the space. *9.02 UNIT 2. *9.021 Assignment. *9.022 - week 2 quiz on material for class (couple of marks), intro particular kind of question; *9.02201 pg 8 cognitive domain of questions—knowledge, comprehension, analysis, application; *9.02202 e. *9.02203 g. *9.02204 (knowledge base questions) -what is a constraint- -what is an affordance- 5-10 of them; *9.02205 then: when you design this kind of question, what are you looking for?. *9.02206 - Maybe tools and appliances can be introduced in wk 2 when we talk about constraints and affordances. *9.023 UNIT 3 Design is Social. *9.024 Reading. *9.025 - Issue: We need to think about design is social and design is historical because Lawson falls short there; *9.02501 Norman doesn't help much there; *9.02502 J-s book may help. *9.02503 - The structure of constraints (Lawson) shows how design is historical;

*9.02504 how the historical aspects connect in a design process. *9.02505 - Book reviewed by J: Material about sociability. *9.026 Resources. *9.027 google as socially situated; *9.02701 this [google] may map onto []-s online research component; *9.02702 will find out about that. *9.028 Assignment. *9.029 different kind of quiz question. *9.03 UNIT 4 Design is Historical. *9.031 Resources. *9.032 piece by Bruce Sterling: future of cities–good for unit 4 historical. *9.033 Assignment. *9.034 over 4 weeks; *9.03401 they take those questions and model their own exam. *9.035 UNITS 5 and 6. *9.036 Focus and Constraints. *9.037 So re: the home the designers would be the architect; *9.03701 then the things in the home–meet a product and/or graphic designer. *9.038 Objective. *9.039 objective there is that the students there would have to realize that they as designers would have to ask certain kinds of questions. *9.04 Reading. *9.041 The structure of the design problem (Lawson) that structure can help the designer pinpoint the kinds of questions to ask [that-s a big idea] The designer can go through that model and say where is my knowledge lacking [what am I doing, why am I doing this, what am I going to get out of this; *9.04101 someone who is not a designer would just go through the activity]. *9.042 Resources. *9.043 found listening to the video irritating; *9.04301 students will not get the underlying thing, nor its witty clever banter; *9.04302 but we can indicate certain designerly questions. *9.044 Assignment. *9.045 - Then wks 5,6,7 they work as team to make the questions, write draft, give it to another team, quick review, take assessment, write another draft, prepare for wk 8. *9.04501 - Basic instructional design strategy phases: analysis, design, development, implementation, evaluation. *9.04502 (this is a model students can use). *9.04503 - Issue: when do you introduce the model? Other kinds of designers use similar kinds of models. *9.046 UNITS 7 and 8. *9.047 Reading. *9.048 Put: 16 as a review. *9.049 Assignment. *9.05 - what I like is giving them a paragraph that they have to analyse; *9.05001 if we got them to write a paragraph, that they are given feedback on by the TA–something to do with constraints–they have to do a strong enough job at describing–like how people give us information and we have to try to understand it so we can make choices about it. *9.05002 That can be part of their iterative process, the team writes up say part 3, we give them feedback, they revise that for their final exam; *9.05003 it doesn-t have to be a giant scenario, it could be a set of instructions. *9.05004 It could be tested by a team one week, and then they give that exam to a different team in the following week. *9.05005 - Then wks 5,6,7 they work as team to make the questions, write draft, give it to another team, quick review, take assessment, write another draft, prepare for wk 8. *9.05006 - Basic instructional design strategy phases: analysis, design, development, implementation, evaluation. *9.05007 (this is a model students can use). *9.05008 - Midterm: get an introduction to instructional design, try out a little bit, allow them to work collaboratively, allow them to do an iterative process–we take some of the mystique out of exams Issue: pros and cons of different kinds of questions. *9.05009 - unit 8[9?] class session, write an exam = review of course material from week 1-7; *9.0501 2 teams trade exams; *9.05011 people write exams 1hr or 45min; *9.05012 in 2nd hour discuss experience of writing exam–how long, did you finish, able to finish, hardest, easiest, . *9.05013 may have team who wrote the exam give them an answer sheet, and they can check their answers as part of the analysis. *9.05014 - workshop: work

on their assessment of the exam—this is what they are graded on; *9.05015 what kinds of questions did the team use, purpose, meet criteria (has to be a set of criteria: e. *9.05016 g. *9.05017 each worth 30 percent 1/3 multiple choice ,1/3 short answer, 1/3 long answer or analytical question. *9.05018 Which means earlier on we will have to show them theses kinds of questions. *9.05019 Every element has to be front loaded. *9.0502 - Will have to introduce instruction design right away when introducing the course—re intro to the course: discuss the course in the context of design. *9.05021 - Explain: assessment, standards, quality, how to set up an exam. *9.051 END SUMMARY.

[9.052] B: re Norman book: require students to read it in its entirety in the 1st 4 weeks, because it is all over the place. {5.105 5.076 9.0007}

[9.053] B: offers collection of key words that he collected, mostly from the Norman book. {9.052 5.165 5.136}

[9.054] C: shows book recommended by [] about people in the world and what they do—photographs of affordances that people unconsciously create. {5.17 9.0007 }

[9.055] J: mentions shopping cart video. {9.054}

[9.056] B: B bought the 20 min shopping cart video. {9.055}

[9.057] C: working on what would we have to do to make the students ready for the midterm, realized the scope and how it would have to be integrated into every week before hand. {5.15 7.128 8.032 9.054}

[9.058] D: The last chapter in the Lawson book is a kind of summary pretty well tells the students what they would have to include in their exams—model of design; *9.05801 summary of book. {9.057 7.06}

[9.059] C: the 2 books are piece-mealed out, yet making the students read the whole thing is also problematic. {9.052 9.058}

[9.06] D: quite a chunk of reading at the beginning. {9.059}

[9.061] C: they have to read; {9.06 5.089}

[9.06101] it-s big print; {9.061} *9.06102 Norman is not challenging therefore a little more massive;

[9.06103] B: university has volume of reading; {9.061}

[9.06104] C: they have workshops, so outside should be reading; {9.06}

[9.06105] they should have the time to read. {9.06104}

[9.062] C: (shows) U of T design course has 1,3,4,6, and 7 of Norman + The Idea of Design. {9.06}

[9.063] B: and C: the reading is not so much. {9.06}

[9.064] C: they don-t have to read every part of each book, but they have to get their money-s worth. {9.063}

[9.065] D: re Lawson. {9.059}

[9.06502] useful to bring up our intentions for the units. *9.06503 useful to indicate what Lawson was getting at in subsections. *9.06504 help to tie Lawson with question we are trying to answer. {9.065 7.06 7.132 7.10905 6.09501}

[9.06505] D: My opinion that at every step of the way the students should rehearse some aspect of the midterm, so when they get to the midterm it is just another performance. {9.06502 9.057}

[9.06506] D: We need to think about design is social and design is historical because Lawson falls short there. {9.065}

[9.06507] re social, supports the social nature of the design problem, but nothing about the social implications of a finished design {9.06506}

[9.065071] E.g., google hits the world and the world changes, or architects invent boring housing in skyscrapers and you get social problems. {9.06507}

[9.0651] Norman doesn-t help much there. {9.06506}

[9.06511] J-s book may help. {9.06506 8.22}

[9.06512] The structure of constraints shows how design is historical; {9.06502}

[9.06513] how the historical aspects connect in a design process. {9.06512}

[9.06514] Lawson strong on: design enables understanding and invites inquiry. {9.06502}

[9.06515] notes about 5 and 6, what do designers do that others don-t? answer: they ask certain kinds of questions. {9.06514}

[9.06516] The structure of the design problem (Lawson) that structure can help the designer pinpoint the kinds of questions to ask. {9.06515}

[9.066] [C: I think that-s a big idea]. {9.06515}

[9.067] The designer can go through that model and say where is my knowledge lacking. {9.06515}

[9.068] [J:what am I doing, why am I doing this, what am I going to get out of this; *9.06801 someone who is not a designer would just go through the activity]. {9.06515 7.121 7.14102}

[9.069] [C: this is for unit 6]. {9.06514 7.14}

[9.07] D: the objective there is that the students there would have to realize that they as designers would have to ask certain kinds of questions. {7.165 9.06514 7.109}

[9.07001] Unit 7 and 8 process and collaboration: I consider chapter 3 to be a reflection on the design process, so I shove chapter 3 at the end, because it is in a reflective mode [B: agrees]. {9.069 7.148 7.147 }

[9.07002] Chapters 10-12 are about thinking and skill. *9.07003 The kinds of thinking that designers use, their principles, strategies and tactics. {9.065}

[9.07004] re teamwork: Chapter 14 could be a fun time if we can get 1 or 2 of those design games: Lawson mentions some design game that illustrates in practice teamwork. {9.065 8.185}

[9.071] C: keep in mind that tech101 teaches teamwork, so we just need to put teamwork in context. {9.07004}

[9.072] D: that lightens the load of 7 and 8. {9.071}

[9.073] C: our course gives them the opportunity to use team process. {9.071}

[9.074] D: I also put chapter 15, which is also a reflection on the design process; *9.07401 how we bring these out as exercises will be interesting. {9.07004}

[9.07402] Put: 16 as a review. {9.065}

[9.075] C: are we agreeing that they have readings from weeks 1-8 only? And then use the final part as reviewing, with no new material. *9.07501 Front loading for the 1st 2/3 of the course? This course is unique in how it is structured. {9.052 6.09501 7.066 5.03604}

[9.076] D: If teamwork is handled by the other course, then 7 and 8 is a reflection on what they have already learned, plus the principles strategies and tactics. {9.071}

[9.07601] So I guess one thing is being added, should go in 7, and then 8 is reserved for reflection. {9.076 9.075 9.07402}

[9.077] C: Lawson talked a little about team formation, but does not give an example; *9.07701 its an overview; *9.07702 he talks about forming norming storming and performing, and we actually do that activity in the 1st 3 weeks, and they see their team going through those stages; *9.07703 if they read that in Lawson then they recognize it. *9.07704 Not really new information; *9.07705 helping them to reflect. {9.07601}

[9.078] D: end of chapter 14 too advanced—could be optional: views of the design process [C:] also noted that we will have to break some stuff down; *9.07801 we-ll be looking to par stuff down. {9.065}

[9.07802] C: Although it is front loaded, we will still come back to it during the big project]. {9.075}

[9.079] C: iterative, questions, proposal—they will have to research the problem—we are to grab as much [train station] stuff as possible; {9.07802 8.219 }

[9.07901] can-t have people come in and talk for every section; *9.07902 they will have to talk to stakeholders and ask questions. {9.079 6.135}

[9.08] D: they will have to know how to do that kind of research. {9.079}

[9.081] C: that-s going to be a problem. {9.08}

[9.082] C: there are other courses with a research element. {9.081}

[9.083] C: Today we will each choose a unit or 2 units to map out the key ideas, content, readings. *9.08301 What do you fit into 2 hours. _p{9.0001 6.08001 5.03602 }

[9.08302] When we do our individual unit mock-ups we will get a taste of if it is too much. {9.083}

[9.084] J: re designers asking questions, J shows video. {9.07}

[9.085] C: For the midterm, we wanted to introduce students to different kinds of designers; {9.084 9.057 8.094 }

[9.08501] if we continue of moving from private to the world community (unit 8)—the course is about them; {9.085 8.05001 } *9.08502 their awareness of and relationship to design—why should they care.

[9.08503] Re: private to community, C working on a concept map, so the activities for the midterm also move outward. *9.086 So re: the home the designers would be the architect; *9.08601 then the things in the home—meet a product and/or graphic designer. {9.08501}

[9.087] B: the civil engineer works for the architect, the mechanical engineer works for the product designer, the electrical is all over the place, software–phones etc. {9.08501}

[9.088] C: if we do this midterm, we need to introduce the instructional designer right away; {9.085 5.15}

[9.08801] by the time they get to unit 8 they have met different kinds of designer, and have thought about say what did the architect have to ask; *9.08802 We have to give them real people who do real jobs. {9.08501}

[9.089] D: Lawson-s little section on design education can work with the instructional designer. {9.088}

[9.09] C: found listening to the video irritating; *9.09001 students will not get the underlying thing, nor its witty clever banter. {9.084}

[9.091] J: but we can indicate certain designerly questions. {9.09}

[9.092] Book report by J. {9.0004 }

[9.093] Can download the chapters, chapters and video clip are on-line. {9.092}

[9.09301] Material about sociability in the forward and comes out in the examples; {9.092}

[9.09302] essentially stories being told by the designers themselves, their practical experiences, and can show the person speaking in the media clip. {9.09301}

[9.09303] J shows a 3 minute clip about interaction design. {9.092 8.22 3.043}

[9.094] C: a great introduction; *9.09401 things that the students can relate to; *9.09402 puts a face to the ideas; *9.09403 your choices about things reflect you. {9.092}

[9.095] J: Rest of the forward talks about what is good in interaction design, including implicit design versus explicit design: a car is implicit, while a fire system is explicit. *9.09501 There is a language to design–1d, 2d, 3d, 4d. {9.092}

[9.096] C: getting a bit specific; *9.09601 we are going for snapshots of different designers and looking at the process they use to achieve different outcomes that students will experience; *9.09602 that is why the video J showed is so relevant. {9.095}

[9.097] J: Design has a number of dialects. {9.096 9.085}

[9.098] D: I think we should include the information architect. {9.095 9.097}

- [9.099] J: we will come across a number of frameworks. {9.097}
- [9.1] B: we need to be careful about taking each too far. {9.099 }
- [9.101] J: the units talk about paradigms frameworks lenses and views; *9.10101 that [the above] is a way of introducing these concepts. {9.099 }
- [9.102] C: giving students a sense of how different designers would approach the same problem; {9.079 9.101}
- [9.10201] doesn't hurt to go with it because it is easy to pull stuff back. {9.102}
- [9.103] J: did not map this book to the units because it is example based, and we can pull from it depending on the examples; {9.09301 7.131 }
- [9.10301] e.g. there is a whole section on google—how information is being architected—middleman or big brother. {9.103 9.098}
- [9.104] C: we've got google as socially situated; *9.10401 it maps on unit 3?. {9.10301 7.136}
- [9.105] J: page rank is social because it is based on who links to any one site; *9.10501 google being a success story—could come with a price. {7.136 9.104}
- [9.106] C: this [google] may map onto []-s on-line research component; *9.10601 will find out about that. {9.105}
- [9.107] J: piece by Bruce Sterling: future of cities e.g. use of wireless and digital technology to produce piece in historical location; *9.10703 future in terms of problems ie Danube rising—global warming; *9.10704 will put the link up—good for unit 4 historical aspect; {9.092 7.138}
- [9.10705] can relate to/set up community project. {9.107 9.079}
- [9.108] D: feeling that we are getting muddled about where things go because the concepts are so interrelated. _p{9.10705 8.03601 7.123}
- [9.109] C: concurs; *9.10901 arbitrary to pull the concepts apart. {9.108} *9.10902 Difficulty with how the big ideas bleed into each other.
- [9.11] D: perhaps the idea of enabling them to practice will help us order things. {9.109 9.06505}
- [9.111] C: assignments give you a lot more clarity on content. {9.11}
- [9.112] B: the assignments and details are interdependent. {9.11}

[9.1113] C: re assignments. *9.11301 unit 1 home doing=sketching drawing designing, 1 version 1st week, another version 2nd week—doing similar in spatial thinking: 3d sketch of living space, then look at how they represented things side by side in space. {9.11 7.03}

[9.11302] Most students will come with training in drawing. {9.11301}

[9.11303] something tangible, product at the end. {9.11302}

[9.11304] in each workshop, what we would have to do to prepare them for midterm: scope is huge. *9.11305 working backwards. {9.11303 9.111 9.057}

[9.114] unit 8 class session, write an exam = review of course material from week 1-7; {9.11304}

[9.11401] 2 teams trade exams; {9.114}

[9.11402] people write exams 1hr or 45min; {9.114}

[9.11403] in 2nd hour discuss experience of writing exam—how long, did you finish, able to finish, hardest, easiest, .{9.114}

[9.11404] may have team who wrote the exam give them an answer sheet, and they can check their answers as part of the analysis. {9.114}

[9.11405] workshop:. *9.115 work on their assessment of the exam—this is what they are graded on; {9.114}

[9.11501] what kinds of questions did the team use, purpose, meet criteria (has to be a set of criteria: e.g. each worth 30 percent 1/3 multiple choice ,1/3 short answer, 1/3 long answer or analytical question. {9.115}

[9.11504] Which means earlier on we will have to show them theses kinds of questions. {9.11501 9.088} *9.11505 Every element has to be front loaded. *9.116 Will have to introduce instruction design right away when introducing the course—re intro the course: discuss the course in the context of design.

[9.117] Explain:. {9.11504} *9.118 assessment, standards, quality, how to set up an exam. *9.119 week 2 quiz on material for class (couple of marks), intro particular kind of question; *9.11901 pg 8 cognitive domain of questions—knowledge, comprehension, analysis, application; *9.11902 e.g. (knowledge base questions) -what is a constraint- -what is an affordance- 5-10 of them; *9.11905 then: when you design this kind of question, what are you looking for?. *9.11906 next week: different kind of question —over 4 weeks;

[9.11907] they take those questions and model their own exam. {9.117}

[9.11908] Then wks 5,6,7 they work as team to make the questions, write draft, give it to another team, quick review, take assessment, write another draft, prepare for wk 8. {9.11907}

[9.12] Basic instructional design strategy phases:. {9.117} *9.121 analysis, design, development, implementation, evaluation. *9.12101 (this is a model students can use).

[9.122] J: when do you introduce the model. {9.12}

[9.123] C: Other kinds of designers use similar kinds of models. {9.122}

[9.124] J: this is what I was getting at. {9.123}

[9.125] Midterm:. {9.114}

[9.126] get an introduction to instructional design, try out a little bit, allow them to work collaboratively, allow them to do an iterative process—we take some of the mystique out of exams. {9.125}

[9.127] pros and cons of different kinds of questions—e.g. multiple choice—business and math. *9.12703 contrast the driving test. {9.126}

[9.128] They have to have something every week that they are evaluated on in order to show up; {9.11304 9.125} *9.12801 so why not talk about it.

[9.129] In the write up of the activity we talk about constraints, so we are using that design language and applying it to what they are doing. {9.128 9.095 8.20004}

[9.13] The week of the midterm that is all that they do; {9.125}

[9.13001] is 4 weeks enough to do the project?.{9.13 }

[9.131] J proposes that they write a case study question for the midterm; {9.125}

[9.13101] use that to open up community project; {9.131}

[9.13102] e.g. Harvard business school case studies. {9.13001}

[9.132] S and C: that-s taking it to a whole other level. {9.131}

[9.133] C: its a lot of work; {9.132}

[9.13301] we can-t do it in a packaged exam; *9.13302 I like giving them something that may not have a cookie cutter answer; *9.13303 the team marking may say -We like that idea even though they didn-t say it the way we would- *9.13305 or having them answer something with questions. {9.132}

[9.134] B: you can expose them to aspects of case studies. {9.132}

[9.135] J: construct a scenario question that describes 4 constraints. {9.13301}

[9.136] D: that means we will have had to do all the research prior so they can receive the research and do the description. {9.135}

[9.137] B: case study take built-up knowledge. {9.131}

[9.138] J: one of the first things they will have to do with this is identify constraints and affordances. {9.135}

[9.139] C: we don-t have to decide this right now; _p{9.131}

[9.13901] C: they have to take responsibility for knowing the material; {9.131} *9.13902 we can give them the pedagogy for describing the process, whereas a case study would take more work, a lot of work;

[9.13903] but what I like is giving them a paragraph that they have to analyse; {9.13901} *9.13904 if we got them to write a paragraph, that they are given feedback on by the TA-something to do with constraints-they have to do a strong enough job at describing-like how people give us information and we have to try to understand it so we can make choices about it.

[9.13905] That can be part of their iterative process, the team writes up say part 3, we give them feedback, they revise that for their final exam; {9.13903}

[9.13906] it doesn-t have to be a giant scenario, it could be a set of instructions. {9.13905}

[9.13907] It could be tested by a team one week, and then they give that exam to a different team in the following week. {9.13905}

[9.14] J: the point is to get them to do it in advance so they are not hit with it in the exam. {9.13907}

[9.141] C: can have a scenario and ask them to identify the stakeholders (eg [train station]: police, passengers, people in mall.). {9.13903}

[9.142] C: do we want to go forward with this?. _p{9.125}

[9.143] D: its too good an idea to dump. {9.142}

[9.144] S: good reasons to do it, yet so much that we want to cover. *9.14401 love the idea. {9.142}

[9.145] B: each one of us take a unit and give objectives and outline readings, content, assignments. _p{9.083}

[9.146] C: K will join team. _p{9.145}

[9.147] C: at end of June we have to show what we have; {9.146}

[9.14701] 1-8 has to be solid; {9.146} *9.14702 an overview for the project.

[9.14703] Demo: say:. {9.14701} *9.148 4 key ideas for lecture, demonstrate it with this model, show a video clip of this, and do this. *9.14801 Have to explain the activities, that-s where we will be evaluated. *9.14802 What-s the activity they will be doing for them to get the content. *9.14803 That-s where we will need the most feedback: is it too hard, to much, is it scalable. _p{9.145}

[9.149] wk 1: close to home; {9.0007}

[9.14901] content for lecture=intro to designer, how set up course; {9.149}

[9.14902] can we do this in class 2 hr workshop, if we specific about what we want them to do. {9.14901}

[9.15] wk 2: they do something to change it, produce an iteration (can be on own as bigger proj). {9.0007}

[9.151] wk 2: workshop=little quizzes. {9.15}

[9.152] wk 1: how does the design dictate how they move through the house; {9.14901}

[9.15201] determine how many people fit in the space; {9.152}

[9.15202] determine public and private; {9.15201}

[9.15203] or leave open=architect and product designer lenses. {9.15201}

[9.153] Maybe tools and appliances can be introduced in wk 2 when we talk about constraints and affordances. {9.15}

[9.154] D: we can give them a question that they answer with a sketch; *9.15401 like show how people congregate. {9.152}

- [9.155] C: how versus where—don-t want stick people; *9.15501 every piece should have a written component; *9.15502 we can only critique the written. {9.154}
- [9.156] D: can trade drawings and tell if drawing answers the question. {9.155}
- [9.157] C: we have to be more explicit coming out of the gates. {9.156}
- [9.158] C: want to ask gut feeling what did the architect have to think about; {9.152 } *9.15801 microwave, dishwasher.
- [9.159] J: categorizing things in house. {9.158}
- [9.16] C: want meaty assignment so we don-t get stick people. {9.155}
- [9.161] J: [raises Bloom-s taxonomy :]. {9.16 9.12}
- [9.162] D: I believe they have to live the ideas that we are showing them, or recognize that they are living the ideas that we are showing them. *9.16201 The concept is naming something that they have had all along, rather than coming up with an empty concept and them filling it with stuff. {9.157}
- [9.163] J: but that-s what would be going on. {9.162} *9.164 J: family structure.
- [9.165] C: living by themselves; {9.162} *9.16501 sharing.
- [9.166] J: [deployment of family structure in space]. {9.163}
- [9.167] D: how the design of the space affects the sharing. {9.165}
- [9.168] C: how the family interacts in the space. {9.163}
- [9.169] J: space affects family structure; {9.168} *9.16901 how family structure deploys artefacts in the space.
- [9.17] B: designer de jour. {9.102 9.096 9.085}
- [9.171] C: limit it to FAS designers. {9.17}
- [9.172] B: make lecture least dull. {9.17}
- [9.173] C: could have 2 designers {9.17}
- [9.174] C: can we subset designers? e.g. game subset of product. {9.17}
- [9.175] D: they have different sets of constraints. {9.174}

- [9.176] C: we want to appeal to our people. {9.171 3.052}
- [9.177] D: instructional design is communication in spades. {9.171}
- [9.178] C: information design. {9.171}
- [9.179] B: information and management systems is a faculty of business. {9.178}
- [9.18] C: we have to think about the types of design with respect to the [train station] project. {9.17}
- [9.18001] B: urban planning; *9.18002 civil engineer. {9.18}
- [9.181] C: we have enough to start building a course; _p{9.083}
- [9.18101] what is the next step?; {9.181}
- [9.18102] only 1st year students; {9.181}
- [9.18103] only 2hrs/week contact time. {9.181}
- [9.182] got readings; {9.181}
- [9.18201] can map out activities; {9.181}
- [9.18202] 2-7 quizzes; {9.181}
- [9.18203] unit 4 opportunity for team visual storyboard or time lines of particular technology and how changed over time—what problems arose that made it change, and what elements are still the same. {9.18101}
- [9.183] Each take a unit and think about objectives, key concepts (4 max in an hour)—15 to 20 minutes per concept. _p{9.18101}
- [9.184] D: I think we should be minimal, because they are not just concepts to memorize, they are concepts to feel; {9.183} *9.18401 they have to practice the design in order to perform their exam and project.
- [9.185] C: examples video clips activity, later harder stuff comes in. {9.18101}
- [9.186] Unit 2: idea of where language comes in. {9.18101}
- [9.187] B: can see constraints in units 5 and 6. {9.18101}

[9.188] C: We each take a unit, do the reading as if you were a student, what are the key themes, pick 4 objectives (15 min each),. _p{9.18101}

[9.189] D: remind: units 1and2 5and6 7and8 bound together; *9.18901 the ideas were so deeply related that they were covered together over 2 units. {9.188}

[9.19] J: re focus: wk 2 instrumental individual aspect how we use something; *9.19001 then how we are part of systems–social, community; {9.186}

[9.19002] wk 4 cultural historical aspect. {9.19}

[9.191] J: will look at 2,3,4. _p{9.183}

[9.192] C: unit 1; *9.19201 +activities: map of activities wks 1,2; *9.19202 each wk til midterm, wk 4 timeline + written element; *9.19203 rest get ready for midterm. _p{9.183}

[9.193] D: 5 and 6. _p{9.183}

[9.194] B: 7 and 8. _p{9.183}

[9.195] C: Come back with: objectives for unit; _p{9.183}

[9.19501] B: main concepts for lecture; {9.195}

[9.19502] designer de jour; {9.195}

[9.19503] 5 20-min blocks plan for 1and1/2 hours; {9.195}

[9.19504] includes: intro, designer de jour; {9.19503} *9.19505 activity; *9.19506 discussion; *9.19507 etc;

[9.19508] format=paper written. _p{9.195}

[9.196] Need to talk about getting ready for webCT. _p{9.19508}

[9.197] C: How should we organize this information?. {9.196}

[9.198] D: [need to develop a use case for this; {9.196} *9.19801 describes a use case; *9.19802 need to answer: what does a user of [the repository] want to get].

[9.199] C: proposes that information is structured like the course structure. {9.197}

[9.2] C: we can use the topic concepts as tags–still need to know what skills and knowledge for each lecture–can go to skills tag to get all the skills. _p{9.199} _i{}

[10.001] Design Thinking Meeting Notes: 070604. *10.002 Present: B, D, J, K. *10.003 Agenda: Units 4-8 and Project.

[10.004] SUMMARY {10.001} *10.005 ACTION ITEMS. *10.006 - B: Bertoline-s book available online; *10.00601 B looking into copyright issues. *10.00602 - D B: D Porters article about agile development in instructional design. *10.007 RESOURCES. *10.008 - Bertoline-s book available online. *10.00801 - engineering book [lent by Rob] has plenty of good examples. *10.00802 - ideal movie, nightline, process, ABC news gave design shopping cart, 20 minute video. *10.00803 - video -mother takes a holiday-. *10.00804 - documentary: -the bridges of new york-. *10.00805 - the machine is us/ing us (ISSUE security throttling use of online video). *10.00806 - video of google design. *10.009 UNITS 5 AND 6. *10.01 RELATIONS:. *10.011 e bring up google in unit 3; *10.01101 prior course -tech in every day- deals with similar issues. *10.012 CONCEPTS:. *10.013 c1 Designers search for design problems. *10.014 c2 The solution probes the problem. *10.015 c3 Crisis or failure creates opportunities for design. *10.016 c4 Designers ask questions. *10.017 dif between -c2 The solution probes the problem- and -c4 Designers ask questions-: asking questions is about identifying critical constraints; *10.01701 whereas c2 may reveal new aspects of the problem that don-t relate to the design artifact per se: e. *10.01702 g. *10.01703 cel phones invoking car accidents—the initial constraints/questions likely never included car accidents. *10.018 re c1. *10.019 - use video (-mother takes a holiday-) as review of 1-4, plus intro to c1 -Designers search for design problems-; *10.01901 put at beginning of U5. *10.01902 RELATION: project should be introduced here. *10.01903 (ACTIVITY: even as individuals they can keep a notebook about public transportation observations— when they get together as a team they will be ready; *10.01904 they-ll have a lot of stuff written down). *10.01905 - re google and privacy: these are big sprawling questions—can lead discussion away from design process; *10.01906 the other side of the debate is that it hits them where they live. *10.02 re c2. *10.021 the bridges of new york: esthetic and economic/politically-popular drives to lighten up bridge structure; *10.02101 Lindenthal-s student, Moisseiff, took these principles (constraints) too far in the Tacoma bridge. *10.022 re c3. *10.023 need for airbag, or the way it was designed?. *10.024 use examples for:. *10.02401 - problems solving vs. *10.02402 opportunity (not necessarily a problem). *10.02403 - innovation problematizes what is not necessarily; *10.02404 failure determines function: palm pilot—handwriting recognition failed – have video in Magrage (sp?) text. *10.025 students brainstorm about public transportation irritants—identifying failures that could be grounds for redesign. *10.026 UNIT 6. *10.027 re c4. *10.028 - could take up a whole class, because has both Norman and Lawson constraints. *10.02801 - problems become articulated in terms of constraints, depends on the kind of solution; *10.02802 part of the big objective is one problem can be articulated in terms of different constraints; *10.02803 haven-t really addressed that. *10.02804 - the upass has many of the kinds of constraints— good lead-in to this community. *10.02805 - re throwaway design: planned obsolescence – less environmentally friendly to produce a Prius?? than a Hummer (which has longevity). *10.029 ACTIVITY. *10.03 oulipo literature experimental lit: e. *10.03001 g. *10.03002 book without letter -e—generative rule; *10.03003 Norman: talks about rhyming as a constraint; *10.03004 game students could

play?; *10.03005 yes; *10.03006 constraint not negative. *10.031 UNIT 7. *10.032 - Theme of this lecture: 3 flavors of processes; *10.03201 design process depends on the perspective of the designer. *10.03202 - unit 7 is the abstraction of design; *10.03203 what-s the difference between the plan and the doing? the debate: is design in the planning or in the doing. *10.033 - re block 4: Verplank video very good. *10.03301 - re rest: contrast between examples and Lawson generalized account. *10.034 ACTIVITY. *10.035 reverse designing; *10.03501 we have 2 types of design: students reverse design into the models, e. *10.03502 g. *10.03503 Verplank-s process; *10.03504 which one is the most likely way the object came about? -ISSUE: 1st years capable? success is not necessary; *10.03505 no sense of failure, no exact process - They could create a brief scenario of how the idea may have been generated: a brainstorming session, or someone on a train-not to get overly technical or detailed, just speculation. *10.03506 should have a list [of analysis categories] to choose from, instead of trying to brainstorm. *10.03507 It should be a single example or object that they would look at, not spend time trying to choose; *10.03508 engineering book [lent by Rob] has plenty of good examples. *10.036 UNIT 8. *10.037 RELATIONS. *10.038 relates to U6: design solution probes the problem; *10.03801 shopping cart video pops up in unit 1. *10.03802 unit 8 is a synthesis of all previous-re ACTIVITY: if twice, students can answer more sophisticated questions about it the second time-questionnaire after the first time, and then the same questionnaire later. *10.039 DEBATE:. *10.04 - distinction between planning and doing in unit 8. *10.04001 - re doing: feedback, things happening in parallel. *10.04002 - how quick is the feedback-is that the difference be planning and doing; *10.04003 which takes us back to Norman. *10.04004 - process is an abstraction; *10.04005 in reality cannot separate events discretely; *10.04006 too abstract for practicality: this issue is solved by rapid prototyping. *10.04007 - some things cannot be agile: e. *10.04008 g. *10.04009 something that takes 100s of millions to manufacture. *10.0401 - get them to think about what works in agile vs. *10.04011 else. *10.04012 - re agile: Depends on the nature of your resources to be agile; *10.04013 need buffer to make mistakes. *10.04014 - giant structure can-t have true innovation vs. *10.04015 success of green architecture in China because of toleration support; *10.04016 people try to build more agile methods into large organizations-decisions around process, to get the best of both; *10.04017 IBM knew about the dot. *10.04018 com crash ahead, and planned for it- they could not steer quickly, but they could see far enough ahead. *10.04019 - how do we talk about what we are doing so that others can learn from it. *10.041 ideal movie, nightline, process, ABC news gave design shopping cart, 20 minute video. *10.042 COMMUNITY PROJECT. *10.043 model-theme:. *10.044 design competition; *10.04401 mutation sharing mobility. *10.04402 RELATIONS: 3 themes relate to Moggridge text Terry Winnigrad metaphors of interaction with digital environments: manipulation=manipulation, mobility=locomotion, sharing=communication; *10.04403 tie back to previous language. *10.04404 : re manipulation: building the city over the city relates to bruce sterling stuff, balgrade-eg wireless over old buildings. *10.045 AGREEMENT:. *10.046 these modalities make it not only about urban design. *10.047 output=concept proposal that has written, visual, diagram (demo function), foundational principle-how they produced, how solved, what assumptions.

*10.048 ISSUE:. *10.049 re process, archival documentation (blog), as well as output: red-flagging getting them to step back from process, but J has had success; *10.04901 J: yes, but not sure how well it would go over with 1st years; *10.04902 put that into a constraint for them: e. *10.04903 g. *10.04904 doc process to blog. *10.04905 How well can the media document the process; *10.04906 but that-s ok; *10.04907 can address ongoing over 4 weeks; *10.04908 some of these can be done through an in-class exercise; *10.04909 part of the task is to find way to doc process; *10.0491 key part of design is ability to transfer knowledge. *10.05 - re poster, review: : before poster: internal competition, play-offs – 70+ teams; *10.05001 get the best (TA), then those evaluated (panel), themselves also vote (J: no French judges); *10.05002 short list exhibited. *10.05003 - nice to invite say mayor (and other stakeholders) to be on jury. *10.05004 - winning entries get formal award. *10.051 - there should be frequent reporting structure. *10.05101 - introduce the project early on units 5 and 6– there is that transportation exercise, could be introduced there. *10.05102 - should be mandated that they do a face to face presentation in class. *10.052 TERMINOLOGY. *10.053 (unit 7) plan; *10.05301 process; *10.05302 reverse engineering; *10.05303 reverse design; *10.05304 reflection in action; *10.05305 reflection on action; *10.05306 agile software development (design by doing) vs. *10.05307 rational unified process. *10.05308 re agile: incremental implementation. *10.054 END SUMMARY.

[**10.055**] B: [presented updated version of readings for 7 : -Unit 7 content template June042007.doc-]. {10.001 7.02422 9.194}

[**10.056**] Bertoline-s book available online; {10.055}

[**10.05601**] B looking into copyright issues. {10.056}

[**10.057**] One activity: reverse engineer. {10.056 6.178 6.104}

[**10.058**] D: reverse design has been used as a method of researching the design process. {10.057}

[**10.059**] Terminology: reverse engineering vs. reverse designing. {10.058 }

[**10.06**] Activity: (reverse engineering). {10.058}

[**10.061**] J: students outline a hypothetical design process. {10.059}

[**10.062**] J: we have 2 types of design: students reverse design into the models, e.g. Verplank-s process; *10.06203 which one is the most likely way the object came about?. {10.061}

[**10.063**] Issue:. {10.061} *10.064 D: 1st years capable?.

[**10.065**] J: success is not necessary. {10.063}

- [10.066] B: no sense of failure, no exact process. {10.065}
- [10.067] J: e.g. Lawson. {10.066}
- [10.068] B: Analysis, design, synthesis. {10.066}
- [10.069] D, J: too general. {10.068}
- [10.07] J: could they take the -plan of work-?. {10.061}
- [10.071] J: They could create a brief scenario of how the idea may have been generated: a brainstorming session, or someone on a train—not to get overly technical or detailed, just speculation. {10.07}
- [10.072] re block 4: Verplank video very good at simultaneous writing, talking, drawing. {10.062}
- [10.073] re rest: contrast between examples and Lawson generalized account. {10.072}
- [10.07301] Theme of this lecture: 3 flavours of processes; {10.055 9.096}
- [10.07302] design process depends on the perspective of the designer. {10.07301}
- [10.074] J: What about Jane Darcy-s (sp?) design process: primary generator. {10.07302}
- [10.07401] seems like an extension of analyse, synthesize, evaluate. {10.068}
- [10.075] J: use of scenario where the main thing is analysis, or use on a scenario where the main thing is evaluation; {10.071}
- [10.07501] how would evaluation happen?. {10.075}
- [10.076] D: I think they should have a list to choose from, instead of trying to brainstorm; {10.062 10.07501}
- [10.07601] perhaps they could brainstorm a list first, and then apply the list after. {10.076}
- [10.07602] They won-t have our kind of experience to generate a list. {10.07601}
- [10.077] J: It should be a single example or object that they would look at, not spend time trying to choose; {10.075}
- [10.07701] one that we could map out ahead of time. {10.077}

[10.078] B: mentions an engineering book [lent by R] that has plenty of good examples: paper clip, pen. {10.077}

[10.079] D: I think we should speak with examples; {10.078 9.184 }

[10.07901] as soon as we speak more abstractly, they would be lost. {10.079 7.061}

[10.08] J: this unit 7 is the abstraction of design; {10.07901}

[10.08001] what-s the difference between the plan and the doing?. {10.08}

[10.081] B: unit 8 is a synthesis of all previous. {10.001}

[10.082] J: the debate: is design in the planning or in the doing. {10.081 10.08001 6.163 }

[10.083] D: re reflection in action: mentions a very visceral video game that ultimately could only be evaluated -in action- –doing; {10.082}

[10.08301] also, how do you learn to snowboard: snowboarding videos and or games; {10.082}

[10.08302] EA game design developer; {10.082}

[10.08303] B: bike riding. {10.08301}

[10.084] Terminology: (unit 7) plan; {10.055}

[10.08401] process; {10.084}

[10.08402] reverse engineering; {10.084}

[10.08403] reverse design; {10.084}

[10.08404] reflection in action; {10.084}

[10.08405] reflection on action; {10.084}

[10.08406] agile software development (design by doing) vs. rational unified process. {10.084 3.087 }

[10.085] D: mentions [...] article about agile development in instructional design. {10.08406}

[10.086] INGREDIENCES OF U8 DEBATE ABOUT PROCESS. {10.081}

- [10.087] J: reiterates the distinction between planning and doing in unit 8. {10.082}
- [10.088] B: re doing: feedback, things happening in parallel. {10.087}
- [10.089] J: how quick is the feedback—is that the difference be planning and doing; {10.087}
- [10.08901] which takes us back to Norman. {10.089 5.07803}
- [10.09] K: re process: acting, reacting. {10.08401 10.086}
- [10.091] B: but process is an abstraction; {10.09} *10.09101 in reality cannot separate events discretely.
- [10.092] J: plan as abstraction of design process; {10.091 10.08}
- [10.09201] too abstract for practicality: this issue is solved by rapid prototyping. {10.092 10.08406}
- [10.093] D: relates to U6: design solution probes the problem: these 2 units play off each other (8 and 6). {10.09 7.14 6.128}
- [10.094] D: re agile: incremental implementation—machine has been working all along. {10.09201}
- [10.095] D: some things cannot be agile: e.g. something that takes 100s of millions to manufacture. {10.094}
- [10.096] J: good to get them to think about what works in agile vs. else. {10.095}
- [10.097] D: that-s why car development moves in very small increments. {10.095}
- [10.098] J: fashion is agile. {10.096}
- [10.099] D: depends on resources of designer (e.g. garment with 10,000 sequins—commitment of resource) Depends on the nature of your resources to be agile. {10.098 10.096}
- [10.1] J: virtual 3d modeling of building vs. physical model. {10.096}
- [10.101] D: global marketing; {10.096} *10.10101 entities can out-agile each other by having the resources to carry it off.
- [10.102] J: buffer to make mistakes. {10.096}
- [10.103] D: Microsoft-s strategy waits for others to risk and prove what is successful in the market, and then buys them (or enters the same market with more resources). {10.101}

[10.104] D: takes resources to play with risk; *10.10401 illustration: poker game—with deep pocket you can scare everyone else out of the game. {10.102}

[10.105] K: giant structure can-t have true innovation. {10.096}

[10.106] D: success of green architecture in China because of toleration support (5000 industrial designers in USA, and 200,000 in China). {10.105}

[10.107] J: but can-t do a web search in China without censors. {10.106}

[10.108] J, D, B: reiterate U8 thoughts to K. {10.081}

[10.109] re: reverse design: D: we-ve been doing that since the first day; {10.058}

[10.10901] J: we-re just giving it a name at this point. {10.109}

[10.11] [K needs access to [the repository]]. {10.108}

[10.111] B: re U7 block 5: FAS designer de jour-s design process: video, interview, class visit. {10.055 9.171}

[10.112] D: people rarely get formal unless they are forced to as in a big project. {10.091 }
}

[10.113] J: how do we talk about what we are doing so that others can learn from it. {10.112}

[10.114] D: small companies rarely do: deliberately postpone committing to a solution until all the alternates are generated and formally compared, with formal methods of agreement; {10.113}

[10.11401] when DO such methods get practiced; {10.114} *10.11402 there is a certain magnitude where process becomes more and more important.

[10.115] K: documentation. {10.11401}

[10.116] J: steering a ship; {10.11401}

[10.11601] why people leave big organizations—they can work on their own stuff. {10.11401}

[10.117] K: people try to build more agile methods into large organizations—decisions around process, to get the best of both. {10.11401}

[10.118] D: IBM knew about the dot com crash ahead, and planned for it, and sailed through; {10.116 10.104} *10.11802 they could afford the sensory mechanisms (intelligence).

- [10.119] B: they had a balanced portfolio. {10.118}
- [10.12] D: they could not steer quickly, but they could see far enough ahead. {10.118}
- [10.121] B: ideal movie, nightline, process, ABC news gave design shopping cart, 20 minute video. {9.056}
- [10.122] J: pops up in intro in week 1. {10.121}
- [10.123] B: use twice. {10.122}
- [10.124] D: if twice, students can answer more sophisticated questions about it the second time. {10.123}
- [10.125] J: questionnaire after the first time, and then the same questionnaire later. {10.124}
- [10.126] K: like that idea. {10.125}
- [10.127] D: re 5 and 6 [presents by writing notes on paper taped to the wall because thoughts differed from printed version]. {10.001 9.193}
- [10.128] [see:]. readings: re Lawson chap 6 constraints coincides with Norman-s constraints; {10.127}
- [10.12901] design process also differs according to design problem (related to U8); {10.127}
- [10.12902] summary at end of Lawson chap 7 leads into units 7 and 8 being a kind of review. {10.081 10.127}
- [10.13] overall objective: understand nature of design problems. {10.127}
- [10.131] concepts:. {10.127}
- [10.132] c1 Designers search for design problems. {10.131}
- [10.133] c2 The solution probes the problem. {10.131}
- [10.134] c3 Crisis or failure creates opportunities for design. {10.131}
- [10.135] c4 Designers ask questions. {10.131}
- [10.136] skills. {10.127}
- [10.137] blocks. {10.131}

- [10.138] J: what-s the difference between c2 and c4?. {10.133 10.135}
- [10.139] D: asking questions is about identifying critical constraints; *10.13901 whereas c2 may reveal new aspects of the problem that don-t relate to the design artifact per se: e.g. cel phones invoking car accidents–the initial constraints/questions likely never included car accidents. {10.138}
- [10.14] D: c2 and c3 highly related. {10.133 10.134}
- [10.141] blocks have same narrative order as concepts. {10.131}
- [10.142] unit 5. {10.132} *10.143 c1. *10.144 marketing is an example.
- [10.145] D: re video: developers pump women-s emancipation angle of washing machine, likely in search of new problems; *10.14501 has illustration of actual design process; *10.14502 fit a number of different concepts. *10.146 [viewing of video -mother takes a holiday-]. {10.127}
- [10.147] J: use video as review of 1-4, plus intro to c1; {10.145 10.132} *10.14701 put at beginning of U5.
- [10.148] D: video subtext plays with c1. {10.147}
- [10.149] J: video by Aimes (sp?) -sofa compact 70-; *10.14901 –marketing aspect in design ie shipping. {10.148}
- [10.15] c2. {10.133}
- [10.151] freenet. {10.15}
- [10.152] the Bridges of New York: aesthetic and economic/politically-popular drives to lighten up bridge structure; {10.15}
- [10.15201] Lindenthal-s student, Moisseiff, took these principles (constraints) too far in the Tacoma bridge ; {10.152}
- [10.15202] this is not c3, because we lead up to the problem, but we don-t really see what came after. {10.15201}
- [10.15203] the machine is us/ing us. {10.15}
- [10.153] J: mentions university security throttling use of online video, during an exam [perhaps mechanism kicks in at certain threshold]. {10.15203}
- [10.154] success of google. {10.15}

- [10.155] B: re privacy: also google USA based; {10.154}
- [10.15501] lake head university has outsourced email to google, sued by faculty asso. {10.155}
- [10.156] ISSUE. {10.15} *10.157 K: these are big sprawling questions–can lead discussion away from design process.
- [10.158] D: the other side of the debate is that it hits them where they live. {10.156}
- [10.159] J: we bring up google in unit 3. {10.154}
- [10.16] D: teacher would need instructions to rein discussion in to design–the design message is simple: the design revealed way more about the world than the designers thought. {10.158}
- [10.161] J: video of google design, revealed that people wanted that simple interface. {10.16 10.159}
- [10.162] K: prior course -tech in every day- deals with similar issues. {10.16}
- [10.163] J: then we can point back to that discussion. {10.162}
- [10.164] c3. {10.134}
- [10.16401] students brainstorm products that fit c4: e.g. airbag. {10.135}
- [10.165] K: need for airbag, or the way it was designed. {10.16401}
- [10.166] D: good point, how could be pick it up. {10.165}
- [10.167] K: examples. {10.166}
- [10.168] J: problem solving vs. opportunity (not necessarily a problem). {10.16401}
- [10.169] K: innovation problematizes what is not necessarily. {10.168}
- [10.17] D: Michelson and Morely caused re-think of the problem; *10.17001 not a disaster; *10.17002 failure to M and M, but a success to others (Einstein). {10.134 10.168}
- [10.171] J: failure determines function: palm pilot–handwriting recognition failed – have video in Moggridge text. {10.17}
- [10.172] D: students brainstorm about public transportation irritants–identifying failures that could be grounds for redesign. {10.17}

[10.173] unit 6. {10.001 9.193}

[10.174] c4. *10.175 could take up a whole class, because has both Norman and Lawson constraints. *10.17501 list of N and L constraints, matrix of constraint generators. {10.173}

[10.176] J: re exercise of team analyzing a transportation irritant in terms of the constraints, a student who does not use public transportation; {10.172 10.174}

[10.17601] can be example people having to comment on an environment that they are not a participant of, looking at difference between groups who do use and groups who do not. {10.174}

[10.177] K: what-s relation between constraints and problems. {10.174}

[10.178] D: problems become articulated in terms of constraints, depends on the kind of solution; {10.177}

[10.17801] part of the big objective is one problem can be articulated in terms of different constraints; {10.178}

[10.17802] haven-t really addressed that. {10.17801}

[10.179] D: the constraints could take up a whole class. {10.174}

[10.18] D: draws attention to how the [student public transportation card] has many of the kinds of constraints; {10.174}

[10.18001] hopefully many of the students will have just used their [student public transportation card] . {10.18}

[10.181] K: good lead-in to this community. {10.18 9.08501}

[10.182] D: mentions strategies for designing for the future, e.g. procrastination: Harper-s procrastination with respect to global warming. {10.173}

[10.183] K: planned obsolescence – less environmentally friendly to produce a Prius than a Hummer (which has longevity). {10.182}

[10.184] K: oulipo literature experimental lit: e.g. book without letter -e- –generative rule. {10.174}

[10.18403] Norman: talks about rhyming as a constraint. {10.184}

[10.185] D: game students could play?. {10.184}

[10.186] K: yes; {10.185}

[10.18601] constraint not negative. {10.185}

[10.187] J defers his presentation till next week. {10.001 }

[10.188] K: re community project. {10.001 8.05604}

[10.189] model-theme:. {10.188}

[10.19] design competition; {10.188}

[10.19001] people asked to respond to issue theme environment space function, e.g. issue=[train station]–public space, mobility, safety, role in community neighbourhood. {10.189}

[10.191] J: frame those as constraints?. {10.19001 10.174}

[10.192] K: yes; {10.191}

[10.19201] mutation sharing mobility: mutation–build the city over the city; *10.19202 transform; *10.19203 sharing–reformat some space via fashion, engineering etc; *10.19204 mobility–networks of mobility, network as forum for designing something new, as a catalyst for intensity, urbanity, commerce, or joy. {10.189}

[10.19205] output=concept proposal that has written, visual, diagram (demo function), foundational principle–how they produced, how solved, what assumptions. {10.19001}

[10.19206] assessing: process, archival documentation (blog), as well as output. {10.19001}

[10.193] D: blog implies note taking in meetings. {10.19206}

[10.194] K: not just meetings but all aspects, not the transcripts but the maps and the models and how those evolved. {10.193}

[10.195] J: basically documentation of the process. {10.194}

[10.196] K: not how they used the blog, but use blog to hand in materials. {10.195}

[10.197] D: blog has worked before; {10.196}

[10.19701] J: yes. {10.197}

[10.198] D: red-flagging getting them to step back from process, but J has had success. {10.19701 7.062 }

[10.199] J: yes, but not sure how well it would go over with 1st years; {10.198} *10.19901 not so much about final project.

[10.2] J: focus turns toward the documentation. {10.198}

[10.201] D: one person document process?. {10.2}

[10.202] K: no, one person in transcription mode; {10.201}

[10.20201] part of the process is presenting strategies about mapping stuff out, working with ideas visually so they can talk about stuff as a group, doing experimental strategies for working through material, making decisions, understanding how those decisions are being made; {10.202} *10.20202 talking about process, talking about collaboration, mapping things historically.

[10.20203] These are hands-on strategies for how to tackle the design problem. {10.20201}

[10.20204] We would be looking for the unfinished materials that they generate as they go through this process. {10.20203}

[10.203] D: but look at us, there is our draft (points to stuff on wall) who would put it into a blog scenario. {10.20203 10.198}

[10.204] J: re how to submit by blog: they can determine the roles on their own. {10.197}

[10.205] K: e.g. what they might do: incremental photographs, scan etc. {10.204}

[10.206] J: put that into a constraint for them: e.g. doc process to blog How well can the media document the process. {10.205}

[10.207] K: but that-s OK; {10.206}

[10.20701] can address ongoing over 4 weeks; {10.207}

[10.20702] some of these can be done through an in-class exercise. {10.207}

[10.208] J: part of the task is to find way to doc process; {10.206} *10.20801 key part of design is ability to transfer knowledge.

[10.209] K: poster, review. {10.19}

[10.21] B: before poster: internal competition, play-offs – 70+ teams; {10.209}

[10.21001] get the best (TA), then those evaluated (panel), themselves also vote (J: no French judges); *10.21002 short list exhibited. {10.21}

- [**10.211**] K: like extending the competitive side to sections. *10.21101 because of the number?. {10.21001}
- [**10.212**] B: yes. {10.211}
- [**10.213**] K: but can have a lot of material in the mall. {10.211}
- [**10.214**] B: best inspires and impresses. {10.21001}
- [**10.215**] K: worried about bad entries?. {10.214}
- [**10.216**] B: yes. {10.215}
- [**10.217**] K: nice to invite say mayor (and other stakeholders) to be on jury. {7.06801 6.13304 }
- [**10.218**] J: winning entries get formal award. {10.217}
- [**10.219**] D: such stakeholder-judges might inspire harder work. {10.217}
- [**10.22**] K: could have a grounding effect.{10.217}
- [**10.221**] J: mentions 3 themes relate to Moggridge text Terry Winograd metaphors of interaction with digital environments: manipulation=manipulation, mobility=locomotion, sharing=communication; {10.19201 }
- [**10.22101**] tie back to previous language. {10.221}
- [**10.222**] K: successful?. {10.221}
- [**10.223**] D: glad this is an open framework; {10.222}
- [**10.22301**] nervous about the safety thing—it defeats the fun and the diversity. {10.223 10.19001 7.06802}
- [**10.224**] K: a lot will be about safety anyway. {10.22301}
- [**10.225**] J: safety is the most visceral experience of the [train station]. {10.224}
- [**10.226**] J: re manipulation: building the city over the city relates to bruce sterling stuff, balgrade—eg wireless over old buildings. {10.221 }
- [**10.227**] K: Surrey agricultural past blank slate vs.takes generations to develop layered spaces .{10.226}

- [10.22702] [train station] becomes thinking about public space—these modalities make it not only about urban design. {10.227}
- [10.228] General agreement about being on the right path with K-s ideas. {10.189 10.19}
- [10.229] K: how structured need to be in project?.{10.188}
- [10.23] D: thinks there should be frequent reporting structure, how they are proceeding—we give them the structured design language to construct their reports with. {10.229}
- [10.231] B: need specification, in 4-5 weeks cannot have free rein. {10.229}
- [10.232] D: having to come up with reports forces a person to get it done. {10.23}
- [10.233] K: frequency?. {10.232}
- [10.234] J: weekly. {10.233}
- [10.235] D: but only 3 reports then. {10.234}
- [10.236] K: plus time to assess and competition, need time for presentations. {10.234}
- [10.237] B: introduce the project early on. {10.236}
- [10.238] J: maybe in units 5 and 6. {10.237}
- [10.239] D: there is that transportation exercise, could be introduced there. {10.238 10.172}
- [10.24] J: at the review point with that video (mother takes a holiday). {10.145 10.239}
- [10.241] B: make the turn around time not too short; *10.24101 therefore introduce project early. {10.237}
- [10.242] D: even as individuals they can keep a notebook about public transportation observations. {10.239}
- [10.243] B: concurs. {10.242}
- [10.244] D: when they get together as a team they will be ready; {10.242} *10.24401 they-ll have a lot of stuff written down; *10.24402 share their notes; *10.24403 have an argument.
- [10.245] K: structure in place?. {10.229}

- [10.246] J: that-s in C-s area-assignments. {10.245}
- [10.247] J: should be mandated that they do a face to face presentation in class, have to get up. {10.245}
- [10.248] K: that-s part of the skills here-to sell their ideas. {10.247}
- [10.249] K: presentation in week 13. {10.247}
- [10.25] J: 14 and 15 exam weeks. {10.249}
- [10.251] B: Winners need time to prepare posters. {10.249}
- [10.252] K B: logistics of printing many posters. {10.251}
- [10.253] J: that could be a constraint-print. {10.252}
- [10.254] K: could be a photography collage. {10.253}
- [10.255] J: actual print shop-what does it take?=part of constraints. {10.253}
- [10.256] B: 70+ gigantic for all: printers, TAs, instructors. {10.255}
- [10.257] D: evaluation of poster vs design thinking orientation of course. {10.251 8.178}
- [10.258] K: yes and no; {10.257}
- [10.25801] poster not immaterial-refining ideas, communicating, closing it out; {10.258}
*10.25802 does not have to be digital-could be any medium. *10.25803 Something to anchor presentation on.
- [10.259] J: competitions have submission guidelines. {10.236 10.257}
- [10.26] D: the final step of design is presentation to client. {10.259}
- [11.001] Design Thinking Meeting Notes: June 18 2007. *11.002 Present: B, C, D, J, K, S.

[**11.003**] ACTION ITEMS. *11.004 - Date for show and tell: June 28 (2pm in room 14-400) (1. *11.00401 5 hours for design thinking)–Activities will garner more feedback. *11.00402 - Someone to make sure that Tech1 icons are used in WebCT. *11.00403 - Need to decide how to set up WebCT–e. *11.00404 g. *11.00405 6 empty sections, or 1 and then copy, or instructors individually copy. *11.00406 - Need for show and tell: overview of content objectives; *11.00407 overview of assignments and activities. *11.00408 - S: set up WebCT repository and sandbox. *11.00409 - C: take discussion of how to house and present content to JF. *11.0041 - J: create jotspot accounts for the team (done). *11.00411 - J: get Martin Scorsese video?. *11.00412 - D: get Allen Newell video.

[**11.005**] SUMMARY. *11.006 WebCT, content presentation (. *11.00601 mac jotspot), unit 8, and the final project were discussed. *11.00602 The feedback is under the respective titles. *11.00603 The feedback provides useful information to the persons who are respectively responsible for the titles.

[**11.008**] Date for show and tell: June 28 (2pm in room 14-400) (1.5 hours for design thinking)–Activities will garner more feedback. {11.001}

[**11.01**] Discussion with S about webct and ID related issues:. {11.001 9.196}

[**11.011**] S: Form to be filled out (group or one person to do). {11.01}

[**11.012**] J: Don-t know how to use grading tool. {11.01}

[**11.013**] S: Form will help define training. {11.011}

[**11.014**] J: Content presentation: difficult to (1) get looks and feels, (2) get content out. {11.01}

[**11.01401**] Discussions, announcements, calendars–need something for that–can operate without content. {11.014}

[**11.015**] B: could help with load on TAs. {11.01}

[**11.016**] J: Do not want to set up something on our own for those features. {11.014}

[**11.017**] J: Jotspot servers are outside of Canada. {11.01}

[**11.018**] C: This will be the precedent setting year. {11.01}

[**11.019**] S: You can pick and choose what you will use. {11.016}

[**11.02**] S: There is a template page for look and feel (set up by [.]). {11.014}

[**11.021**] C: There is a set of [program] icons, right?. {11.02}

- [11.022] K: Alternative to folders: hyperlinking. {11.01}
- [11.023] S: You can make hyperlinked HTML content. {11.022}
- [11.024] K: How students hand in physical things?. {11.01}
- [11.025] B: Use WebCT as a repository?. {11.024}
- [11.026] J: Can hand in electronic documents. {11.024}
- [11.027] D: What about the blog?. {11.024}
- [11.028] K: Process document: blog. {11.027}
- [11.029] [discussion of fresh ongoing weekly course blog or team-based blog]. {11.028}
- [11.03] B: archive the blog for showcase?. {11.029}
- [11.031] K: Hand in process docs, then final-2 formats. {11.028}
- [11.032] C: handing in will include physical things; {11.031}
- [11.03201] these include their own level of responsibility. {11.032}
- [11.033] J: both physical and digital. {11.032}
- [11.034] C: can scan or photograph the physical. {11.032}
- [11.035] J: how represent web work in portfolio?. {11.034}
- [11.036] C: what does the process look like for putting content into WebCT. {11.01}
- [11.037] S: IF you are planning to put content in WebCT, depends on how much content. {11.036}
- [11.038] C: We don-t have content for tech101w in WebCT – but use repository for instructor-s resources; {11.037}
- [11.03801] multiple instructors. {11.038}
- [11.039] S: repository looks like a course; {11.038 7.167}
- [11.03901] can add selectively to course sections; {11.039}
- [11.03902] what kind of flexibility will you allow?. {11.03901}

- [11.04] C: the first time around they may share common slides, but how you do activities and discussions, if you bring in interactive media. {11.03902}
- [11.041] S: set up repository for course, structure that makes sense, make a section with the basic structure, then copy it over to the other sections; {11.039}
- [11.04101] each instructor can modify sections. {11.041}
- [11.042] C: [program in the school] repository built over time. {11.041}
- [11.043] D: When expand to other campuses, still use WebCT. {11.038}
- [11.044] S: yes, also can get content out of WebCT. {11.043 11.014}
- [11.045] J: as long as they are files and not WebCT-produced content. {11.044}
- [11.046] S in response to K: instructor determines what is visible to students. {11.04101}
- [11.047] J: accessible to ftp?. {11.038}
- [11.048] S: yes (will give instructions—sets up webdav connection in dreamweaver). {11.047}
- [11.049] C in response to [?]: workshops are face to face. {11.01 9.06104 8.10804 8.071 5.08}
- [11.05] C to K: discussion forum used to communicate to sections. {11.01}
- [11.051] C: what would the students need in WebCT for the workshop. {11.049}
- [11.052] K: post assignments online, look back, collect material there. {11.051}
- [11.053] C: after faced to face, created discussion forum, had assignments. {11.052}
- [11.054] C to S: each section of 48 has a workshop. {11.049}
- [11.055] C: space for QandA, discussion forum, announcement tool, calendar. {11.051}
- [11.056] S to J: announcements are to sections (could set up the other way). {11.055}
- [11.057] J: they can choose to send announcements by email. {11.056}
- [11.058] [discussion of announcements]. {11.057}
- [11.059] C: in past general announcements let to confusion. {11.056}
- [11.06] B: announcements to the whole class are the exception. {11.059}

- [11.061] K: can set up a sandbox for us?. {11.01}
- [11.062] S: yes. {11.061}
- [11.063] C: what do we mean by content? Readings -] no online content. {11.036 }
- [11.06301] What will it look like?. {11.063}
- [11.064] J: does not see content in WebCT because of issues with navigability; {11.063}
- [11.06401] can-t go -back- easily; {11.064}
- [11.06402] good to link to content. {11.064} *11.06403 from WebCT shell.
- [11.065] D: back?. {11.06401}
- [11.066] J: e.g. click objectives link, then go to discussion to check, wipes out drill down to get to objectives. {11.065}
- [11.067] S in response to discussion: learning models are effective if your course is completely online-integrates everything. {11.01}
- [11.068] J: can work with content outside and then import in as learning models. {11.067 11.063}
- [11.069] K: navigation issues make for not sure if students go to the right thing. {11.064}
- [11.07] K: where can put web sites?. {11.069}
- [11.071] J: working on a dotmac site. {11.07}
- [11.072] C: want material to be in a shared space. {11.07}
- [11.073] K: customization of sections? [to be discussed later]. {11.071}
- [11.074] S: will set up repository and sandbox. {11.041 11.061}
- [11.075] K: set up timeline?. {11.074 11.01}
- [11.076] S: need to know how you need it set up; {11.075}
- [11.07601] 6 empty sections, or 1 and then copy, or instructors individually copy. {11.076}
- [11.077] [discussion of scheduling/management issues for sections]. {11.07601}

[11.078] Agenda: Units 8, 6, 4; {11.001} *11.07801 final project, site for content if not in WebCT.

[11.08] J: dot mac, iweb, ilife (used as cms): [showed content website structure in iweb] can import powerpoint as slide shows; {11.078}

[11.08001] dot mac is online and not dependent on having a mac; {11.08}

[11.08002] almost like cms, rather for individuals doing meeting production stuff; {11.08}

[11.08003] mac strength is media related. {11.08}

[11.081] C: useful for show and tell—the titles enable quick connections. {11.08}

[11.082] J: can mock up slide show with real content. {11.081}

[11.083] C: won't have much time. {11.008 11.082}

[11.084] J: [showed jotspot; wysiwyg wiki; has attachments] can license software to run on local server money; {11.078}

[11.08403] patriot act stuff. {11.084}

[11.085] C: 1st yr students do what we tell them (not yet aware of usability comparisons); {11.084}

[11.08501] issues: 1 institution-wide costs, 2 what is the best for students. {11.085}

[11.086] B: what about ownership, copyright issues?. {11.084}

[11.087] K: yet this looks good. {11.084}

[11.088] C: take this discussion to JF; {11.084}

[11.08801] think about pros and cons. {11.088}

[11.089] C: should be some consistency across 300 students; {11.088}

[11.08901] our choices have to be grounded. {11.088}

[11.09] B: [concur]. {11.088}

[11.091] J: wrt admin, must use WebCT. {11.088}

[11.092] K: in WebCT, discussion threads and the like are wiped out, but that is ok. {11.091}

- [11.093] D: that prevents tech1 from doing research on its courses. {11.092}
- [11.094] B: jotspot looks good. {11.087}
- [11.095] J: will create accounts. {11.094}
- [11.096] C: preparing for show and tell: overview of content objectives; {11.008}
- [11.09601] overview of assignments and activities. {11.096}
- [11.09602] Can [jotspot and mac] be a separate discussion with JF?. {11.096}
- [11.097] J: Keywords in jotspot? (for use in show and tell). {11.09602}
- [11.098] J to B: process of planning; {11.096} *11.09801 process of doing.
- [11.099] D: Unit 6 has nothing to do with solving, unless seeing is solving. {11.098}
- [11.1] J: how someone looks at the problem, then (6) modeling and structuring of the problem. {11.099}
- [11.101] C: can tweak it later. {11.1}
- [11.103] [B presents UNIT 8 (see documentation for what he wrote)]. {11.078}
- [11.104] Feedback:. {11.103}
- [11.105] many relations to earlier material. {11.104}
- [11.106] re guiding principle: D: illustration of guiding principle: political party will have a slant that colors policy, yet will still have same constraint generators as other parties. {11.104}
- [11.107] re change driver:. {11.104} *11.108 D: a change driver is something that you cannot predict: illustration: can predict that gas will increase in price, but cannot predict whether it will increase smoothly or with wild fluctuations—smooth vs. wild is the change driver.
- [11.10802] good example of graphic artist is Bruce Mau. {11.104}
- [11.109] C: Have enough material for 3 lectures. {11.104}
- [11.11] C: Closes cycle and introduces project. {11.104}
- [11.111] C: Can have guest speakers in workshops; {11.104}

- [**11.11101**] re 6 sections: use video. {11.111}
- [**11.112**] C: Can frame it with designer de jour. {11.111}
- [**11.113**] C: Take core components relative to graphic designer in order to par down material. {11.112}
- [**11.114**] C: re brief—handled in writing course—other parts may be supported in other classes. {11.104}
- [**11.11401**] Can support learning how to read a critical document. {11.114}
- [**11.115**] B re video: [conkurs]. {11.112}
- [**11.116**] D: tell as much as possible with pictures. {11.115}
- [**11.117**] K: concerned about the level of discourse. {11.104}
- [**11.118**] J: 2 major areas: 1 relates to -story—eg guiding principles = moral of the story; *11.11801 2 the conversation—negotiation, feedback; *11.11802 area not addressed: prototyping. {11.117}
- [**11.119**] B: this related to -conversation-. {11.118}
- [**11.12**] J: [conkurs]. {11.119}
- [**11.121**] B: exposed to prototyping in 1 wk? J: they HAVE been, eg rendering=prototyping. {11.11802}
- [**11.122**] C: can drawn on person [..] who did prototyping course—show it with video. {11.121}
- [**11.123**] K: mentions paper prototyping. {11.122}
- [**11.124**] D: mentions lecture by Allen Newell: requirements gathering for old people; {11.121} *11.12401 stage play = prototype; *11.12402 audience can change the script in collusion with extemporizing actors. *11.12403 Will try to get video, perhaps through [..] {11.124}
- [**11.125**] C: need to set students up with guiding principles for prototyping in order to do assignment; {11.121}
- [**11.12501**] what do really want them to get at the end of the lecture in order to do this cool activity; {11.125}

- [**11.12502**] there has to be room in the plan for them to ask questions. {11.125}
- [**11.126**] K: re story: is this a final (concept)? J: story as in scenario-based design. {11.118}
- [**11.127**] [discussion about scenario vs. conversation (reflection in action)]. {11.126}
- [**11.128**] C: why does it matter to the student? What do you want them to practice toward the final project?. {11.127}
- [**11.129**] J: able to write a scenario. {11.128}
- [**11.13**] C: what else?. {11.129}
- [**11.131**] J: play the story out. {11.13}
- [**11.132**] C: else?. {11.131}
- [**11.133**] K: prototyping. {11.132}
- [**11.134**] C: this could be point of departure for week 9; {11.126}
- [**11.13401**] what will we ask them to do? Can look at process in more detail in week 9. {11.134}
- [**11.135**] C: I would go with the later 2; {11.13401} *11.13501 like them using narrative-story;
- [**11.13502**] capture that in some way ie video-relates to other courses-can be shown to a wider group. {11.135}
- [**11.13503**] Rapid prototyping could produce an artefact. {11.133}
- [**11.136**] J: like to maintain difference between writing story, scripting story, and how it plays out-video example, how Martin Scorsese filmed -The Last Waltz-how the script actually played out was different. {11.118}
- [**11.137**] [K presents FINAL PROJECT (see documentation)]. {11.078}
- [**11.13701**] feedback:. {11.137}
- [**11.138**] K: 1 winner from each category in each section. {11.13701 10.21}
- [**11.139**] B: what if you have only one team in a category?. {11.138}

- [11.14] J: For judges, someone from the [local football team]. {11.13701}
- [11.141] C: You would be using both the lecture and the workshop for these 5 weeks? K: yes. {11.13701}
- [11.142] C: why 4 in a team?. {11.13701}
- [11.143] J and K: good number. {11.142}
- [11.144] C: if you are teaching multiple sections, you go from 8 teams to 12 teams; *11.14401 if teaching 2 sections you have 24 teams. {11.143}
- [11.145] J: 6 is too many. {11.144}
- [11.146] C: as long as 4 remains 4. {11.145}
- [11.147] B: need to tie in stuff from unit 8: prototyping?. {11.133}
- [11.148] J: guiding principles is 4; {11.13701} *11.14801 2 and 3 are scenarios: diagram; *11.14802 visual proof of concept (gets them to place it in the geography).
- [11.149] D: feedback from other students on presentations?. {11.13701}
- [11.15] K: yes. {11.149}
- [11.151] D: they don-t have criteria by which to judge each other. {11.15}
- [11.152] K: would be written in to the assignment. {11.151}
- [11.153] D: so they would have a checklist. {11.152}
- [11.154] K: yes. {11.153}
- [11.155] D: concern: the themes will bleed together. {10.19201 11.153}
- [11.156] K: they will have to sort that out. {11.155}
- [11.157] D: if they shift, they should have to justify it. {11.155}
- [11.158] K: yes. {11.157}
- [11.159] D: as long as they are not punished for shifting. {11.157}
- [11.16] B: prefers the TA to pick the best in a section. {11.14 }
- [11.161] C: can come back to that; {11.16} *11.16101 others might be working on this;

- [**11.16102**] this is when you want an individual in the class engaging in -how we evaluate-. {11.161}
- [**11.162**] K: wk 12: give them structure how to critique the work—tight on time. {11.13701}
- [**11.163**] C: school is still open during exams. {11.162}
- [**11.164**] J: can begin grading before the final presentation. {11.162}
- [**11.165**] C: may have a [program in school] event. {11.164}
- [**11.166**] K: give them a chance to reflect on the exhibition—another place to use critical skills. {11.162}
- [**11.167**] C: after unit 8 they are tired; {11.166}
- [**11.16701**] this gives them a chance to DO. {7.062 11.167}
- [**11.168**] C: re: mutation, sharing, mobilities: not sure what they are being asked to do; {11.13701 10.19201 } *11.16801 this is how you frame it for yourself, not how you would frame it for a student?.
- [**11.169**] K: for a student. {11.168}
- [**11.17**] C: should be 2 not 3 themes; {11.169}
- [**11.17001**] eg -mutation- has to be front-loaded. {9.11504 9.075 }
- [**11.171**] K: no. {11.17001}
- [**11.172**] C: what is connection between the question and the [train station]? K: also surrounding area. {10.19001 11.13701}
- [**11.173**] K: this is a framework for taking some structure, function or object or interaction in space and redesigning it. {11.172}
- [**11.174**] C: a 1st year student would need a lot of context a lot of background—made clear in units 1-8, or in the instructions. {11.173}
- [**11.17401**] You took a while with us, imagine 1st yr students—it would take them a week to figure it out [B: [concur]] Find a way to make it really clear. {11.174}
- [**11.175**] K: that-s the process, isn-t it?. {11.17401}

[11.176] D: we decided that the project would be re-introduced in unit 5, and they would keep sketch books, so hopefully they would have ideas by the time the form teams; {11.17401 10.237 }

[11.17601] I suspect that their ideas would not fit with the themes as nicely as you hope, but that-s a matter of negotiation-if they have a strong idea, then they should justify it. {11.168 11.157}

[11.177] K: ideas never fit these things; {11.17601}

[11.17701] we give them enough space to experience that-figuring it out comprises more than half of any design project. {11.177}

[11.178] C: agree, but advisers have advised that that takes 3/4 of the time to frame the question. {11.17701}

[11.179] C: we have to be very clear with them. {11.178}

[11.18] C: go through and ask if terms have been covered previously. {11.179}

[11.181] K: explanation of deliverables; {11.18}

[11.18101] explanation of ideas. {11.18}

[11.182] J: reminds of Winograd mapping to K-s concepts [covered in previous meeting notes]. {11.18 10.221}

[11.183] K: bring that in, in a formal way?. {11.182}

[11.184] J: we could. {11.183}

[11.185] K: how much do we want them to think there is a right answer? give them a jumping off point; {11.173}

[11.18501] don-t want to direct them to the text; {11.185} *11.18502 don-t want to close it in.

[11.186] C: we are responsible to get them to demonstrate critical skills. {11.185}

[11.187] K: they will go to the text and try to do closest to text. {11.18501}

[11.18701] J: that problem is beyond this course. {11.187}

[11.18702] 1st yr students grasp at points, can-t give them clear blue sky. {11.18502}

[**11.188**] B: [concur] they could spend 5 weeks deciding what to do, and will make excuses for being in step 2 rather than 6. {11.18702}

[**11.189**] C: the assignments (the skills they got from the assignments) will help us sort this out and set the deliverables. *11.18901 Couch the final project in terms of the skills learned from the assignments. {11.188}

[**11.19**] J: explicitly address the issue of constraints—get them to see these things as constraints, rather than hoping that they will see them as constraints. {11.188}

[**11.191**] C: [concur]. {11.19}

[**11.192**] K: re Winograd: make direct connection with that text {11.182}

[**11.11921**] J: good to show them that these things are relatable to other things. {11.192}

[**11.193**] B: we want to be able to expect certain things, a level of performance or outcomes; *11.19301 not at that stage yet; *11.19302 give them as much -how to- as possible; {11.189}

[**11.19303**] some courses have freedom, but here we are trying to give them foundational skills; {11.193}

[**11.19304**] some students will surprise you. {11.19303}

[**11.194**] K: they all will. {11.19304}

[**11.195**] C and B: dangerous to assume that. {11.194}

[**11.19501**] B: too risky in 1st yr. {11.195}

[**11.196**] K: my experience has shown the 1st yrs to be amazing—confident. {11.194}

[**11.19601**] J: the constraints here don't preclude that. {11.196}

[**11.197**] J: Winograd stuff is digital; {11.192} *11.19701 may not apply to [train station].

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