
Transdisciplinary Interaction Design in Design Education

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Abstract

Transdisciplinary design—which is the idea of design that *transcends* disciplinary boundaries—has been proposed as a fourth design paradigm of interaction design education, scholarship, and practice alongside the technical, cognitive, and ethnographic paradigms. As an educational concern in particular, its aim is to teach students how to bring a values orientation to interaction design. Its focuses are design frameworks, values and ethics, design for important themes such as sustainability, equity, adaptation, justice, and social responsibility. This panel maps the state of the art in transdisciplinary interaction design education, considering also design scholarship and practice in relation to design education. The panel collects together a group of educators from chosen to provide a global perspective, with panelists from Canada, Denmark, Hong Kong, Korea, and Taiwan.

Author Keywords

Interaction design; education; transdisciplinary design; computer science; design; cognitive science; ethnographic research

Introduction

The topic of this panel is the possibly controversial proposition that there are not three, but rather four paradigms of HCI, and the additionally possibly controversial proposition that this fourth paradigm is specifically the paradigm of transdisciplinary design [1]. Moreover, this fourth paradigm of transdisciplinary design is a necessary and vital curricular principle in HCI and design education in the current landscape of design, which does not neatly fit into old disciplinary or paradigmatic categories anymore. Yet, in building a transdisciplinary future, HCI has many things to learn from other design disciplines that have had to balance theory and practice, academia and industry, and research and aesthetics for decades.

By *transdisciplinary design*, we mean a fourth kind of organizational principle, which we here discuss specifically for the context of HCI and interaction design education. Definitions of these four paradigms are summarized from [1] as follows:

1. Technical: The technical paradigm may be defined as a focus on expertise concerning interactivity and digital technologies as materials of design.
2. Cognitive: The cognitive paradigm may be defined as a focus on understanding how people understand digital materiality as a matter of informing the design of interactivity.
3. Ethnographic: The ethnographic and interaction criticism paradigm may be defined as a focus on

understanding and describing human experience as a form of interaction design research and interaction design

4. Transdisciplinary: The transdisciplinary paradigm may be defined as a focus on insisting on a values-orientation for interactivity design as a higher order concern than particular collections of methods or domains of expertise.

The implications of these paradigms in terms of learning competencies and outcomes, and in terms of examples of related skills are described in Table 1.

In our previous work [1], we have analyzed HCI programs in Indiana University and in the Hong Kong Polytechnic University. This paper also builds on previous discussions in HCI [2-5,8] and other sciences [6,7]. The theoretical framework above is used as an overall curricular organizing structure for the Master of Science, Human-Computer Interaction Design program at Indiana University in Bloomington USA. This panel builds on the same body of work, but extends our discussion to Asia, with panelists from Hong Kong, Taiwan (and incidentally the Netherlands), and Korea. Panelists from Europe (Denmark) and North America (Canada) round out the panel to ensure global perspectives. We will also divide the session moderation duties in three, with moderators representing the American (and incidentally Hong Kong), Korean, and Hong Kong (and incidentally European) points of view and assumptions with respect to prompts to the panelists.

<i>Paradigm</i>	<i>Competency/ Learning Outcome</i>	<i>Examples of Related Skills</i>
<i>W1 Technical Paradigm</i>	Students learn how to understand new technology developments much in the same way that an architect needs to understand the possibilities and limitations that new materials present, as well as being able to predict which materials and technologies will become available in 2, 5, 10, and 20 years of time	HTML/CSS, wire-framing, methods such as use case analysis, pattern languages, application prototyping, information architecture, tangible computing as with Arduino and so forth
<i>W2 Cognitive Paradigm</i>	Students learn how to study and characterize human cognitive models and the mappings between human cognitive models and technology operational models as a matter of improving design usability and experience	Interviews, surveys, behavioral prototyping, usability studies, "user" experience studies, empiricism, and so forth
<i>W3 Ethnographic and Criticism Paradigm</i>	Students learn how to endow interactive forms with meaning and content and interpret interactivity as a matter of meaning and content	Ethnographic methods including photo-ethnography, observations, collections (i.e. curatorialism), critical theories (i.e. feminism, ontological design, reflective practice, activity theory, practice theory), and so forth
<i>W4 Transdisciplinary Paradigm</i>	Students learn how to bring a values-orientation to interaction design and explanation of interaction design	Design frameworks, values and ethics, design for important themes such as sustainability, equity, adaptation, justice, social responsibility, and so forth

Table 1. Transdisciplinary Design considered as a fourth paradigm of HCI, with Learning Outcomes and Skills.

The panelists

The panel is designed to bring different panelist perspectives to bear on the discussion, representing the key Asian schools as well as moderation from senior professors who have been teaching interaction design in Asian universities.

Susanne Bødker is Professor in the Departments of Computer Science & Aesthetics and Communication - Participatory Information Technology, at Aarhus

University in Denmark. As a panelist, she represents the European point of view. Importantly, the notion of third-wave HCI owes in our reading to Susanne Bødker's work [6] wherein it is more broadly traced and attributed.

Lin-Lin Chen is Professor in the Department of Industrial and Commercial Design, National Taiwan University of Science and Technology. She is also Professor in the Department of Industrial Design in the

Section of Business Process Design at the Technical University of Eindhoven (TU/e). Importantly, Lin-Lin Chen is the Editor-in-Chief of the International Journal of Design, which oftentimes represents the HCI perspective in Design.

Youn-Kyung Lim is Associate Professor and Head of the Creative Interaction Design Lab in the Department of Industrial Design at the Korean Advanced Institute for Science and Technology (KAIST), Korea. She has led several interdisciplinary research projects sponsored by Microsoft Research Asia and KAIST.

Ron Wakkary is Professor in the School of Interactive Arts & Technology at Simon Fraser University in British Columbia. He is also an Editor-in-Chief, ACM interactions. He is Director, Interaction Design Research Centre, SFU. He is also appointed at the Technical University of Eindhoven (TU/e) in the Netherlands.

Huaxin Wei is an Assistant Professor in the School of Design at the Hong Kong Polytechnic University, where she is involved in the teaching and curriculum development of the programs of BA in Interactive Media and MDes in Interaction Design. Her primary research explores the use of interactive technologies in narrative design for digital media. She holds a PhD from the School of Interactive Arts and Technology at Simon Fraser University in British Columbia, Canada and a M.Sc. in Computing Science from University of Alberta, Canada.

All panel members and the moderators are experienced speakers with strong points of view based on research and experience. Our intent is to stimulate discussion

around a broad range of concerns in order to expose the audience to the bigger picture of what must be considered when designing.

Moderators Blevis, Koskinen, and Lee have been all instrumental in proposing this panel. Their role in the panel session will be to introduce the panelists, ask the questions, and make sure that the technology and logistical aspects of the session run smoothly. They bring considerable expertise to the topic of transdisciplinary design education, and as such will be on hand to provide relevant information, if needed. Notwithstanding, the primary focus of the session itself will be on the panelists and audience discussions.

Session plan

Before the panel

We will circulate a list of questions to the panelists in advance and ask if they have additional questions.

Introductions and Starting the Discussion (10 minutes)

The moderators will start by introducing the panel's focus and the panelists. Each panelist will then spend 5 minutes describing what she thinks is the biggest challenge in designing in today's' evolving world.

Issues for Discussion and Audience (35 minutes)

The initial list of questions is:

1. How do the panelists understand Transdisciplinarity in education?
2. How has transdisciplinary design been implemented in design and HCI curricula?

3. What kinds of qualities are expected from teachers?
4. What are the drivers of Transdisciplinarity -- economic, technological, social, political, cultural, scientific, or other considerations?
5. What kinds of difficulties does transdisciplinary education face?

Discussion

We will also allow 35 minutes for audience discussion divided amongst the above listed questions. We expect that the panelist responses to the questions will themselves prompt audience questions, discussions, and debate, since many will face similar issues in their own contexts of design and HCI education within Asia and in an increasingly globalized world.

Additional Details

Useful and interesting contributions to HCI

The primary goal is to promote HCI and design education attuned to values and ethics and global issues at a pan-Asian and global scale.

Appropriate levels of diversity in panelist selection

The panelists represent the main Asian academic research communities from several nationalities, varying academic career points, and both design and technical backgrounds.

Potentiality to draw attendance

Many of the CHI participants are involved in HCI and design education. The panel is an opportunity for these and other participants to engage in comparative

understanding of how design and HCI are taught in different environments and regions.

Content that is unlikely to be seen by CHI audiences elsewhere in the conference

We believe the focus on transdisciplinary design in HCI and design education to be a new and unique concern that begins with [1-4]. We expect these notions of curricular design to take increasing significance with HCI and design in the future.

Who Should Attend

We welcome anyone who wants to engage in a lively discussion about the future of interaction design education in Asia, and globally.

Setup

We need a stage with a table and chairs for the panelists, and moderators.

Audio Visual Requests

1. One or more standing microphones so audience members can come forward with questions.
2. Microphone for each panelist and moderator so they do not have to be shared.
3. A projection system that can be attached to one of the moderator's computer to display slides for the five minute introductions and discussion points. The slides from the panelists will be aggregated together on this single computer in advance of the session.

Student Volunteers

We request 1 or 2 volunteers to circulate in the audience to collect questions.

References

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