YOU'VE GOT E-MAIL: THE IMPACT OF ELECTRONIC COMMUNICATION TECHNOLOGY ON FACULTY PRODUCTIVITY

by

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ABSTRACT

This qualitative case study explores the connection between electronic communication technology and faculty productivity. Despite the pervasive use of e-mail and other electronic communication media at educational institutions, few studies investigate the relationship of electronic communication to faculty productivity.

In this study, sixteen faculty members from a public, medium-sized, and instruction-oriented college in Western Canada answered detailed questions about their professional on-line behaviour. Questions explored response times to student on-line enquiries, the appropriateness of using electronic communication for certain tasks and topics, and its overall impact on faculty performance. Suggestions were also solicited for improving application of the technology at the college.

Participants tracked all incoming and outgoing electronic communications for seven consecutive days, recording quantity of communications sent and received, time spent, and actions taken. In addition, instructors rated incoming communications in terms of their work-related relevance.

Results were evaluated, using Anthony Giddens' Structuration Theory as a theoretical framework, and were compared to related studies performed at tertiary institutions. The literature review of studies on electronic communication

at higher-education institutions identified themes of gender, age, time, and communication; all of these themes, along with faculty productivity, are explored in the current study.

The majority of participants in this study feel that electronic communication increases their overall productivity. However, most also mention elements of this technology which decrease their performance, citing factors such as miscommunications, reduced face-to-face contact, and excessive volume and time spent on electronic messaging. Time logs maintained during the study reveal that participants may delete or not read electronic communications relevant to their work, suggesting other avenues of communication may be more effective for dissemination of information. This analysis indicates a need for policy regarding response times and suitable on-line behaviour and recommends further training in effective and appropriate use of electronic communication.

Keywords: productivity; faculty; e-mail; technology; communications.

Subject Terms: electronic communication technology; faculty productivity; faculty performance; college faculty; Structuration theory; out-of-class communication; e-mail.

To Paul

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CHAPTER 1: INTRODUCTION

Late one evening, I happened to open my e-mail account, and found the following message:

> Hi Sheila,
>
> I am in your afternoon accounting class. I know the final exam is tomorrow morning, but I have been sick for the past week. Can I write the exam later? Please let me know as soon as possible if I can do this.
>
> Thanks. (Anonymous, personal communication, December 13, 2006)

Many thoughts began rushing through my head, all due to this fairly innocent communication. I felt caught in a dilemma; the student had sent the e-mail at 10:00 pm and it was now 11:30 pm. If I responded to the e-mail, I was possibly condoning or even encouraging students to send me e-mails at the last minute and to expect a reply. I was also aware, however, of this student's need for a response. I felt hampered by the asynchronous, one-way nature of electronic communication technology – I could respond to the student but I didn't have the ability to ask questions and then reply in the same conversation as would be the case if the student had telephoned or visited my office. I also felt anxious in that I was dealing with a work-related issue late at night and wondered if the student would even get my response prior to class time. I could easily have missed this

e-mail and could then have had a student annoyed at me for not answering the e-mail in a timely fashion.

My preoccupation with e-mails from students has led me to think seriously about the extensive role of electronic communication technology in my capacity as a college instructor. While electronic communication technology can greatly facilitate my work, I could be spending more time on work-related tasks because of it, yet am not certain that there is a commensurate improvement in either quality or quantity of work-related output. While the technology allows for responses to student and administrative queries from places other than the office, the ability to be reached at any time may lower performance. Due to electronic communication are faculty members spending more time on administrative tasks generated by e-mail or are they spending more time on student engagement activities and academic activities such as course development or research?

I hear my colleagues saying that the pace of their work has increased – there is a sense that data or answers are expected sooner than in previous years (McInnis, 2002). Certainly electronic technology has had an impact on the turnaround time of communication – it is far quicker to send documents and notes electronically than was previously possible. This ability to respond faster appears to carry a cost. When I started working as a college instructor in 1988, student access to faculty was primarily limited to office hours and telephone calls. Weekends often involved college work but the agenda was driven by my sense of urgency regarding my performance, and not by students. With electronic

communication, questions, requests, and documents can be sent at any time of day or night, so there appears to be no down time (Amey & VanDerLinden, 2003). Is this increased sense of urgency justified by perceived increases in workers' productivity and accessibility, and who is reaping the rewards, teacher or student? Does the student garner the greater benefit at the expense of the instructor or is the flexibility a benefit which academics welcome?

As is the case with the tradition of established office hours, I am not convinced that students should always have unrestricted, one-way electronic access to instructors. Perhaps there should be some controls or filtration element in the degree to which all students can electronically make contact with their instructors. The cavalier nature of the medium creates its own set of frustrations for instructors. Students fire off e-mails with a question, only to be followed by another email saying that they solved the problem. Are students passing some of their thinking on to faculty because of a lack of temporal, geographic or financial constraints? This same technology also allows students to contact their professors from off-campus, potentially reducing the time spent on-site. There may be social and pedagogical benefits from students spending more time physically at school in order to engage in the democratic public space provided by a college or university (Davidson, 2007). However, given the ubiquitous nature of the medium, are there perhaps other methods to achieving these worthwhile ends?

Perhaps electronic communication technology is a natural consequence of changes to the delivery of education. In combination with globalization and

society's shifting expectations of higher education, faculty are being challenged to work more productively (McInnis, 2002). Technological innovations such as on-line courses and the ancillary use of electronic communication technology, utilized to make educational delivery more cost-effective, have had a major impact on faculty performance (Amey & VanDerLinden, 2003; Baldwin, 1998; Beam, Kim, & Voakes, 2003; McInnis, 2002; Tabers, 2002).

McInnis (2002) suggests, however, that use of technology does not necessarily lead faculty "to a deeper level of change in the performance of academic work, that is, the shift to a more reflective approach to teaching as scholarship" (p. 56). In particular, he proposes that e-mail has had a profound impact on faculty's teaching and research:

> As students increasingly expect the university to fit with their lives rather than expecting to accommodate themselves to institutional time frames, their assumptions about faculty availability for consultation and comment on their work have changed.....E-mail generates expectations that ready access means instant response. Although not yet well researched, this phenomenon may contribute to the fragmentation of faculty time. Evaluation of "response time" becomes likely, but at the risk of trivializing faculty work. (p. 59)

Problem Statement

Despite the pervasiveness of the medium, there is a lack of examination of electronic communication technology's impact on faculty productivity and performance. As previously mentioned, there are both positive and negative aspects to the encapsulation of electronic communication technology within faculty work. Use of electronic communication technology allows for new

productivity options but may also involve additional time spent dealing with quick response time expectations, for example, or concerns about skill levels adequate to deal with technological changes (Baldwin, 1998; Beam et al., 2003).

Technology is altering the definition of faculty work, with time spent incorporating technology into teaching modalities and into communication regimes (McInnis, 2002). Technology is also perceived and utilized differently, depending upon age, gender and skill levels (Ogan & Chung, 2003; Wang & Cohen, 1998). A technology-intense environment, such as a college, is subject to frequent changes relating to instructional innovations and technological advances (Allison, 2004; McInnis, 2002; Tabers, 2002).

This pace and scale of technological change have a significant impact on faculty's ability to keep up with both technological change as well as performance of their academic duties. The purpose of this study is to document current faculty usage of electronic technology as a communication tool, to determine its impact upon performance, with a view to helping to discover and suggest improvements.

Purpose of Study

In studies regarding technology and communication between students and faculty, there appear to be three gaps:

1. There is little attempt to study the relationship between use of electronic communication technology and faculty performance. Discussion includes preference issues over media options, usefulness of varying types of communication, training, and stress levels. Performance is merely hinted

at with the discussion of time spent on electronic communication technology.

2. While studies have explored the issues of types of communication and of clarity of communication, they are not from the point of view of faculty (Atamian & DeMoville, 1998; Duran, Kelly, & Keaten, 2005; Montano & Dillon, 2005). What issues do faculty have when using electronic communication technology and do they prefer and use different modes of delivery for different types of communication?

3. Most of the studies reviewed were performed almost a decade ago and use and diversity of technology have changed since then. The scale of usage is also dramatically different. Are the results of these studies still valid or have technologies and their use changed in some manner?

The purpose of this study is to explore the connection between electronic communication technology and faculty performance, using Giddens' Structuration Theory (1984) as a theoretical framework for data analysis. Given the immense changes to faculty work resulting from electronic communication technology, a study may bring awareness to the issue and help guide faculty use of this medium. Strategies that are being used by some faculty to improve their performance may be worth adopting as institution-wide policies and may inform staff development models for faculty.

Camosun College – Site of Study

The research for this topic will utilize faculty from Camosun College in Victoria, British Columbia. This commuter college has been operating for 35

years and currently services more than 8,000 students in credit and vocational programs and another 10,000 students in part-time continuing education courses each year (MacAskill, 2006a) . Over 700 of the students are international students from more than 40 different countries and more than 500 are Aboriginal students from 50 different First Nations (Tinis, 2006). Camosun's mission is to be "a comprehensive educational institution providing our community with access to the knowledge and skills relevant to the future economic and social development of the region" (MacAskill, 2006b). The college primarily delivers university transfer courses satisfying the first two years of degree programs, and one and two year programs culminating in certificates or diplomas. Camosun has transfer agreements with 14 universities; the majority of the university transfer students continue their studies at either the University of Victoria or Royal Roads University, both located nearby.

Camosun has recently been granted approval for a four-year applied Bachelor of Business Administration with three possible majors. As such, it is part of a larger national movement amongst colleges to become more engaged as degree-granting institutions (Powell & Snellman, 2004). The college is organized into five schools, these being Business, Arts and Science, Trades and Technology, Access, and Health and Human Services. Class sizes range from 30 to 40 people and the college is primarily a teaching institution as distinct from a primarily research-oriented university.

Camosun employs 860 individuals, 430 of which are instructors belonging to the *Camosun College Faculty Association* (CCFA) (Camosun College, 2008).

The CCFA operates in association with the Federation of Post Secondary Educators, an organization which represents faculty at public colleges in British Columbia. The average age of the student body is 22, many of whom work and attend school at the same time (MacAskill, 2006a). Consequently, there are increasing numbers of on-line, evening, and weekend courses to accommodate the needs of both full-time and part-time students.

Definition of Terms

Electronic Communication Technology

While e-mail is the most prevalent form of computer-based electronic communication currently in use, other forms are continually emerging. Facebook was originally established as an Internet networking service for North American university and college students for posting their personal profiles, exchanging messages and joining groups. Since it opened its registration to the general public in the Fall of 2006, Facebook membership has grown to over 24 million, with 500,000 new users each week (Ranson, 2008; Shields, 2007). MySpace, a popular social networking website offering an interactive, user-submitted network of friends, personal profiles, blogs, photos, music and videos, has attracted more than 70 million users, many between the ages of 14 and 20 (Ray, 2008). Other such social networking sites have also emerged in the market place as the popularity of these sites continues to grow. College students make up a considerable proportion of the rapidly growing use of instant messaging or text messaging for communication (Flanagin, 2005) . Some colleges are already using alternate media, such as MySpace, text messaging via student's cell

phones, and web portals, to communicate with their students, as they are finding that college e-mail newsletters are treated as spam by students and often not read (Carnavale, 2006).

Given the emergence of new technologies, the study will not be limited to e-mail exclusively, however it is expected to be the most commonly used format by the Camosun College participants in this study. Thus, electronic communication tools will include e-mail, text messaging, blogs, and websites, with a focus on their utilization for communication rather than as instructional devices. For the purpose of this study telephones and facsimile machines will be excluded. This paper will concentrate on the issues of using digital communication devices in general, so that the findings may be relevant to new emergent formats.

Faculty Productivity

A key variable of the study is faculty productivity, which can be difficult to both define and measure (Antony & Raveling, 1998; Bock, 1997; Massy & Wilger, 1995). Furthermore, faculty may resist settling upon a definition of productivity due to concern that standardized evaluative measures have a political motivation and may shift control over the academic work process from faculty to management (Polster & Newson, 1998).

As this is not a study per se of faculty "output" (such as scholarly papers, teaching loads, research grants, etc.) faculty productivity will be examined as it relates to the faculty member's perceived performance. This analysis will allow for a focus on the communication medium at question, without being sidetracked

with the larger issue of what constitutes academic production and how to measure such output.

Faculty work involves teaching students, research and scholarly activity, committee work, and often community service (Middaugh, 2001). An economic definition of productivity is a measure of production efficiency; a ratio between output and input (McBeath, 1974). Another definition of faculty productivity is an increase in educational outcomes, such as number of students taught or improved instruction, relative to costs, or a reduction in costs used to produce a given set of educational outcomes (Levin, 1991).

According to Middaugh (2001), faculty productivity includes both quantitative and qualitative factors, and while it is easier to establish benchmarks for quantitative elements it is also possible to measure the qualitative aspects. Tierney (1999) contends that, due to the rapid change to post-secondary institutions resulting from technological advancement, new definitions of faculty productivity are needed. The advent of virtual universities, distance learning, electronic publishing options, and changes to course delivery options has dramatically altered the framework for faculty roles (McInnis, 2002; Tierney, 1999). Tierney argues that standard input and output measures are not useful in encouraging an environment of trust between academics and administration, an essential component in an intellectual organization. Instead, the discussion about productivity needs to start from a different premise, one that recognizes that individuals are unique and that everyone has a productive place in the

modern world. Specific measures, then, need to be arrived at by each faculty member, in consult with their department, for definition of their own productivity:

> Productivity in an organizational culture is more concerned with ensuring that everyone is playing to the best of his or her ability and that all individuals are operating from the same plan, agreeing about the texture that they desire, and how they will interact with one another. Different musicians have different roles; a group's responsibilities are to one another, to the music, and to the audience. Optimally, the music is joyful and the musician's work is personally fulfilling and appreciated. (Tierney, 1999, p.120)

Productivity may include number of students and sections, number of courses taught, research projects, course development, community service, and administrative tasks performed. Consistent with Tierney's view, faculty members will self-report on whether or not they are able to be more or less productive with the use of communicative technology.

This study will examine a faculty member's perception of their own productivity through their perceived performance enhancements. Consistent with Tierney's view stated above, the study seeks to see if faculty are playing to the best of his or her ability in serving student's needs.

Limitations of Study

This study will not investigate electronic communication technology in relation to on-line course delivery because the offsite nature of such courses makes electronic communication the essential mode of contact. This reality would necessarily skew the results unfairly. Instead, the paper will explore faculty-student communication in on-site courses where other forms of interface, such as written, face-to-face, and telephone, are also available.

Technology has had an enormous impact on teaching, with extensive changes to course delivery through on-line learning, Powerpoint and class management systems such as Blackboard, WebCT and websites. Rather than looking at such well-researched topics as the impact of technological change on teaching, faculty interviews will be directed toward use of technology for communication. Many of the studies reviewed look at the connection of technology and faculty stress, but connecting stress to faculty productivity is beyond the scope of this study.

Research Questions

The over-arching question to be addressed in this study is: In the perception of college faculty, what impact does electronic communication technology have on their performance? The study is concerned as much with faculty views of electronic communication technology as with the reality of its impact on their productivity. It will examine electronic communication between faculty and their students and electronic communication between faculty and colleagues, administrators and external individuals and organizations.

Sub-questions include:

1. What do faculty members identify as the major issues of using electronic communication? Responses should identify patterns of frequency, magnitude, and timing of hours spent communicating with students and others, and whether use of electronic communication technology has altered time spent on educational and other matters.

2. What do faculty members consider timely feedback and what impact does providing timely feedback have on their workload? The literature mentions the significance of timely feedback (Amey & VanDerLinden, 2003; Atamian & DeMoville, 1998; Duran et al., 2005). It is important to get a measure of what faculty perceive to be timely feedback and to see how that characteristic affects their view of their performance.
3. Are there methods and techniques that improve the efficacy of electronic communication as a productivity tool? This question will lend itself to identifying methods and strategies that could be used to improve upon job productivity.

Organization of the Dissertation

This dissertation is organized into seven chapters. Chapter 1 provides an overview of the research problem and questions, the potential significance, and limitations. Chapter 2 introduces Giddens (1984, 1991, 1993) as a theoretical framework for this study, and organizes the literature into four themes, being communication, time, gender and age, and faculty productivity. Chapter 3 discusses the qualitative approach to the research and the specific procedures undertaken. Chapter 4 contains the results of the interviews and time logs. Chapter 5 provides an interpretation of the results, including a comparison between this study and previous studies. Chapter 6 discusses recommendations and suggestions for further research into this area. Chapter 7 encompasses the researcher's reflections on the research journey.

CHAPTER 2: THEORETICAL FRAMEWORK AND LITERATURE REVIEW

Giddens' (1984) Structuration Theory

Giddens' (1984) Structuration Theory helps explain where electronic communication technology fits into an organization's framework and how it may be used within this framework. Structuration Theory posits that both structure and agency exist in a recursive relationship, where structure constitutes the codes or norms for social action while agency delineates the actions of individuals within the organization (Giddens, 1984). Giddens' theory differs from those which take a more hermeneutic or phenomenological approach of suggesting that society is formed primarily by its individuals, as distinct from functionalist and structuralist theories which suggest that structure moulds the behaviour of individuals (Macintosh, 1994). Instead, Giddens (1984) contends that structure and agency exist in a recursive relationship.

Duality of Structure

The duality of structure notion proposes that agents are influenced by the structure and can also produce or reproduce the structure (Macintosh, 1994). This duality means that workplace culture will be an important factor in the usage and style of electronic communication among agents (Waldvogel, 2007). In addition, agents are purposive and reflexive in monitoring their behaviours within the social structure (Giddens,1993). This axiom suggests that while the norms of

the College, both written and unwritten, influence the communication that takes place, the agents may make changes to this structure through their behaviour.

Giddens submits that individual acts can bring about social change, but that the social structure will only change when the new methods are institutionalized and form part of the social structure. That phenomenon may be occurring in the usage of electronic communication technology. Some electronic communications received from students are viewed by faculty as too informal, with casual salutations that faculty interpret as disrespectful (Duran et al., 2005). It is possible that faculty are deriving incorrect conclusions about student intent by assuming that the rules that apply to written communications such as letters are appropriate for electronic communications. Perhaps the structure of the electronic communication is evolving and will result in these changes becoming institutionalized as more individuals communicate in the new, more informal format, as hypothesized by Giddens (1984).

Dialectic Control

The concept of Dialectic Control is another significant component of Structuration Theory, suggesting that dependent relationships are a two-way issue. While superiors have resources giving them power over subordinates, subordinates also have resources giving them influence over their superiors. In a classroom setting, the instructor has attributes for controlling classroom behaviour but students may choose to comply or not with the instructor's demands. Electronic communication is a two-way, but time delayed, interaction between persons in a dependent relationship, such as administrators, faculty,

and students. A student can exert influence simply by sending an electronic communication technology to an instructor which requires a response. The two-way, asynchronous aspect of this communication method is a factor to be considered in analyzing interactions which may occur (Chen, 2001; Montano & Dillon, 2005; Skovholt & Svennevig, 2006).

The Role of Information in the Knowledge Economy

Giddens' (1991) concept of modernity proposes that individuals have more choices due to the *disembedding mechanisms* afforded by industrialization. The post-industrial era has increased individuals' choices, leading to a desire for more information. Reflexivity is intensified in this *post-traditional* world:

> Modernity's reflexivity refers to the susceptibility of most aspects of social activity, and material relations with nature, to chronic revision in the light of new information or knowledge. Such information or knowledge is not incidental to modern institutions, but constitutive of them – a complicated phenomenon, because many possibilities of reflection about reflexivity exist in modern social conditions. (Giddens, 1991, p.20)

Giddens' notion of modernity is consistent with what some are calling the *information society* or the *knowledge economy* with the increasing spread and significance of information in many aspects of life (Morgan, 1998; Webster, 2002). This new economy can be defined as a shift from a post-industrial society to one where production and services are based more on intellectual capabilities and information than on physical inputs or natural resources (Powell & Snellman, 2004). The handling of information, such as e-mail, constitutes an essential part of daily operations and consumes much capital and labour, and could impact faculty workload.

Organizational structures and practices impact the productivity realized from new technologies (Hilton, 2006; Powell & Snellman, 2004). The increasingly volatile global economy may require new structures that allow for the integration of new information with existing expertise (Morgan, 1998). While the organizational models of universities and colleges are shifting, the changes tend to be in response to economic forces and may not improve the handling of information (Fisher & Rubenson, 1998).

Summary of Theory

Communication within and amongst organizations is increasingly occurring via electronic communication technology. As articulated by Giddens (1984, 1991, 1993), use of these media is a function of the social norms of an organization and impacted by the individuals sending and receiving the electronic messages. The reflexive nature of human beings suggests that both electronic communication and the organizational structure, involving rules and resources, may be evolving as use of this relatively new technology matures. This study of the impact of electronic communication technology on faculty performance will involve consideration of both formal and informal policies and procedures impacting communication and use of electronic communication technology within the site of study.

Literature Review

Literature on the use of electronic communication by university and college faculty members can be grouped into three areas of interest, these being

communication, time, and gender and age issues. Literature addressing faculty productivity explores factors contributing to output, including electronic communication, and the conundrum of its definition. These themes are summarized below.

Communication Issues

As a fairly new medium which potentially reduces or replaces face-to-face and telephone communication, e-mail's ability to convey meaning and information between faculty and their students has been extensively investigated (Atamian & DeMoville, 1998; Chen, 2001; Duran et al., 2005; Flanagin, 2005; Haworth, 1999; Kelly, Keaten, & Finch, 2004; Krause, Hartley, James, & McInnis, 2005). When two professors designed a course in which all contact with instructors was via e-mail, students were generally satisfied with course delivery and instructor availability (Atamian & DeMoville, 1998). One issue that arose, however, was clarity of communication, with half of the students claiming that e-mail messages were confusing. The authors are uncertain whether this mixed response is due to the instructors' style or is an inherent characteristic of e-mail communication.

Conflicting views exist on the ability of electronic communication technology to convey complex tasks. Daft and Lengel's study (1986) claims that the *richness* of the media used for communication determines its capacity for resolving ambiguity and facilitating understanding. Information richness is defined by Daft and Lengel as the ability of information to change understanding over time. Rich media, such as face-to-face or verbal communication, are

personal and interactive while *lean* media, such as e-mail or memos, are impersonal and rely on rules and procedures. Ishii's (2005) study of the use of e-mail for handling equivocal tasks contradicts the findings of Daft and Lengel's (1986) study. Ishii's (2005) survey of university administrators found that e-mail could be used for equivocal tasks but that its success rate depended upon the experience level of the users.

Montano and Dillon's (2005) study explores the use of different technologies for different types of communication within an organization. Their results suggest that, while technologies can strengthen relationships within an organization, certain technologies are better suited for certain types of communications. Telephones, for example, are useful when individuals want to interact, electronic communication technology is seen as convenient, and while websites are valuable for the dissemination of information, they do not foster a sense of belonging to an institution. Despite face-to-face and telephone allowing for communication that is more individualized and personal, there are drawbacks, such as inconvenience (difficulties in arranging meetings) and inequity (students that feel socially excluded by others felt excluded in face-to-face and telephone conversations). Montano and Dillon (2005) propose that technologies such as e-mail create "a fair, homogeneous environment" and may strengthen the individual-to-organization relationship (p.238).

E-mail use may also vary depending upon the size and culture of the academic institution – students at a smaller university used e-mail to make excuses or explain about missed classes, while students at a larger university

used it primarily to enquire about their grades (Duran et al., 2005). It will be interesting to see if this finding is replicated in my study of a medium-sized college. Reticent students, who prefer electronic communication over office visits, may afford instructors increased opportunities for communication (Kelly et al., 2004). E-mail, however, may not always be the most appropriate channel, and does not advance the student's ability to communicate orally (Duran et al., 2005; Kelly et al., 2004). Instructor comments regarding electronic communications include: "Very impersonal but very efficient"; "Quick but can't replace social interaction"; "It is both a blessing and a curse. A blessing when it opens doors of communication. A curse because it takes a lot of time to respond to them." (Duran et al., 2005, p.170). While deemed efficient for procedural information, electronic communication technology may not be appropriate for in-depth discussions or for sensitive topics.

Another communication issue concerns the on-line behaviour of students. In Duran et al.'s (2005) study, professors commented that students' writing style was "too informal and sometimes inappropriate" (p.174). The medium of electronic communication lends itself to brevity, particularly with some of the newer approaches, such as on-line messaging (Flanagin, 2005). While one might assume that e-mails should take the form of a letter, that sentiment does not appear to be universally shared and is likely to vary relative to the age of the sender or recipient.

Chen's (2001) study of e-mails between American and Taiwanese students and their American professors revealed divergent, culturally-influenced,

strategies. The Taiwanese student e-mails, for example, tended to be more deferential and, consistent with Chinese culture, used a 'gift-giving strategy' of including compliments to their professors. Chen's study supports the premise that language is socio-culturally determined, leading to the different communication styles of the e-mails.

Waldvogel's (2007) study, however, suggests that workplace culture has a greater influence on styles of communication than socio-cultural factors. Waldvogel compared e-mail communications within a multinational manufacturing plant which had European New Zealanders, Maori New Zealanders, Pacific Islanders, and other non-English speaking workers to e-mails within a New Zealand educational institution where staff were mainly middle-class, tertiary educated, and mono-cultural European New Zealanders. The study found more open and positive relationships between staff and management at the manufacturing plant, despite the disparities in language, education levels, and social backgrounds, suggesting that organizational culture was more influential than social-cultural factors.

Time Issues

A common concern among faculty is that electronic communication technology tends to add to their workload, and so Haworth (1999) set out to determine whether e-mail increased the volume of student-faculty interaction. His study suggests that contact does not increase but is instead redistributed to an alternative form. Rather than augmenting their face-to-face contact with professors, students used e-mail as a substitute. Additionally, Haworth (1999)

found that students with prior internet experience were more likely to use e-mail for contacting professors, and that e-mail increased when professors provided a course-dedicated webpage. This finding is consistent with Ishii's (2005) premise that experienced e-mail users were more comfortable with its use for equivocal tasks.

Duran et al. (2005) propose that the relationship is more complex than presented by Haworth (1999); the extent to which e-mail is augmenting or replacing other communication forms may be determined by "instructor and student variables" (p.171). In addition, their study found a gender difference relating to time, with female faculty receiving significantly more "e-mails from students than their male counterparts" (p.171). They also recommend further research into the variables involved in e-mail usage by faculty and students (Duran et al., 2005).

A longitudinal study on the changes since 1994 of the attitudes and experiences of first year Australian university students suggests that use of e-mail will increase as students spend less time on campus and more time working at a job:

> The last decade has seen full-time students progressively spending fewer days on average on campus and reduced hours in class per week (17.6 hours per week in 1994 compared with 15.9 hours per week a decade later). This trend is accompanied by a significant rise in the proportion of full-time students committed to paid employment (47 percent in 1994 compared with 55 percent in 2004). (Krause et al., 2005, p.5)

The authors found a significant inverse relationship between student use of e-mail for contacting staff and peers and time spent on campus, suggesting

that, as students increase their time at paid work, the volume of e-mails to faculty may also increase (Krause et al., 2005). Office hours may no longer adequately meet these students' needs and use of electronic communication may be the replacement (Haworth, 1999). In Atamian and DeMoville's (1998) model of replacing office hours with e-mail, timely feedback to student queries was felt to be essential, requiring instructors to check their e-mail frequently. The results of a survey conducted in 2006 indicate that School of Business students at Camosun College work an average of twenty hours per week in addition to taking three or four courses (Lee, 2006). It shall be interesting to see whether the results of this study validate these previous findings.

Gender and Age Issues

Other studies have set out to examine whether age or gender affects faculty use of computers and computer-based technologies in teaching and research (Ogan & Chung, 2003; Wang & Cohen, 1998). Ogan and Chung (2003) determined that women are not technologically challenged and are using and teaching the same technology-based courses as their male colleagues. In fact, women's "attitudes toward change and the use of technology are even more positive than that of the men in the study" (p.367). Female faculty, however, experience significantly more stress than men, concerning both technological factors, such as training and out-dated equipment, and personal stressors, such as health, family and lack of personal time. Wang and Cohen (1998) found "no difference in the use of e-mail between the male and female faculty" but felt an overall conclusion on gender was not possible given their survey imbalance, with

twice as many male participants as female (p.459). Additionally, Wang and Cohen (1998) could not determine "the relationship between age and use of internet services" due to the low number of survey respondents in the older age group (p.459). These inconclusive findings suggest that age and gender should be taken into consideration in any survey of technological issues regarding faculty.

Faculty Productivity

Studies of faculty productivity reveal a difficulty in settling on a common definition, suggesting that it is no longer reasonable or accurate to use traditional measures, such as research production, for evaluative purposes (Antony & Raveling, 1998; Bock, 1997; Massy & Wilger, 1995). Instead, productivity could reflect the range of activities that students benefit from, which include advising, teaching, research and community involvement (Bock, 1997; Katula & Doody, 1990). A frequent recommendation for improving productivity is to increase technological knowledge and many of the studies conclude that faculty development and staff training are essential for effective use of technology (Amey & VanDerLinden, 2003; Brown, Benson, & Uhde, 2004; Shepherd, 2004; Wang & Cohen, 1998).

Cohen's (1996) study of faculty at 26 U.S. universities and colleges found a positive correlation between frequency of use of computer-mediated communication and volume of publications produced. While the study does not prove that computer-mediated communication caused the increase in publications, faculty believed it was beneficial, and that e-mail and network

access offered new tools for research, more timely access to information, and enhanced contact with faculty at other institutions. Presumably, the same premise could be extended to the relationship between faculty and student. The study's measure of productivity was limited to quantity of publications, ignoring quality of production and other facets of faculty performance, such as instruction.

The enhanced ability to communicate with off-campus faculty suggests that new communication patterns are emerging to augment more conventional ones such as conferences, telephone, and correspondence (Baldwin, 1998; Cohen, 1996; Di Petta, 1998). Assignments, for instance, may now be submitted electronically from an offsite location rather than physically delivered, and discussions between parties can be conducted from a distance. This evolution is consistent with Giddens' (1984) notion of Structuration Theory. Giddens' contention that structure and agency operate in a recursive relationship suggests that emergent communication technologies, such as e-mail, will inform communication patterns and individuals will adjust their behaviour accordingly.

Summary of the Research Findings

Use of electronic communication technology at educational institutions has been increasing and rapidly evolving, generating academic discussion of its role in higher education. As proposed in Giddens' (1984) Structuration Theory, changes in communication strategies between faculty, students, and other parties, have altered scholarly work. Electronic communication's efficacy may be dependent upon the skill level, age, culture, and media-preferences of the participants. A broader definition of faculty productivity may be required than that

of simply measuring scholarly output. Consequently, perceived faculty performance which is inclusive of both traditional measurements of faculty productivity and other aspects of faculty work such as student advising, coaching and mentorship will be used in this study.

CHAPTER 3: RESEARCH METHODOLOGY

Method of Inquiry

Qualitative research in education and other social science disciplines is increasing in usage and importance as a method of inquiry (Gall, Gall, & Borg, 2003; Marshall & Rossman, 2006). This research tradition is appropriate for studying complex social phenomena with the intent of improving understanding and perhaps introducing change. A qualitative study is concerned with context and process and is usually interested in questions of *how* (Patton, 1987; Toma, 2006). This study of faculty productivity is situated within the context of an instruction-oriented college in Western Canada with all the peculiarities resulting from its unique history and organizational culture. A qualitative approach is appropriate for a study interested in presenting the "broad, panoramic views rather than micro-analyses. The more complex, interactive, and encompassing the narrative, the better the qualitative study" (Creswell, 2003, p.182). While job productivity and performance can be quantified to a certain degree, it contains many qualitative elements, which depend upon the individual faculty member's perception and unique history. This study will explore faculty perceptions as much as the reality of their experience with electronic communication technology and a qualitative study allows for both of these aspects to be captured.

Case Study Approach

An instrumental case study is an appropriate method for examining innovations with the intention of setting policies or improving decision making (Stake, 2005; Toma, 2006). This methodology also allows for a phenomenon to be studied in-depth within its natural setting and from the perspectives of the participants (Gall et al., 2003; Patton, 1987). It is likely that a multiplicity of views will exist among faculty and a case study approach should capture the nuances of input expected from participants. Given the rapid technological changes involved, the use of a bounded system will capture the relevancy of this case to this particular timeframe and this particular population and will include factors distinctive to this site, such as informal and formal policies and procedures regarding usage of electronic communication technology and other communication strategies. There are many factors involved, such as age of participants, skill levels, attitudes, education, and possibly gender, and a case study allows for those issues to be considered in the analysis.

A major strength of the case study methodology is the opportunity to use multiple sources of data collection (Yin, 1994). While the interview will generate faculty perceptions regarding usage of electronic communication technology, a comparison with actual usage will be attempted. Faculty will be asked to maintain time logs for a one-week portion of the fall 2007 semester. Demographic information will also be collected, including age, gender, and number of years teaching in academic institutions.

Assessing the Rigor of Qualitative Research

In quantitative research, methods of testing the validity and reliability of study results are well established. Parallel standards can be applied to qualitative research in order to demonstrate rigor (Toma, 2006). These standards of credibility, transferability, dependability, and confirmability will be discussed in terms of this study.

Credibility

The credibility of the study depends upon the degree to which the findings reflect the reality from the participants' perspectives and make sense to the readers of the study. Any study performed will be inherently subjective, due to what Toma (2006) refers to as the use of the researcher as the collector and analyzer of data. Drawing on Creswell's (2003) list of key variables to what he terms as *validity*, the following procedures will help affirm the credibility of this research:

1. Triangulation strategies that will be used to augment relevance and reliability of the data collected will include the collection of time logs to augment the interviews, use of methods similar to methods employed in other related studies, and a comparison of perspectives on the data with other theories articulated in the literature.
2. Transcribed documents from the interviews will be shared with the interviewees to confirm accuracy.
3. Rich, thick description will be used to describe the findings in order to convey to the reader the setting within which the case study resides.
4. The bias of the researcher will be clearly stated.
5. Negative or discrepant information will be disclosed in order to enhance the credibility of the study to the reader.

6. The researcher will spend six months researching this topic and, as an instructor at the college over a twenty-year period, has developed an in-depth understanding of the site.

Transferability

A qualitative study's transferability or generalizability to other populations or settings may be difficult but is still possible (Patton, 1987; Stake, 2005; Thomas, 2006). While the results of this study may be applicable to other colleges, universities and organizations, the size and culture of each organization impacts its use of technology and technological change is perceived differently by different faculties within educational institutions (Shepherd, 2004; Tytherleigh, Webb, Cooper, & Ricketts, 2005; Waldvogel, 2007). Furthermore, the results of this study are applicable to the use of technology in 2007. Even so, transferability will be encouraged by the provision of adequate thick, rich description and contextual information to allow the reader to determine the appropriateness of comparability (Stake, 2005; Toma, 2006). Transferability will be furthered by the inclusion of faculty from departments outside of the School of Business at the College.

Dependability

In qualitative research, it is possible that the research design may change over the course of the research project as the researcher becomes more informed during data collection (Toma, 2006). Dependability will be enhanced in this study by full description of the research design, initial approach and any changes that were made during the research process.

Confirmability

Even though some subjectivity is inherent in qualitative research, it is important to determine that the study's findings are as free from bias as possible (Marshall & Rossman, 2006; Patton, 1987; Toma, 2006). Confirmability will be strengthened by provision of an audit trail of the research findings, consideration of alternative conclusions, and an awareness of the researcher's own biases.

Research Procedures

Ethics Approval

Following the ethics review process, I received permission to proceed with my research from the Research Ethics Board of Camosun College on July 12, 2007 and from the Office of Research Ethics of Simon Fraser University on July 29, 2007.

Sample Selection

I selected faculty from the School of Business that showed a typical range of cases defining the population of interest as well as some faculty at the extremes (Stake, 2005; Thomas, 2006). I included individuals that represented a range on a number of criteria, such as age, gender, area of expertise or discipline, and seniority. The sample was limited to full-time, continuing faculty as part-time faculty have other issues of availability to students that change their approach to electronic communication. This purposive sample involved faculty whose primary role is instruction within the School of Business at Camosun College. I wanted to concentrate on the issues central to teaching rather than the issues of communication that would pertain to those fulfilling an

administrative position. Nine interviews were conducted as I felt that number was sufficient to give representative coverage of the range and the extremes. I was prepared to increase the sample should the interview results show great variety in answers but that wasn't necessary as patterns of response were apparent.

My study also included a subset of faculty members from other Schools within the College and I used similar criteria as mentioned above for selection of seven individuals, resulting in eight male and eight female participants in total. The purpose of the subset was to determine whether experiences noted in the School of Business participants are shared by other faculty. Finding commonalities would help to confirm the results of the study and suggest that transferability to other populations may be appropriate. Emergence of differences would suggest the need for further investigation in a later study.

Recruitment of participants from the School of Business

I recruited participants from the School of Business by asking for volunteers at a school-wide meeting attended by about 75 faculty members held in August 2007. I explained that I was completing a doctorate in Educational Leadership through Simon Fraser University and that my dissertation topic was the impact of electronic communication technology on faculty productivity. I told the audience that I needed volunteers for my study and that volunteers would be asked to complete a time log for a one-week period, capturing their use of electronic communication technology. As well, each volunteer would be interviewed one-on-one and the interview would take about one hour. I also

mentioned that the results of the study would be presented in a manner that assured confidentiality and that I would not disclose the names of those who participated in my study. I distributed a recruitment letter (Appendix A) and asked that individuals who were interested or who had questions fill in the form.

Of the fourteen volunteers who completed my form, three ticked the box for "I have some questions. Please call me". One of these three individuals had not yet started teaching and since I wanted persons who could determine whether use of technology had changed from a year ago, I called them to thank them for their offer but to say they didn't meet my criteria for volunteers. When I called the other two potential volunteers, they indicated that they had no questions and were interested in being in the study – apparently they had ticked the wrong box. I rejected three more from the initial fourteen candidates as they did not meet my criteria of teaching full-time while not holding an administrative role in the College. The ten remaining participants fortuitously offered a good range for many of my criteria, such as age, gender, discipline of instruction, and number of years teaching. One of the ten remaining individuals completed the one-week time log but was not interviewed and subsequently dropped out of the study due to health issues, leaving me with nine volunteers from the School of Business faculty.

The interview process included a review of the logs with occasional adjustments being made due to this discussion; I did not have an opportunity to review the log with the individual who was not interviewed. Furthermore, there was no way to compare this participant's answers to interview questions

regarding time spent on electronic communication with the time recorded in the log and so I decided to exclude their log from the study results.

Recruitment of participants from other Schools

The faculty members from other Schools within the College were found via personal networking. I asked a few knowledgeable co-workers to recommend participants of various ages, length of teaching career, and disciplines. The twelve recommendations resulted in ten individuals who met my criterion of teaching full-time. Two of the ten possible candidates declined due to time constraints. I wanted all participants from all Schools to complete the time log during the same week but I was not able to arrange a time to explain the log to one individual before that week started and so I ended up interviewing the remaining seven faculty members.

It is worth noting a discrepancy in the selection of participants from the two populations, being the School of Business and the other Schools. The School of Business participants volunteered after having heard my short description of my topic; there was no personal solicitation and no coercion involved. The participants from the other schools were solicited by me over the telephone and had been pre-selected by another individual. I did give a similar description of my field of interest during the telephone call, so they were also aware that I was studying the impact of electronic communication technology on faculty productivity and they were also informed of the research methodology I planned to use. However, they were engaged in the discussion in a format that individuals listening to my talk were not in that I required an answer from them. I

did not mention the name of the person who recommended they be included in my study and I made a point of stating that no one at the College would be aware of whether or not they agreed to be interviewed and that confidentiality was assured.

Data Collection

Time logs

In addition to being interviewed, the participants completed a time log for seven consecutive days (Appendix B). Completion of the log required them to record their daily electronic communication activities, including time spent, number of e-mails sent and received, and tracking what they did with the e-mails (i.e. replied and/or forwarded, read and deleted, deleted without reading, took other action, or took no action).

Before distributing the time logs to participants I conducted a focus group with three faculty members and an administrator from the School of Business that were exempted from my study due to their administrative roles. The purpose of the focus group was to review my interview questions and my time log. This preliminary enquiry was to ensure that my questions were not leading or biased, that I hadn't missed any major topics, and that the time log was understandable. Based upon the focus group's feedback, I modified the time log to better support the research questions and to make it easier for participants to understand, and changed the wording of some interview questions (Appendix C). None of the results from this preliminary work were included in the study results.

The purpose of the time log was many-fold. I wanted to get a sense of the range and actual volume of electronic communications experienced, and if volume had any connection with their interview comments. I wanted to see if participants' answers to my questions regarding time spent on electronic communication was consistent with their log recordings. I wanted to compare logs from the School of Business participants with those from other schools to determine whether they were similar or different. I also felt that completing the time log would force participants to pay attention to their electronic communication behaviour. This raised awareness might help them give more accurate answers to my probing questions. Participants were requested to return completed logs to my office through inter-office mail. Most of the logs were returned to me in this manner and the remainder were given to me at the time of the interview.

Once participants agreed to be interviewed, I arranged via e-mail or telephone to meet with them individually for about 15 minutes. These meetings all took place between September 26 and Oct. 5th, 2007. During that meeting, I gave them a package of seven daily time logs and discussed their completion and the date I wanted them to start record-keeping. The instructions reviewed verbally with each participant were also written on the covering letter to the time log package. I told them that interview and time log results would be kept confidential and asked if they had any questions regarding my study or any parts of their involvement. I answered any questions and mentioned that I would send an e-mail on October 9, 2007 as a reminder to start filling in the time logs. I also

arranged follow-up interview times commencing in the week following completion of the log. I asked that they phone me with any questions and supplied them with three phone numbers. I asked each participant if they wanted any additional telephone or e-mail reminders during the week of completing the log and they all declined. I printed the logs on brightly coloured legal-size paper in the hope that they would stand out on the individuals' desks and serve as a reminder to complete them. One log was printed on brightly coloured letter-size paper, at the request of the volunteer.

One participant telephoned me during the morning of October 9, 2007, the first day of the time log portion of my research. My time log did not have a category for e-mails that were read and then archived. I decided to include these e-mails in the category identified as "replied and/or forwarded" and sent an e-mail out to all participants to explain this change to the time log. Other than my initial reminder e-mail to start the logs, that was the only additional e-mail that I sent during the week in which the time log data was being collected. The logs were completed from Tuesday, October 9, 2007 to Monday, October 15, 2007. I wanted to pick a week that was fairly average in terms of anticipated e-mail volume and so I chose to avoid September as the start of term can result in additional volume from both students and administration. I felt that a week in either October or November would tend to be fairly representative of e-mail traffic, both in terms of quantity and quality of communications. The Canadian holiday for Thanksgiving was Monday, October 8, 2007 and I wanted to avoid e-mail traffic from a holiday weekend so we started the next day. I was also hoping

to avoid mid-term exams as I suspected that students would be sending more electronic communications shortly before an exam. Some of the faculty involved in my study teach on a quarterly system and some teach on a semester system and some courses have one midterm, others have two, and some have none. Avoiding the midterm exam period was not entirely successful given the variety of teaching schedules and programs involved. During the discussion of the log, I asked participants whether they felt that the week was fairly typical in terms of volume and whether they had changed their behaviour while completing the log. I felt that those questions would give me some sense of whether or not the week selected was fairly normal for them in terms of electronic communication content and whether their behaviour was normal as well.

The interviews were all completed between October 22, 2007 and November 2, 2007. I wanted to interview participants shortly after they had completed their logs so they would be fresh in their minds and would be able to recall the week involved. Each participant selected an interview time that suited their schedules and chose to be interviewed in their office or my office. One person shared an office and so the interview was conducted in the staff lounge, which was empty at the time.

Preliminary Interview Process

Using what Patton (1987) refers to as the interview guide, I chose a conversational approach. In order to encourage divulgence of information on related topics, my wording of questions was not always exact. So that my results

were comparable, all questions were asked somewhere in each interview, though not always in the same order or with the same wording.

In order to inform my interview questions, I interviewed a colleague unofficially regarding the impact of electronic communication upon her work performance. I selected someone who had volunteered to be part of my study but did not meet my criteria of teaching full-time without an administrative role at the college. That discussion identified some additional issues pertinent to my topic and helped me formulate my initial set of interview questions. I subsequently tested out my interview questions by conducting a formal, taped interview with a faculty member who was soon to retire from the School of Business. Our follow-up discussion on both the questions and the process overall led me to modify and rearrange the questions into themes. As previously mentioned, these questions were further modified to incorporate changes suggested by the focus group.

All participants signed an informed consent form prior to the interviews being conducted (Appendix D). The interviews were tape-recorded and took between 30 minutes and one hour each. The tape recorder stopped working during one interview but I didn't notice until the end of the interview. The person graciously agreed to meet one week later and the second half of the interview was taped again. I was concerned that the chance to ponder my questions for the one-week period between interviews might make a difference to that person's subsequent responses since they had had the benefit of hearing all the questions. I took handwritten notes of every interview in addition to the taping

and my comparison of the two second halves of the interview did not reveal any major differences in comments.

My interviews initiated with some numerical questions regarding percentage of time spent on different aspects of electronic communication with different groups. These questions proved challenging for some faculty who were less numerically inclined and so I always asked them first to get them out of the way – there was no real flow of discussion regarding those questions. Once those questions were handled, I allowed the interviewee to digress on further questions, ensuring that all of the questions were eventually answered but not necessarily in the order that I had pre-arranged on paper. A number of the interviewees did talk about critical issues not directly resulting from any of my questions and these discussions are included in later chapters.

The interviews were transcribed during November and the transcriptions were sent to each participant for verification of accuracy. All participants chose to review the transcriptions that were sent to them electronically. Other than a few word changes, all participants said that the transcriptions reflected the interviews accurately. Any suggested word changes were made to the transcriptions.

Qualitative research tends to be emergent rather than pre-ordained, suggesting that questions will be altered as more is learned from participants during the interview process (Creswell, 2003). My review of some of the completed time logs led me to add a final question to my interview questions regarding old e-mails. As well, responses from participants to some of my

interview questions encouraged me to ask questions additional to those identified in Appendix C, but for the most part, I covered all the questions in the interviews.

During the interview, the log results were discussed to ensure that I understood their markings on the log and to verify that they had followed my instructions. In two cases, adjustments had to be made. In one case, my review identified that the person had spent a much larger amount of time on e-mail at home than I had seen in other logs. Our discussion revealed that time spent on non-Camosun work had inadvertently been included. The log was adjusted to remove time spent on those e-mails. Another individual recorded that the e-mails had been sent from the work-site on Sunday, Oct. 14, 2007 when the e-mails had actually been generated from their home. The log was changed to shift those notations over one column to show that they were sent from a remote location.

Interview questions

My questions could be grouped into three main categories, being questions about the person's demographics, their experience, and their opinions (Patton, 1987). While I did not explicitly ask any feeling questions, participants expressed their feelings about the subject matter in response to some of my questions. In this section I will explain my rationale for including these questions in the interview and what information I hoped to glean from them.

Demographic questions

1. How long have you been teaching at Camosun College? How long in total have you been teaching?
2. Which School and which discipline do you primarily teach in? Which age range are you within? Do you have internet access at home? Is it high-speed internet?

The purpose of these questions was to help locate the participants in relation to others and to potentially allow for transferability of the study findings to other populations. Other studies have found that age and gender have an impact on usage of electronic communication and I wanted to determine whether or not these factors would impact this study (Baldwin, 1998; Ogan & Chung, 2003).

Experience questions

3. What modes of communication are you using for communicating with your students outside of the classroom? (Website postings, blogging, e-mail, face-to-face, telephone, msn)

4. What percentage of your working hours is spent communicating via electronic communication (exclude telephone and fax) with students? (0-20%, 20-40%, 40-60%, more than 60%)

5. Outside of class time, what percentage of your communication with students, is via:
Electronic communication technology ___Face-to-face ___Telephone ___
Other ____

6. During an average week, how much time in total do you spend communicating with students outside of class time via all media?

7. What percentage of your working hours is spent communicating via electronic communication (exclude telephone and fax) with others, such as administrators, publishers, support staff, etc.? (0-20%, 20-40%, 40-60%, more than 60%)

8. What percentage of your communication with others, is via:
Electronic communication technology ___Face-to-face ___Telephone ___
Other ____

9. During an average week, how much time in total do you spend communicating with administrators, publishers, support staff via all media?

This initial group of experience or behaviour questions was to allow me to get a sense of the volume of electronic communication that faculty were experiencing, both with their students and with other parties, and what modes of communication they were utilizing. This information may aid in the ability of others to assess transferability of this study's results to other populations of interest.

10. Do you save e-mails? If so, what percentage of e-mails do you save? For how long? Why do you save them?
11. Do you print e-mails? If so, what percentage of e-mails you receive do you print? Why do you print them?
12. Has the amount of time you spend on electronic communication changed as compared to one year ago?
13. Are there periods throughout the semester when time spent on electronic communication increases or decreases? What factors might be causing this change?

This next set of questions was of lesser importance, but I felt that I would be remiss in passing up the opportunity to ask them of my group. I was curious to see if there was any connection between saving and printing behaviour and participants' age or gender. I also was interested in seeing if there is any trend in terms of usage of electronic communication that is being experienced. I limited my trend analysis to only one year as three of my subjects had only been teaching at Camosun for one year. The final question was designed to give information regarding volume, to determine whether or not it was constant across the term. I was hoping to capture time log data from a fairly normal week and I thought this question might help to confirm whether or not I was successful.

14. What is the nature of the student electronic communications? (Asking for assistance on course content, asking for assistance on assignments, administrative (due date, sickness))

This question is similar to one from a survey distributed to faculty at two American educational institutions, one being a small private university and the other being a mid-sized public university (Duran et al., 2005). Faculty overall felt the main reason for students to send an e-mail was excuses, followed by course-related contact and then concern about grades. I wanted to see if similar results

would be found at Camosun College, a college of similar size to the public university (enrolment of 10,500) in the study.

15. Does electronic communication contact with students impact student use of your office hours? If so, how?

An Australian study (Krause, 2005) suggested that electronic communication usage increased as students spent reduced amounts of time on campus. I suspect that office hours may be utilized less by students and I wanted to see if that were true.

17. How quickly do you tend to respond to student electronic communication requests?
18. Do you have any policy on electronic communication in your course outline or that you discuss with students at the start of a semester?

Atamian and Demoville's (1998) study suggested that timely feedback to student queries was an essential component of successful use of the electronic medium. I wanted to see what range of response times exist and to determine whether or not faculty expectations are shared with students, either verbally or in writing.

19. Do you check electronic communication on week-ends? How often do you check? Do you respond to electronic communications on weekends?
20. Do you check electronic communication in the evening? How often do you check? Do you respond to electronic communications in the evening?
21. Do you check electronic communication when you are on holiday? How often do you check? Do you respond to electronic communications when on holiday?

These questions are related to my interest in expected response time. Again, I wanted to determine what range existed for responding to electronic communication on weekday evenings, weekends, and while on holidays. The

definition of holidays, which was shared with interviewees, included vacations but excluded statutory holidays, such as Thanksgiving, that occurred during the term of instruction.

24. In terms of work, what typically do you use electronic communication for? In terms of work, what, typically, don't you use electronic communication for?

Many of the studies that formed part of my literature review discussed the ability or inability of electronic communication to deal with certain forms of communication, such as equivocal tasks (Daft & Lengel, 1986; Daft, Lengel, & Trevino, 1987; Ishii, 2005; Roberson, 2004). I wanted to determine whether or not Camosun faculty avoided using electronic communication for certain tasks. I was careful to not give any examples of sorts of communication that may be avoided electronically as I feel quite strongly that electronic communication is a lean media, subject to misinterpretation and miscommunication. I did not want to show my bias to my participants.

28. What strategies have you found helpful for improving your productivity regarding use of electronic communication devices?

I feel that a beneficial outcome of this study may be suggestions for ways to improve performance regarding use of electronic communication and so I asked participants for their personal strategies.

31. Did you discover anything while completing the time logs? If so, what?

32. Did you change your pattern of dealing with electronic communication while completing the time log? If so, how?

33. I notice that many people did not deal with old e-mails on a daily basis. What happens to your old e-mails? How many e-mails do you have in your inbox right now? How many are from yesterday or earlier? Is that the norm for you?

My final group of behavioural questions involved a discussion of the time logs. I was curious whether the process of completing the time log had led to any surprises or discoveries about their electronic patterns of behaviour. I also wanted to document whether behaviours had been adjusted during completion and what the change involved. While studies have shown that behaviours may adjust because of being studied, I felt that explicit behaviour changes may have also occurred (Roethlisberger & Dickson, 1939). As mentioned earlier, the question regarding old e-mails stemmed from a review of some of the time logs prior to starting the interviews. I noticed that very few old e-mails were being dealt with during the seven days. I was starting to suspect that e-mails were handled either immediately or not at all, and I wanted to verify that thought.

Opinion questions

I think that an important component of electronic communication is people's opinions or attitudes regarding its usefulness. I therefore asked for views on expected response times, communicating with different student groups, impact of electronic communication on faculty productivity, productivity definitions, and strategies for improving use of this technology. I will discuss the implications of each question below.

16. What do you consider to be an appropriate response time to student electronic communication requests?

As mentioned earlier, I asked faculty how quickly they tended to respond to student electronic communication requests in Question 17. Question 16 asks for their opinion on what they think is a reasonable policy. One of the concerns

that started me on this investigation was expectations of response time to electronic communication requests sent by students and others, and I was curious to see if a pattern would emerge that may inform policy-setting in this arena.

22. How, if at all, is electronic communication with 'English as a Second Language' students different from electronic communication with other students?

23. How, if at all, is electronic communication with 'older' students different from electronic communication with other students?

I wanted to determine whether my study would support Chen's (2001) findings of a difference in e-mail communication styles between American and Taiwanese students and to further that study by seeing if any difference was perceived between older students and other students. I also asked faculty to define 'older' in terms of our students.

25. How would you personally define productivity with regard to your work as a faculty member?

26. Are there certain aspects of electronic communication technology that increase your productivity? If so, please explain.

27. Are there certain aspects of electronic communication technology that decrease your productivity? If so, please explain.

My literature review revealed that faculty productivity has not been consistently defined and so I asked faculty to give me their personal definition of productivity (Antony & Raveling, 1998; Bock, 1997; Massy & Wilger, 1995). The question was met with many blank stares when asked, and so I asked more informally: "If somebody said, 'have you had a productive year?' what would you be looking at, in terms of your work at the College?" I then asked for aspects of electronic communication that increased and decreased their productivity.

29. If you could change anything about electronic communications, what change would you make that might increase your productivity? What could be done to improve use of this technology at the College?

30. Overall, do you think electronic communication technology makes you more or less productive? Why? Is there anything else I should know about the connection between electronic communication technology and your productivity?

Questions 29 and 30 were designed to identify problems that participants are having, or that they perceive, with use of technology at the College, and to generate suggestions for improvements. The final question in this section was to get an overall opinion on the usefulness of electronic communication in terms of productivity and to determine whether there were any other aspects of electronic communication that my questions had not unveiled, by asking if there was anything additional the person wanted to tell me.

Feeling questions

While none of the questions were designed to be feeling questions, feelings were expressed in response to some of the interview questions. Some respondents were rather ambiguous in their answers and so I asked them outright whether or not they liked electronic communication as an additional question. Feeling responses were also fairly standard in response to the question regarding what participants felt electronic communication should not be used for and what elements of electronic communication decreased their productivity. Many of these sentiments are captured and expressed in the quotations in later chapters.

Data Evaluation

My initial evaluation of the data generated by the interviews was a qualitative analysis whereby I coded all the transcriptions. I coded the data at least three times, with each pass refining and reducing the number of codes so that I ended up with a manageable number of themes (Appendix E). These themes and their implications are discussed in Chapter 4.

Data evaluation of interview responses

The second method of evaluation was to compare the responses to each question between the School of Business faculty and the faculty from the other schools ("other" faculty). I reviewed the interviews many times, particularly as faculty members occasionally gave answers to different questions in response to another question asked. This iteration helped me to gain familiarity with the data and to find common themes (Creswell, 2003). Tables of responses or information that I want to emphasize in my discussion are included in the relevant sections of Chapter 4 and the remainder of the tables are presented in Appendix F. The following is a description of the evaluation method used for each of the 33 questions asked in the interviews.

Question 1: How long have you been teaching at Camosun College? How long in total have you been teaching?

Question 6: During an average week, how much time in total do you spend communicating with students outside of class time via all media?

Question 9: During an average week, how much time in total do you spend communicating with administrators, publishers, support staff, etc. via all media?

Questions 1, 6 and 9 generated a numeric reply that is reported for all 16 participants; School of Business faculty, and other faculty. I also combined the

answers to Questions 6 and 9, allowing me to report on the total time spent on all work-related communications outside of the classroom.

Question 2: Which School and which discipline do you primarily teach in? Which age range are you within? Do you have internet access at home? Is it high-speed internet?

While I collected data on the disciplines within which each instructor taught, I omitted that data from the results and only reported the number of individuals from each of the four Schools in the study. Some of the disciplines have few faculty members and I was concerned that disclosing disciplines might make some of the participants' comments identifiable. The age range and gender of participants was recorded by each of the three groups. The high-speed internet question generated a yes/no response, and again, this information was tabulated for the three groups. The individual who was temporarily without a home computer was included in the 'no' category for this question but answered the remaining questions which involved a home computer (i.e. "do you respond to e-mails in the evening?") based upon their prior behaviour. The lack of a computer meant that the time log for this person showed no time logged in the evenings or on weekends.

Question 3: What modes of communication are you using for communicating with your students outside of the classroom? (Website postings, blogging, e-mail, face-to-face, telephone, msn)

During the interview process, I read out a list of possible modes for communicating with students and participants identified all of the methods that they typically employ. I reported on the number of individuals using each method within the three groupings. As no participants were using MSN, I excluded it

from the tabular results. I combined 'blogging' and 'other' as only one individual is using blogging as a communication medium.

Question 4: What percentage of your working hours is spent communicating via electronic communication (exclude telephone and fax) with students? (0-20%, 20-40%, 40-60%, more than 60%)

Question 7: What percentage of your working hours is spent communicating via electronic communication (exclude telephone and fax) with others, such as administrators, publishers, support staff, etc.? (0-20%, 20-40%, 40-60%, more than 60%)

Participants chose one of four categories that represented their average amount of time spent on this activity.

Question 5: Outside of class time, what percentage of your communication with students is via: electronic communication technology, face-to-face, telephone, or other?

Question 8: What percentage of your communication with others is via: electronic communication technology, face-to-face, telephone, or other?

I asked each participant to assign 100% to the above-mentioned four categories. A number of participants' first answer did not add up to 100% and so I asked them again to assign values to the categories. In order to identify the number of hours spent on communication via each modality, I cross multiplied the results to Questions 5 and 6 and the results to Questions 8 and 9. I combined these totals and reported on the range of time spent on each modality.

In order to validate the comments made during the interviews regarding time, I compared the total time participants said they spent on electronic communication to the actual time spent during the week, as reported on their time logs. One School of Business instructor said in the interview that they spent 17 hours a week on electronic communication and yet their time log showed 5 hours for the week. The estimate of another School of Business instructor, who

had included instruction time in their estimate of student communication time, was double the amount of time they actually spent during the week of the time log. My follow-up discussion with that individual did not illuminate the portion of time spent teaching and the portion spent on communicating outside of teaching hours. Both instructors commented that the time log occurred during a slow week but, given the large discrepancy between their estimated and actual times, I removed both of their estimates from the data. I found the responses consistent with the time log entries for the remaining individuals.

Question 10: Do you save e-mails? If so, what percentage of e-mails do you save? For how long? Why do you save them?

The first question in this series of questions generated yes/no answers and I charted those answers by grouping. The answers to what percentage is saved were very vague and so I didn't capture that data in a table. I categorized into four groupings the answers to the "for how long" question. I grouped the 'why' responses, to which I received more than one reason from some people, into common reasons.

Question 11: Do you print e-mails? If so, what percentage of e-mails do you print? Why do you print them?

Many individuals initially said no in response to this question, but then added "almost never" or "very rarely" to their answer. I grouped the responses into "sometimes", "very rarely" and "never" to reflect answers to the first two questions together. The answers to the "why" portion of the question were organized into six categories, with responses exceeding the number of participants as some instructors gave more than one reason.

Question 12: Has the amount of time you spend on electronic communication changed as compared to one year ago?

The responses were grouped into three categories; time spent has increased, decreased or no change. Reasons for the change were grouped thematically, with reasons for increased time shown separately from explanations for decreased time.

Question 13: Are there periods throughout the semester when time spent on electronic communication increases or decreases? What factors might be causing this change?

The first part of question 13 generated a yes/no response, followed by factors which participants who answered "yes" feel might be causing fluctuations.

Question 14: What is the nature of the student electronic communications? (Asking for assistance on course content, asking for assistance on assignments, administrative (due date, sickness))

Faculty identified the many reasons why students would contact them via electronic communication and these reasons were arranged into six categories, with more than one response given by most participants.

Question 15: Does electronic communication contact with students impact student use of your office hours? If so, how?

When answering this question, faculty identified whether they felt student use of electronic communication increased, decreased or had no impact on usage and so I combined the two questions into one table, reflecting the direction of the change and whether a change was felt. One individual, who has never experienced office hours without electronic communication present, was not prepared to give an opinion and so was excluded from the results.

Question 16: What do you consider to be an appropriate response time to student electronic communication requests?

Question 17: How quickly do you tend to respond to student electronic communication requests?

The answers to these two questions required some interpretation and clarification. I realized that my questions were unclear and so I checked the answers I received with follow-up questions to ensure I understood the response given. If, for example, an interviewee said that they tend to respond within a few hours, I asked: "If a student sent you an e-mail at 10pm would your answer still be "within a few hours""? My follow-up question led to some of them explaining further, which helped me to get a better sense of what they felt was an appropriate response time and what their typical behaviour was. The answers were grouped into three timeframes that reflected the range of answers given.

Question 18: Do you have any policy on electronic communication in your course outline or that you discuss with students at the start of a semester?

I tabulated whether the person had a verbal policy, a written policy or no policy on e-mail that they shared with their students, and then listed both the verbal and written policies concerning electronic communication. The response I received one person with a written policy was unclear, so I verified the information by looking at their course outline.

Question 19: Do you check electronic communication on week-ends? How often do you check? Do you respond to electronic communications on weekends?

Question 20: Do you check electronic communication in the evening? How often do you check? Do you respond to electronic communications in the evening?

Question 21: Do you check electronic communication when you are on holiday? How often do you check? Do you respond to electronic communications when on holiday?

I summarized by faculty grouping the answers given to this series of questions. In order to validate the answers to these questions, I also compared the answers regarding evening and weekend checking to the time logs results.

Question 22: How, if at all, is electronic communication with 'English as a Second Language' students different from electronic communication with other students?

Question 23: How, if at all, is electronic communication with 'older' students different from electronic communication with other students?

The interview responses were clustered into two binary categories; communication is different and communication is not different. For the positive responses, I grouped them thematically and discuss the themes in Chapter 4.

Question 24: In terms of work, what typically do you use electronic communication for? In terms of work, what, typically, don't you use electronic communication for?

The responses to both of these questions were grouped thematically and presented in tables. Many individuals gave more than one answer to each question, particularly to the question of what they would not use electronic communication for.

Question 25: How would you personally define productivity with regard to your work as a faculty member?

The answers to this question were grouped thematically and presented in a table, with more than one answer often expressed by the participants.

Question 26: Are there certain aspects of electronic communication technology that increase your productivity? If so, please explain.

Question 27: Are there certain aspects of electronic communication technology that decrease your productivity? If so, please explain.

Question 30: Overall, do you think electronic communication technology makes you more or less productive? Why? Is there anything else I should know about the connection between electronic communication technology and your productivity?

Responses were grouped into yes/no categories. The multiple perceptions of ways in which electronic communication increased and decreased productivity were grouped into similar categories and presented in tables, with more than one response per person expressed. The explanations given in responses to Question 30 were very similar to the reasons expressed in response to Questions 26 and 27. Consequently, all similar comments made to these three questions were combined.

In order to confirm the person's overall opinion regarding electronic communication, I compared the individual responses to Question 30 to those given to Questions 26 and 27. One person's answer to this question was inconsistent with comments made to prior questions. A review of their transcription revealed that their response was about e-mail specifically and not electronic communication in general. A follow-up conversation clarified that they felt electronic communication was helpful and so I adjusted the tabulated results to reflect this sentiment. The second part of Question 30 was intended to generate any additional comments regarding electronic communication technology or productivity that my questions hadn't elicited. I was told a few interesting stories in response to this question or at the end of the interview. One participant answered 'no' to this question but, after I had turned off my tape

recorder, told an interesting story about a departmental conflict related to e-mail. I turned the recorder back on and they recounted the story for me. The responses to this question are included throughout my paper.

Question 28: What strategies have you found helpful for improving your productivity regarding use of electronic communication devices?

Question 29: If you could change anything about electronic communications, what change would you make that might increase your productivity? What could be done to improve use of this technology at the College?

Strategies and ideas for change were categorized and presented in a table, grouped into common responses. More than one response was offered by many participants.

Question 31: Did you discover anything while completing the time logs? If so, what?

I wanted to fully utilize the value of the participants by asking for their observations regarding the usefulness of completing the time logs. Good research should forward the learning of the participants and I was interested in what value, if any, had resulted from this experiment (Patton, 1987). Discoveries that participants shared with me are discussed in Chapter 4.

Question 32: Did you change your pattern of dealing with electronic communication while completing the time log? If so, how?

Due to the fact that this aspect of their lives was being studied, It is likely that all participants changed their pattern of dealing with electronic communication to some degree (Roethlisberger & Dickson, 1939). Additionally, I wanted to see if any individuals were conscious of, or had explicitly changed their behaviour in some manner while completing the time log. I tabulated the yes/no

answers to the first question and describe those results, along with the changes in Chapter 4, for those that self-identified as having made a change.

Question 33: I notice that many people did not deal with old e-mails on a daily basis. What happens to your old e-mails? How many e-mails do you have in your inbox right now? How many are from yesterday or earlier? Is that the norm for you?

I added this question after receiving time logs back from participants that showed very little time being spent on old e-mails. I suspect that if an e-mail isn't dealt with immediately, then it is possible it will never be dealt with, and I hoped this additional question would shed some light on this conjecture. I also wanted to see if any pattern exists between behaviour with old e-mails and the number of e-mails in inboxes. Marshall and Rossman (2006) hypothesize that the subjective view is what really matters in qualitative research but that if a researcher wants to make more objectivist assumptions they need to triangulate the interview data with other data. I did want to corroborate the responses to Question 33 – if individuals, for example, responded that they dealt with e-mails immediately, then I thought they should have few e-mails in their inbox. I compared the responses in Question 33 to the time logs. I did not ask the question regarding age of the old e-mails as some of the interviews took place in locations where the individual did not have access to their computer. While they might feel comfortable answering my question on the number of old e-mails in their in-box, I felt it was unrealistic to think they would know the answer to the question about age of old e-mails, suggesting that answers might not be accurate. Some of the choices made in a case study, such as what questions to ask, must consider issues of access and hospitality (Stake, 2005). As these

questions were asked at the end of the interview, I felt I would overstep my welcome by returning to numerical, detailed questions. Furthermore, I could reasonably estimate the age of old e-mails based upon the answer given to the prior question on volume.

Data evaluation of time logs

Roberson's (2004) study of e-mail as a communication tool included time logs but, as only 7 of the 45 participants completed the logs, the validity of her findings may be limited (p.74). I included time logs in my study in order to see how individuals in my study were managing their electronic communications, and to see if my study would garner results similar to Roberson's (2004). What volumes were they experiencing and how much time were they spending on electronic communication? If they felt a message was relevant, what were they doing with it? What portion of incoming communications is relevant to their work and, if irrelevant, were they still being read?

The time log results were tabulated and responses were compiled into the two faculty groupings. Comparisons were made between the School of Business faculty and other faculty on the number of electronic communications sent by participants, time spent on electronic communication each day, number and handling of electronic communications received each day, handling of old electronic communications, and the percentage of communications that were deleted without reading or on which no action was taken. A comparison was also made of the volume of communications received during the work week and on the weekend by gender. In order to avoid double-counting, electronic

communications received prior to the day are excluded from all tables other than those which specifically look at old e-mails. If a communication is received on Monday, for example, but not dealt with until Tuesday it will show up in both Monday's and Tuesday's volume. The comparative tables are presented in Chapter 4, with complete tabulations of the time logs appearing in Appendix F.

CHAPTER 4: RESULTS

Demographic Information

I interviewed nine individuals from the School of Business and seven from other Schools at Camosun. While the purpose of the study was not to have full representation from all disciplines at Camosun College, I ensured that the School of Business faculty included membership from all of the major areas of study. I intended to focus my study on the School of Business faculty, but wanted to ensure study reliability and transferability and therefore included faculty from other schools at Camosun. The other faculty participants included individuals from three of the four other schools at the College; Trades and Technology, Arts & Science, and Health & Human Services (Table F1 in Appendix F).

The number of years working as a faculty member at Camosun College ranged from 1 to 25 years (Table F2). The overall average was 8 years for the School of Business faculty and 7 years for the other schools. The number of years working as a faculty member at any educational institution ranged from 2 to 27 years (Table F3). The data collected regarding years of service proved reliable across the various schools. Since technological attitudes could vary relative to the age of the individuals involved, I selected participants from different age groups (Wang & Cohen, 1998). Although I interviewed individuals from every decade between ages 20 and 60, the ages are weighted towards the higher ranges, with 75% of the individuals being between the age of 40 and 60

(Table F4). That phenomenon is consistent with the age of individuals teaching at post-secondary institutions – a national study of U.S. colleges and universities found the average age of faculty is between 49 and 51 (Huber, 1998). Unfortunately, I have no participants from the 61 to 70 years category.

My study included interviews with eight women and eight men, with equal numbers of males being from the School of Business faculty and the other faculty group and with five women interviewed from the School of Business faculty and three women interviewed from other schools. All but one participant has high-speed internet access at home. The aforementioned individual was in the process of moving and so the lack of a computer was temporary but did exist during the time of my study.

The most common methods of communicating with students are e-mail, face-to-face, telephone, and website postings. Blogging and Facebook were also being used for communicating with students and for faculty communications. All but one participant reported spending less than 20% of their working hours on electronic communication with students outside of class time. That person reported spending 25 hours per week on average communicating with students. A lot of these discussions involved one-on-one evaluations of the students' progress and could be considered part of that instructor's teaching load. When this individual is removed from the findings, the School of Business results are very similar to those of the other faculty, with time spent communicating with students outside of class ranging from two to eight hours per week (Table 1).

This data would indicate that there does not appear to be a significant difference between e-mail use amongst various disciplines.

Table 1. Time spent communicating with students outside of class time

	All faculty (15)	SOB faculty (8)	Other faculty (7)
Range	2 to 8 hours	2 to 8 hours	4 to 8 hours
Average	6 hours	6 hours	6 hours

Note. One School of Business (SOB) faculty member was omitted from the responses as part of their reported time included teaching time. SOB = School of Business.

A wide range of responses was expressed for the percentage of time spent communicating with students via different modalities, capturing the different approaches to communication being used (Table 2). All faculty interviewed spent at least 20% of their time communicating with students face-to-face, but some faculty use this medium almost exclusively, reporting that 98% of their communication is via this modality. The average responses to this question indicate that face-to-face is the favoured method for all faculty members, with School of Business faculty using this method 52% and other faculty using this method 82% of the time. The range for use of electronic communication with students is from 1% to 70%, with the School of Business faculty averaging 38%, more than double the 15% average of other faculty. This relatively higher use of electronic communication could be explained by the larger number of evening courses, where students meet on a weekly basis, offered by the School of Business to accommodate their students, many of whom attend school part-time. Faculty interviewed from other schools reported that many of their students are

attending full-time, cohort-based programs and they are spending a lot of their time on campus. The telephone is used on average less than 10% of the time.

Table 2. Modes of communication with students outside of class time

	All faculty (16)	SOB faculty (9)	Other faculty (7)
Range of responses			
ECT	1 to 70%	18 to 70%	1 to 45%
Face-to-face	20 to 98%	20 to 80%	50 to 98%
Telephone	0 to 33%	0 to 33%	0 to 5%
Average response			
ECT	28%	38%	15%
Face-to-face	65%	52%	82%
Telephone	7%	9%	3%

Note. Percentage of time spent communicating via different modalities, rounded to the nearest whole percent. ECT = electronic communication technology. SOB = School of Business.

Most of the respondents spend less than 20% of their time communicating electronically with other instructors, administrators, support staff, and others, with the remaining three individuals spending 20 to 40% of their time on these activities. Electronic communication and face-to-face are the most popular modes of choice, with telephone used less than 10% on average (Table 3). While the overall average for all faculty members is almost evenly split between use of electronic and face-to-face communication, School of Business faculty use electronic communication slightly more, being 52% of the time as compared to 41% usage by other faculty in the study. This difference could relate to the fact that School of Business faculty normally teach at least one evening class per week and so tend to vary their hours on campus to accommodate their teaching

schedule. It could also relate to the fact that School of Business faculty are communicating electronically with their students more, due to the aforementioned reasons, and there is a spillover effect to their other communications.

Table 3. Modes of communication used with others

	All faculty (16)	SOB faculty (9)	Other faculty (7)
Range of responses			
ECT	8 to 80%	15 to 80%	8 to 80%
Face-to-face	15 to 90%	20 to 80%	15 to 90%
Telephone	0 to 20%	0 to 20%	0 to 5%
Average response			
ECT	47%	52%	41%
Face-to-face	48%	42%	57%
Telephone	5%	6%	2%

Note. Percentage of time spent communicating via ECT, face-to-face and telephone, rounded to the nearest whole percent. ECT = electronic communication technology. SOB = School of Business.

The total amount of time instructors said they are spending during an average week communicating with both students and others ranged from 6 to 21 hours, with an average of 13 hours (Table 4). This table omits the answers given by two School of Business faculty members; one individual, as previously mentioned, included teaching time in their answer and the other had a large difference between their actual time and their estimate of time. Based upon the contractual 37.5 hour work week for Camosun faculty, participants are spending about 35% of their time on all communications outside of the classroom (Camosun College, 2008).

Table 4. Time spent on total communication outside of class time

	All faculty (14)	SOB faculty (7)	Other faculty (7)
Range	6 to 21 hours	7 to 18 hours	6 to 21 hours
Average	13 hours	12 hours	14 hours

Note. Two School of Business (SOB) faculty members' responses were omitted from the table. Responses indicate time spent on all modes of communication for an average week, rounded to the nearest half hour. SOB = School of Business.

Of that time, faculty members said almost half is spent on electronic communication (Table 5). School of Business faculty profess to spending 6 hours a week on average communicating electronically as compared to other faculty who spend only 4 hours per week on average. A difference also exists between the amount of face-to-face time, with School of Business faculty averaging 5 hours a week in comparison to the 10-hour average for other faculty.

Table 5. Total communication time spent on communication methods

	All faculty (14)	SOB faculty (7)	Other faculty (7)
Range of responses			
ECT	½ to 7 hours	2 to 7 hours	½ to 7 hours
Face-to-face	2 to 17 hours	2 to 9 hours	4 to 17 hours
Telephone	0 to 2 hours	0 to 2 hours	0 to 1 hour
Average response			
ECT	5 hours	6 hours	4 hours
Face-to-face	7 hours	5 hours	10 hours
Telephone	1 hour	1 hour	½ hour

Note. Two School of Business (SOB) faculty members' responses were omitted from the table. Responses indicate time spent on each mode of communication employed during an average week, rounded to the nearest half hour. ECT = electronic communication technology. SOB = School of Business.

In order to validate the responses received to my questions, I compared the actual amount of time spent on electronic communication from the time logs to the responses given to my interview questions (Table 6). The actual range of time spent was very similar to the time participants said that they spend. It is worth mentioning that participants, having completed the time logs within weeks of the interviews being conducted, could have based their answers to my questions on this prior knowledge. However, to do so would have been difficult as I didn't ask for actual hours but instead asked for percentages of their time spent using different media for communicating. The average time spent on electronic communicating was a bit lower than the time stated in the interviews, with an overall average of 3 hours per time logs as compared to 5 hours from the interviews. Almost half of the participants had mentioned that the volume of electronic communications was lighter than normal during the week captured in the time logs.

Table 6. Comparison of ECT as per interviews to time logs

	All faculty (14)	SOB faculty (7)	Other faculty (7)
Range of ECT time per interviews (Table 5)[a]	½ to 7 hours	2 to 7 hours	½ to 7 hours
Range of ECT time per time logs	1 to 7 hours	1 to 7 hours	1 to 5 hours
Average ECT time per interviews (Table 5)[a]	5 hours	6 hours	4 hours
Average ECT time per time logs	3 hours	4 hours	3 hours

Note. Responses indicate time spent on ECT during an average week, rounded to the nearest half hour. ECT = electronic communication technology. SOB = School of Business.

[a] Two School of Business (SOB) faculty members' responses were omitted.

Saving electronic communications

Fourteen of the faculty surveyed save at least some of their electronic communications, which for all of these individuals constitute e-mails. The range of time over which e-mails were saved varied from two terms to indefinitely. The main reasons given for saving e-mails was that faculty thought they might need to refer to the e-mail at some point in the future or they may require the e-mail as proof of a conversation or a decision, and one person said that saving was consistent with their personality, "because I'm a pack rat!" (Subject O, personal communication, November 1, 2007). Equal numbers of men and women saved at least some of their communications. One person said they "like to have the records. If you want to go back and check something, it's there. Quite often there are attachments that I might want to use again" (Subject E, personal communication, October 29, 2007). Another reason given was as evidence of an interaction:

> Or as evidence, like if you're communicating with a student, and there is some issue going on, you need to be able to pull up those e-mails and say, "On such-and-such a date, we had this conversation." So almost in a 'CYA' [cover your ass] kind of way, I might save e-mails. (Subject B, personal communication, October 22, 2007)

Printing electronic communications

Of the twelve individuals who occasionally print e-mails, their reasons pertained mainly to providing a paper trail, or allowing them to take the information to a place where they did not have access to a computer, such as a meeting, or as a reminder "to do something about it" for items that require follow-

up action (Subject N, personal communication, October 31, 2007). "If there is a lot of information in a document or if it's more than a page, I like to read it on a paper" (Subject O, personal communication, November 1, 2007). Three faculty members said that they did print e-mails but "almost never" and one individual professed to never print e-mails (Subject E, personal communication, October 29, 2007).

Electronic communication time

The amount of time spent on electronic communication had increased from a year ago for 5 faculty members, 7 individuals felt it had decreased, and 4 felt there was no significant change (Table 7). School of Business faculty were evenly divided among the three categories whereas the majority of the other faculty had experienced a decline in time spent.

Table 7. Changes in time spent on ECT from one year ago

	All faculty (16)	SOB faculty (9)	Other faculty (7)
Increased	5	3	2
Decreased	7	3	4
No Change	4	3	1

Note. ECT = electronic communication technology. SOB = School of Business.

Of the individuals who had experienced an increase in time spent on electronic communication, 3 had only taught for a few years; one person said that "as I work as a faculty member longer, I have more connection, more staff I need to involve" (Subject F, personal communication, October 31, 2007). The remaining 2 individuals felt the increase was "mostly because of contact with

students. They're very at-home with that system." (Subject M, personal communication, October 26, 2007). "I would say that it's been a very steep curve in the last three to four years, actually. My e-mail traffic goes crazy a day before the exam" (Subject C, personal communication, November 2, 2007).

Three of the faculty members who had experienced a decline in electronic communication usage said it was directly related to a change in their job at Camosun College. A personal choice to consciously reduce their usage of electronic communication was offered as an explanation for 3 other faculty members. One person has "made a conscious decision to scale back and so now I keep it, I think, fairly firmly under control" (Subject K, personal communication, October 23, 2007), and another felt the decline is because they are "not e-mailing as much, so I'm not getting as much back either" (Subject L, personal communication, October 25, 2007). The final person felt their time reduction resulted from an improved ability to communicate electronically.

Of the faculty surveyed, 75% felt that time spent on electronic communication fluctuated during the term. Almost all School of Business faculty members agreed with this statement, while just over half of the other participants agreed. Most individuals felt that electronic communication increased before exams or assignments were due. The two remaining individuals had conflicting explanations, saying that communication increased over time during the term, versus saying that communication was busy at the start of term. The nature of student communications were frequent questions regarding course content or communications regarding absenteeism (Table 8).

A tendency to limit or want to limit electronic communication in general and e-mail usage in particular was mentioned by a number of interviewees.

> I don't think e-mail itself actually affects productivity. I think it is the amount of e-mail affects productivity. And I think, what I've seen, and certainly have noticed in the last year or two, that the fact that I'm writing less e-mails and spending less time on e-mail has definitely increased my productivity and improved my quality of life. (Subject L, personal communication, October 25, 2007)

Table 8. Nature of student electronic communications

	All faculty (16)	SOB faculty(9)	Other faculty (7)
Questions regarding course content	11	7	4
Absenteeism	9	4	5
Arranging a face-to-face meeting	2	1	1
Emotional issues/needing contact	2	1	1
Sharing files/jokes	1	0	1
Negotiating assignment extensions	1	1	0

Note. More than one response per person is possible. SOB = School of Business.

Office hours

Eleven of the faculty felt that student use of electronic communication decreased student use of office hours. "I know students are swamped and it's much less time-consuming to e-mail me than it is to come and see me" (Subject B, personal communication, October 22, 2007). Four said that their office hours were not impacted. Two individuals make a point of meeting with students rather

than responding to their questions on e-mail, saying that "e-mail is just to book the face-to-face with them" (Subject K, personal communication, October 23, 2007) and "I encourage people to actually make an appointment in my office hours, so I can actually see people as opposed to respond to e-mails" (Subject L, personal communication, October 25, 2007). One individual had never taught without e-mail and so had no way of knowing if office hours would be different without this technology.

Response times

The majority of the 16 respondents indicated that they think a reasonable response to student e-mails is within 24 hours, with four expressing the view that the response should happen within six hours. One person indicated that they didn't want to respond too quickly due to a concern about establishing an expectation on the part of students that would not be easily maintained.

> But I try to do my e-mail correspondence with students during my office hour times, just so that they don't get used to me writing a reply at nine-thirty at night, so that they wouldn't expect me to always be able to respond within an hour. So they sort of know what's an expected pattern, and then I can maintain that pattern, as opposed to maybe not being able to maintain checking e-mails seven times a day, in the evenings. (Subject G, personal communication, October 23, 2007)

A relatively new instructor felt that three days was an appropriate response time. Since most classes meet twice a week, this policy allows them,

in most cases, to respond to the student in person, rather than send an electronic response.

> So if they haven't heard [from] me, they'll see me before the time is up and they'll ask me the question in person, and so then I don't have to respond to them in e-mail. I can just delete it. So it's beautiful. And that's changed, because in the first semester, I was all about getting a response to them within a day and it's just silly, I think. (Subject P, personal communication, October 30, 2007)

Most participants actually respond to student electronic communications much faster than they had indicated was appropriate, with the majority responding within less than 6 hours and all responding within 24 hours.

> I do check my e-mail at night, I do check my e-mail on weekends, I do respond to students if I see their e-mails, I respond immediately. The average turn-around on student e-mails is probably no more than 6 hours and it's probably less than that. (Subject B, personal communication, October 22, 2007)

> As long as I have access to a computer, roughly I would check e-mail every one hour. Sometimes students were surprised, "Wow. I get a response right away." (Subject F, personal communication, October 31, 2007)

For some participants their answer varied, depending upon whether they were referring to weekday or weekend responses.

> I respond back really quickly because I'm on the system most of the time, at home or over here....If it happens to be

> on a weekend and you happen to be out of town, or choosing not to stay connected for the weekend, you may end up having two days before you respond, I tell them. Not the norm. (Subject I, personal communication, November 1, 2007)

Comments made clearly indicated that most people considered it a priority to respond to student enquiries with one person noting that their "faculty response time is probably double to triple" their 24-hour response time to students (Subject C, personal communication, November 2, 2007).

Written and verbal policies

Only two participants include a written policy on their course outlines regarding electronic communication; one asks students to phone or to send an e-mail if absent and the other says that e-mail is the best mode of communication. Neither instructor discusses response times or whether or not e-mail will be looked at on the weekend or in the evening. Some instructors told students verbally when they could expect a response and one instructor discussed access on the weekend, but most do not mention expected response time in their verbal discussions with students (Table 9). One instructor tells students "if I haven't replied within 24 hours, I didn't get your message" (Subject D, personal communication, October 22, 2007) and another tells them "if they need a quick reply, they should send me an e-mail because the culture at Camosun is not about the telephone, it's about e-mail" (Subject N, personal communication, October 31, 2007).

Table 9. Verbal policies on electronic communication technology

	All faculty (11)	SOB faculty(7)	Other faculty (4)
I will respond within ....hours/days	4	2	2
Use e-mail to contact me	3	2	1
Use e-mail anytime	3	2	1
Use e-mail to set up an appointment	2	0	2
I check e-mail on weekends	1	1	0
If I haven't responded in 24 hrs. email me again	1	0	1

Note. Table indicates the verbal policies communicated by the 11 faculty members that explain their electronic communication policy to students. More than one response per person is possible. SOB = School of Business.

One person experienced a very upsetting incident due to a lack of explicit policies regarding electronic communication response time. The administration of their department implicitly, yet unofficially, supported the student's contention that they could expect a response to an electronic communication within less than 24 hours.

> There was an exam scheduled. It was a make-up exam, and students were told "You either are at the make-up exam or you fail the course." It was posted on the website; each student who had to do the make-up was sent a personal e-mail. It was announced in class several times. The night before the exam, so I'm talking the exam was on a Friday at 1 pm; at about 7 in the evening on the Thursday night, a student sent me an e-mail saying "I know the exam is tomorrow, but I don't know what time." Now I had an appointment the following morning, so I came onto campus and checked my e-mail just prior to going into the exam. So it's 12:30 and I e-mail the student back and I say "It's in half

> an hour." The student didn't show up....So anyway, he argued, "I sent you an e-mail in sufficient time for you to respond to tell me what time this exam was" and my argument was "That is a ridiculous expectation that you would have that kind of turn-around necessarily." ...And his argument was supported by the administration. So, is there an expectation in the administration's eyes? I asked them ... him ... if there was an expectation in the administration's eyes around turn-around time for student e-mails. The official answer was "No" but it was obvious, because the student's argument was supported, that yes there is. The student had the right to expect that I would have responded to that e-mail in enough time for the student to have received it and arrived at campus on time for the exam. (Subject B, personal communication, October 22, 2007)

While this example strongly points to a need for a written policy on electronic communication, it also raises the issue of the ability of responsibility to be transferred, often without agreement or acknowledgement, through this medium (Roberson, 2004).

Communication beyond normal working hours

Most faculty members interviewed are checking their websites or their e-mail in the evenings, on weekends, and while on holiday. One person felt that working outside of normal hours was a reasonable expectation for faculty.

> That doesn't strike me as unreasonable anymore. I used to think that that was an unreasonable expectation but I don't anymore because students are working on their assignments on the weekend and it's of enormous help to them if I can

> actually respond over the weekend. And if you think about it in terms of our holiday time and how the flexibility of our work allows us to stagger our hours, I no longer think that's an unreasonable expectation. (Subject H, personal communication, October 24, 2007)

Checking on weekends

All but one person checks their e-mail on weekends. The individual currently without home internet access responded that their normal behaviour was to check e-mail on weekends, and so they are included in the 'yes' category. The majority of all faculty members check their e-mail once or twice a day. One person checks their e-mail 10 to 15 times per day. "I'm a huge nerd, apparently" (Subject D, personal communication, October 22, 2007). A comparison with the time logs revealed that all but two faculty members had included time on the weekend on their logs for at least one, if not both days, consistent to their verbal answers. One participant was without a home computer during the study and so it was logical that no computer time was recorded for the weekend.

Most responded to communications received over the weekend, partly to reduce the number of e-mails they would have to deal with later:

> Even though I try not to respond, I do respond. I can't help it sometimes. Again, I think it comes back to me wanting to deal with it there and then, so I can delete it. So that, the next day, I don't have that e-mail sitting in my inbox. (Subject L, personal communication, October 25, 2007)

Some respond only "if a person's in crisis....I could tell (name) was really upset, and so I responded as soon as I saw this" (Subject P, personal

communication, October 30, 2007). The other reason given for sometimes responding was "if they're going to have an exam on Monday, I will respond. This weekend, I sent out, I think, five bulletin board messages, because students asked good content questions and so, if I worked on it for one, I gave it to all of them". (Subject P, personal communication, October 30, 2007)

Checking on weekday evenings

Of all faculty members interviewed, 12 check their electronic communication on weekday evenings, with most checking once or twice a night. Two faculty members are less frequent checkers, checking only on evenings prior to student assessments being due. An occasional checker said that "it depends on how late I leave work sometimes. Or if I'm expecting a reply, I might check it, to see what the reply was" (Subject G, personal communication, October 23, 2007). One person said they look for electronic communications a few evenings in a week, when "there's an assignment due" (Subject H, personal communication, October 24, 2007). Most individuals who are checking their incoming messages are willing to respond to those messages. Four faculty members do not check their electronic communication during the evening. One person refuses to check Camosun e-mail on the evening or the weekend, saying that "cut-off time is 5 o'clock" (Subject K, personal communication, October 23, 2007). Instead, that person gives their personal e-mail address to students and tells them to use it "if it's an emergency, you need to know about an assignment; then I'll maybe respond" (Subject K, personal communication, October 23, 2007).

Excluding the person who is currently without a home computer, the time log results support the interview comments for all but one individual. That person said in the interview that they did not check their e-mail in the evenings but the time log indicates that they checked four out of the five week day evenings included in the study.

Checking on holiday

Eleven of those interviewed said that they check their electronic communication when on vacation. Most of those eleven individuals were checking once or twice each week, although two individuals said they check their system every day. A person that checked for new e-mails even when out of the country felt a strong obligation to respond to students – "I have to find an internet connection, to be able to respond" (Subject J, personal communication, October 25, 2007). One respondent has not yet had a holiday at Camosun College and so did not want to predict their behaviour during holiday time in terms of e-mail checking. Responses to e-mail are lower on holiday than on weekends or evenings, with only two-thirds of the eleven 'checkers' saying that they would always respond and the remainder saying that sometimes or rarely they respond.

A common reason for checking while on holiday was to deal with e-mails so as not to feel overwhelmed by the volume when the person arrived back at work.

> Yes, it's mostly to get rid of the junk, so you aren't faced with two trillion messages when you get back. At least you can delete them even if you don't feel like responding to

> everything. You can get rid of the ones you know you don't have to deal with. (Subject M, personal communication, October 26, 2007)

Some were checking e-mail on holiday because the Camosun e-mail address was also used for their personal mail and so they saw Camosun material by default when checking for personal messages.

Only one individual has a policy of never checking work-related electronic communications from home in the evenings, on weekends, nor while on holiday.

> I believe that e-mail has sort of an energy with it and that's why I don't open them at home because Camosun I feel, comes into my house and I don't want that in my family life. So I only look at e-mails here, I come up here and open it and then I can respond and react here while I'm getting paid for it. (Subject K, personal communication, October 23, 2007)

English as a Second Language and older students

One-half of all participants indicate that electronic communications with 'English as a Second Language' (ESL) students are no different from those with their other students. Comments remarked on the difficulty of understanding requests made by the ESL students due to their English skill levels. "I rarely seek clarity from English speakers, but I sometimes have to seek clarity with one more e-mail, to make sure I understand the question" (Subject J, personal communication, October 25, 2007). Two faculty members suggest that this subset of the student population use e-mail less than other students, while another member contradicts this view, stating that ESL students are more

comfortable with e-mail than with face-to-face contact. "Student by student, 'English as a Second Language' speakers prefer e-mail as compared to face-to-face. That's been my experience....I would assume that they're shyer about the contact with the teacher; that would be my assumption" (Subject J, personal communication, October 25, 2007). This observation that ESL students have little contact in any forum was shared by another faculty member:

> ESL students, or the international students, which is like an ESL component, don't communicate easily, period, either verbally or in e-mail. They just tend to be invisible in the classroom, and they either make it or they don't. So where they're getting their support unless they come and see me, I have no idea. So I reply to whatever they send me, it's often broken English, but I get what they're saying so I hit the 'reply' and talk back. (Subject N, personal communication, October 31, 2007)

Half of the participants felt that electronic communication with 'older' students differed from communication with other students. The main explanation given is that e-mails from older students "tend to be more clear, they are better at composing their message, they tend to be more polite and they tend to be more appreciative" (Subject B, personal communication, October 22, 2007). The format of writing style was seen as different from younger students, often being more formal. "Still not a formal letter but more formal than what some younger students would write. They might be less likely to say "Hey" or use all lower case letters or that sort of thing" (Subject G, personal communication, October 23, 2007). One person had a hard time understanding younger students, who are

"so used to communicating with their friends where there's no punctuation, there's no capitalization, it's short bursts on messenger [text messaging] that sometimes their questions are not composed very clearly" (Subject I, personal communication, November 1, 2007).

Two interviewees felt that older students "tend not to use e-mails frequently, [they're] much more comfortable with face-to-face" or they phone (Subject D, personal communication, October 22, 2007). An opposing view was offered by another participant, who felt that older students used e-mail more because of their busy lives; "I think because the younger students are here all the time. The older students just whip [home]...they've got family or whatever, they tend to have to be at home more" (Subject O, personal communication, November 1, 2007). Faculty members identified an 'older student' as being over 30 years of age.

Tasks for which electronic communication is used

Electronic communication is seen by participants as useful for logistical tasks, such as arranging appointments, sending and receiving files, and for communicating with others (Table 10).

Table 10. Tasks for which electronic communication is used

	All faculty (16)	SOB faculty(9)	Other faculty(7)
Logistical arrangements	11	6	5
Communication	7	4	3
Everything	1	0	1

Note. More than one answer per person is possible. SOB = School of Business.

Tasks for which electronic communication is not used

In response to my question asking if there were any tasks that they typically would not use electronic communication for, most faculty members said they would not use it for discussing personal issues or sensitive topics, saying they would "never scold somebody on e-mail" (Subject N, personal communication, October 31, 2007) nor "use e-mail when the issue is controversial or emotional" (Subject B, personal communication, October 22, 2007) (Table 11).

Table 11. Tasks for which electronic communication is not used

	All faculty (16)	SOB faculty (9)	Other faculty (7)
Discussing personal problems, sensitive topics	11	7	4
Discussing lecture material or complex assignments	3	3	0
Department-wide discussions with colleagues	3	0	3
Mass e-mails to students	2	1	1
Nothing – I use it for everything	1	0	1
Sending large files	1	1	0
Responding to angry e-mails	1	1	0

Note. More than one answer per person is possible. SOB = School of Business.

A few faculty choose not to discuss lecture material over the internet as they feel it is either a waste of their time to repeat the lecture or too difficult to convey complex issues via this medium. One person said that electronic communication was useful for all work-related tasks and they used it for all communications; "I don't think I'd be nearly as productive, in terms of

communicating with the students, in being able to get the messages out, department-wide or school-wide, there's no way I'd be nearly as productive" (Subject D, personal communication, October 22, 2007).

Productivity Issues

Definition of Productivity

When asked about what constituted productivity for them, faculty members responded with definitions which can be grouped into two major categories of student-related performance measures and of personal or department/college goals (Table 12).

Table 12. Definitions of productivity

	All faculty (16)	SOB faculty(9)	Other faculty(7)
Creating new course material	9	3	6
Helping students to progress	7	3	4
Being accessible to students	4	3	1
Being productive in dept/college	4	2	2
Personal growth/learning in subject	4	2	2
Getting marking done on time	3	1	2
Good collegial relations	1	1	0

Note. More than one answer per person is possible. SOB = School of Business.

A discussion of performance in terms of students elicited comments such as "getting my marking done in a timely way" (Subject E, personal communication, October 29, 2007), "making sure that I have really clear material for students" (Subject A, personal communication, October 29, 2007) and being

approachable so that "students can come and talk to me" (Subject L, personal communication, October 25, 2007). Student progress was often mentioned: "So productivity, for me, is when I see students becoming enthused, engaged, being successful in what they're doing, not only academically but practically" (Subject N, personal communication, October 31, 2007). "My internal definition of productivity would be a measurement of how many students were able to progress - and that's a very loose term - in their lives as a result of being here" (Subject B, personal communication, October 22, 2007). The difficulty of monitoring productivity in this environment was also mentioned.

> I find productivity in this job excruciatingly difficult to measure because we're doing so many things that are all funnelled and connected to service the students, but I find it really hard to check things off a to-do list on a daily basis. (Subject J, personal communication, October 25, 2007)

Personal aspects of productiveness included "gains in terms of your understanding of your area", and learning new teaching methods (Subject M, personal communication, October 26, 2007). Departmental measures included working on departmental projects and forming positive collegial relations. Additional comments mentioned the ability to create new material for courses and for departmental purposes.

> Productivity would be hooked in with creativity. So if I am in a good space, I can create and produce an incredible amount in terms of prep, in terms of packages, designing, anything curriculum development just happens, just like that. So it's hooked in very much with that release and, if you're

> free to think, then you can create. (Subject K, personal communication, October 23, 2007)
>
> I would look at my effectiveness, and I would sort of be measuring how effective I was able to be that year, in terms of new curriculum, updates, development, embracing new learning teaching kind-of methods and discovery of that nature, as opposed to how many e-mails I answer, how many students I processed, or the ratios of those kind of interactions. And so, if I was not able to do a lot of that kind of creative stuff, then I would say I was not obviously very productive, because I was wasting all my time in non-value-added activities. You know, just shuffling those e-mail lists and stuff like that. (Subject I, personal communication, November 1, 2007)

Productivity definitions may include number of students and sections, number of courses taught, research projects, course development, community service, and administrative tasks performed (Middaugh, 2001; Tierney, 1999). The definitions advanced by Camosun faculty concentrate primarily on student advancement, course development, number of courses taught, and administrative tasks and are consistent with those found in the literature for faculty at a non-research based college (McInnis, 2002).

Increases to Performance

Thirteen participants felt that certain aspects of electronic communication increased their productivity and the three remaining individuals declared this technology did not enhance their ability to do their work (Table 13).

Table 13. Do aspects of ECT increase your productivity?

	All faculty (16)	SOB faculty(9)	Other faculty (7)
Yes	13	8	5
No	3	1	2

Note. ECT = Electronic communication technology. SOB = School of Business.

A valuable function of e-mail is its ability to deal with procedural tasks, such as sending and receiving documents and setting up meeting times (Table 14). Faculty mentioned sending print jobs to the print shop, confirming meetings, answering simple, logistical questions, and sharing resources by e-mail among faculty teaching similar courses.

Table 14. Explanations of how ECT increases productivity

	All faculty(13)[a]	SOB faculty(8)	Other faculty (5)
Good for quick, procedural communications	6	2	4
Asynchronous communication possibilities	6	4	2
Less time-consuming for students to e-mail than visit	5	3	2
Facilitates communication	4	2	2
Saves time - Good for logistical tasks	2	1	1
Reduced need for meetings	1	0	1
Sharing of resources	1	0	1

Note. More than one answer per person is possible. ECT = electronic communication technology. SOB = School of Business.

[a]Explanations were offered by the 13 faculty members who answered "yes" to the question shown in Table 13.

> If I can send a quick e-mail to audio-visual, that to me is increasing productivity. When I think about it at ten o'clock at night, I can go send an e-mail, and at 7:30 in the morning, that e-mail is responded to. When I'm a couple of days late, because I've worked really hard on creating an exam, I can send a pdf to the print shop. Eight o'clock the next morning, she sends me a confirmation that she received that. (Subject J, personal communication, October 25, 2007)

> I really like e-mails for clarification from other staff...."Do you want to go for lunch and have a meeting today?" "Yes, what time?" We can get that done really quickly. We don't have to play telephone tag or anything like that. I think really those are the biggest things. (Subject A, personal communication, October 29, 2007)

Electronic communication allows faculty to respond relatively quickly to student questions, without the need to be in the same place at the same time - "it does save time if they just want a quick answer, especially to a question from class or an assignment that they might be doing" (Subject A, personal communication, October 29, 2007). Communication with other faculty and support staff is also sped up: "if you had to reach someone on the phone every time you needed to communicate with them, you might not be able to get the point across as quickly" (Subject G, personal communication, October 23, 2007).

One comment made was that electronic communication reduced the number of departmental meetings being held as information was being shared on-line among faculty. This person works in a department where instructors eat lunch together most days of the week, a behaviour which may be pivotal to this

strategy working. "We spend a lot of time communicating as a group, so we're kind of together a lot" (Subject O, personal communication, November 1, 2007).

The ability to send files or messages without two people having to be together was seen as an important value offered via electronic communication. This value was especially seen as important as many faculty members are not on campus during regular hours and setting up departmental or private meetings can be challenging; "it means, to communicate with somebody, they don't have to be there at the same time that you have to be there, so the time is very flexible" (Subject O, personal communication, November 1, 2007).

> Just think about the days before we had e-mail and we needed to communicate in an organization the size of Camosun. So it's the primary way, even preferable to phone for me because, what I like about e-mail is that I can send a message and people can deal with it in their own sweet time. If this moment is not good for them, I don't have to phone them and interrupt them and play the back-and-forth message thing. (Subject B, personal communication, October 22, 2007)

Electronic communication also appears to facilitate communication with students that may not be known by their instructor otherwise. One instructor mentioned a few incidents where she dealt with students via e-mail that she wouldn't recognize if she saw them in her classroom.

> Some of them have some problems. And so we just try to deal with them....It is emotional for them. So we try to deal with the problems over email....But I just sit down and calmly

> say "Do this and do this" and then I will usually follow-up with a phone call. Or I will ask them for their phone number or I will say "Please call me to talk about this." But I went through probably two weeks of emails with this one fellow that was having all these problems, and I think maybe that was the only way that he could relate. I don't know that he felt capable of talking to somebody about this....So I just clarified everything in the email for him. (Subject A, personal communication, October 29, 2007)

This observation supports Montano and Dillon's (2005) study findings that suggest electronic communication is a good medium when individuals feel unequal or less powerful in a relationship. Reticent students may find increased opportunities for communication with faculty as other studies also found these students prefer electronic communication over office visits (Kelly et al., 2004). Giddens' (1984) concept of Dialectic Control suggests that dependent relationships are a two-way affair; electronic communication may be enhancing such relationships by giving students a resource which enables them to exercise influence in their interaction with their instructors.

Interestingly, many of these characteristics that have been cited as enhancing faculty performance will also be discussed as items seen as time-wasters and limiters of productivity.

Decreases to Performance

Fifteen of the sixteen participants felt that aspects of electronic communication decreased their productivity (Table 15).

Table 15. Do aspects of ECT decrease your productivity?

	All faculty (16)	SOB faculty(9)	Other faculty (7)
Yes	15	9	6
No	1	0	1

Note. ECT = Electronic communication technology. SOB = School of Business.

Participants mentioned many more negative factors than positive, and yet, overall, the majority of participants felt that electronic communication greatly enhanced their performance. It is important to remember this phenomenon when reading through the following list. The main reasons for decreased productivity advanced by the fifteen respondents were issues of time spent on too many communications with little value, concerns about reduced face-to-face contact, and potential miscommunications (Table 16).

The most commonly expressed problem with electronic communication was the volume of mail that was received and felt to be of little or no value to the recipient.

> When you come in on a Monday morning and there's thirty-five e-mails there, then there's things I have to sort through. So I am guilty of doing work at night and then others are guilty of the same and it causes me to slow down the next morning when I have this screen full of e-mail. That's problematic for me. (Subject J, personal communication, October 25, 2007)

Table 16. Explanations of how ECT decreases productivity

	All faculty (15)[a]	SOB faculty(9)	Other faculty(6)
Too much volume of e-mails	6	5	1
Too much time reading information of little value	5	4	1
Blanket e-mails (mail lists, cc'ing)	3	3	0
Junk e-mail	3	2	1
Reduces face-to-face contact	3	1	2
Slower than face-to-face	3	2	1
E-mails are easily misunderstood and create conflicts	2	0	2
Not a rich enough medium	1	1	0
Technical problems make it unreliable	1	0	1

Note. More than one answer per person is possible. ECT = electronic communication technology. SOB = School of Business.

[a]Explanations were offered by the 15 faculty members who answered "yes" to the question shown in Table 15.

Getting "too many unnecessary e-mails" was also seen as a big waste of time (Subject L, personal communication, October 25, 2007). The interviewee defined 'unnecessary' as being ones that are "non work-related, which aren't necessarily going to have an impact" (Subject L, personal communication, October 25, 2007).

Many people mentioned that they waste time reading e-mails of little value, a behaviour that was identified in my analysis of the time logs as well:

> In that 'not related to work' category, not directly related to work or what I'm doing on a day-to-day basis category, I'd like to say that I just delete e-mails, but I'm in the habit of actually reading the darn things and not just deleting them if I

> see they're there, and that does take up some time. (Subject C, personal communication, November 2, 2007)

> There are some general business school communications, which you can speed-read very quickly and you sift through that information. Some of it's important immediately, some of it's not. But it takes up time, it just takes up a tremendous amount of time, and having too many of those, I think can reduce productivity. (Subject L, personal communication, October 25, 2007)

> Just reading it and deleting it. Not even opening it, just reading the title and thinking 'Oh that, here it comes again.' And that's why I'm saying, if Camosun had their themed up section, put them on a bulletin. I don't need to see them on my plate every day, because I'm not doing anything with them. They're useless. (Subject I, personal communication, November 1, 2007)

A few faculty members felt that e-mail was responsible for creating or furthering departmental conflicts. Faculty members interviewed from two different departments had very strong views about the inability of electronic communication to replace department meetings.

> My department almost fell apart last semester because of an e-mail exchange that lasted two to three months. And by the time we had the face-to-face meeting, there was so much bad feeling, as a result of improper use of tone on e-mail or information that was merely rumour that was exchanged by e-mail and not corrected in person. And I think if the leadership in the department or in the school had actually stepped in and talked to people face-to-face, we wouldn't

> have had that issue.... If the tone can be so misunderstood, and can come across as so much more forceful by e-mail than it would face-to-face, and I think that's what was happening. (Subject H, personal communication, October 24, 2007)

Another faculty member has had trouble using both Facebook and e-mail to communicate with colleagues. Because of the difficulty of finding a common time to meet, the department is attempting to discuss issues on-line through Facebook and is using e-mail for establishing meeting agendas. This person finds the lack of non-verbal signals and the medium itself allows for negative behaviour to occur.

> My experience here on faculty is that there is an underlying theme of horizontal violence and bullying and it comes out in e-mails loud and clear, because the passive-aggressive stuff goes on there, so then it creates a rift and then no one wants to meet face-to-face because they don't want to conflict. Then they go on e-mail and continue this kind of banter. And it's sort of that detached being of the electronic safeguard that creates that moment, right? In a face-to-face you have all sorts of opportunities to dialogue back and forth and then to look at non-verbal (communication). But that's where we're moving and I'm finding it really troublesome that it's creating all sorts of rifts in the faculty and it's enhancing this culture that we've got in terms of passive-aggressive and bullying. It comes out in spades on e-mail. (Subject K, personal communication, October 23, 2007)

When I asked if there were any tasks for which electronic communication would not be used, three individuals responded they would not use the internet for departmental-wide discussions.

Electronic communication was seen as slower than other modes such as face-to-face or telephone, particularly when people take a long time to respond.

> Right now, I particularly have experienced it at (name) College, whereby my colleagues there, who aren't particularly committed to the project we're doing although their dean is, they don't reply. Ever. The only way I know what they're thinking and what's going on is if I call the dean or write to the dean or when we have our face-to-face meetings, and sometimes they don't even come to the table...And sometimes around here I wait a long time for communication around here. (Subject N, personal communication, October 31, 2007)

The time lag between sending a message and when it is read was seen as another way that speed was hampered by electronic communication. Issues that might have been addressed very quickly in a face-to-face meeting can be drawn out and take much more time to resolve.

> Well it depends on when people read e-mails, right? And then how they're responding. We don't know right away. So we put it out there and somebody has not responded, like the 'stalkers' - they just go on, they read, they never post - and then they'll say "Well, that was really upsetting". So that was three weeks ago and you have a conversation now that that was an upsetting e-mail. Why wouldn't you have said

> "(name), can we get together for a meeting?" or "Call me". (Subject K, personal communication, October 23, 2007)

> It takes a fair amount of time to respond to e-mail. The second thing is it may actually take a lot more time to do something by e-mail than it would be to meet with someone and talk to them about it. Both in terms of the total minutes but also in terms of the duration that the process takes. (Subject M, personal communication, October 26, 2007)

A number of faculty members lamented the loss of face-to-face communication as more people chose to use electronic communication as their preferred medium. One person cited this factor as the reason why they felt that electronic communication technology did not increase their productivity overall.

> Yes, significantly as I say, because every time you receive an e-mail communication ... I would say the majority, maybe not every time ... that's reducing your face-to-face contact. And education, as you know, is about inspiration. Most people are more inspired by face-to-face contact than they would be by a note from their instructor. (Subject H, personal communication, October 24, 2007)

Others appreciated the usefulness of the medium, but recognized that the time-saving aspect had a hidden cost in that they were reducing face-to-face contact with others.

> You can deal with issues that you might have to meet with somebody about but you can deal with them much more quickly. You don't have to meet face-to-face. It does take away a lot of the face-to-face stuff but, if you want to be

> productive, you just lose that, I'm afraid. You do lose it unfortunately. (Subject A, personal communication, October 29, 2007)

One individual felt that most electronic communication is taking place over e-mail and that productivity could be improved by switching to richer modes of communication.

> The calendaring systems, scheduling systems, the websites, the blogs, the wikies, whatever we're trying to talk about, are a lot more richer and allow people to communicate, to coordinate things amongst themselves. I think this one-to-one e-mail, or one-to-many kind of e-mail thing is slowly becoming a thing of the past. (Subject I, personal communication, November 1, 2007)

As well, another person felt their productivity was reduced by an unreliable technical system at the college.

> With the Camosun servers not sending through some of the good messages, that tends to hurt things because if a student sends a message and they don't get a reply, it's wasted two to three days before I find out, and who knows what can happen in that time? (Subject D, personal communication, October 22, 2007)

Interestingly, asynchronous communication was advanced as a factor that potentially decreased productivity. One person was involved in a project with faculty from a distant university and, while electronic communication was useful for transfer of information, it was frustrating at the same time.

> It meant that you've got a team of six people, a group of six people, and because they're not responsible for the outcome in the sense they're not writing it, they're very quick to say "Last night at midnight, I had another idea." So, although I've already finished with that section, now we're back to other ideas. Things that wouldn't have happened in a meeting or, if they happened in a meeting, they'd have been noted and dealt with. So it just means there are lots of e-mails flying back and forth. It just means that I'm doing things at the 'eleventh hour', and that's not my style. It's easy for them to flip off yet another idea, but I'm the 'eleventh hour gal' and I don't like that. In that way, I don't like using e-mail. I'd rather have face-to-face. Now I can clarify through e-mail later, but I don't want more ideas that just pour in because someone got another idea. (Subject N, personal communication, October 31, 2007)

Other individuals had similar comments regarding how the asynchronous nature of electronic communication allowed individuals to pass tasks on to them without any agreement on their part.

> I feel sometimes a bit impatient with students who ask me to take care of them. "Could you tell me all of my test results?" when that's their job to look after that themselves. So that can just set me back an hour worth of figuring stuff out, going back and finding it, blah-blah-blah, when I shouldn't have to do that. (Subject N, personal communication, October 31, 2007)

> The very same thing I'm guilty of, others are, and sometimes it's just a big screen of people dumping stuff, and so they consider it done and yet it sits in your inbox as not done. So

> I feel that pressure. (Subject J, personal communication, October 25, 2007)

One person described a situation where they received a number of e-mails from their departmental Chair asking for input into establishing criteria for student awards. Since information was missing from the original e-mail, it generated more e-mails:

> So it just made a lot of work that maybe, in this case, a meeting would have sufficed. Or someone should just make a decision. Just a lot of extra communication went down that path. Just do your work, people. (Subject P, personal communication, October 30, 2007)

Electronic communication and overall Productivity

When asked whether they felt that electronic communication made them more or less productive, eleven of the respondents said that electronic communication devices improved their productivity overall (Table 17). The asynchronous nature and its effectiveness for handling tasks allows one respondent to "send something that I need to have done and I can do that when I'm thinking of it, rather than have to try and carry it around in my memory and write it down and go deal with it the next day....And I believe that helps me stay more productive" (Subject J, personal communication, October 25, 2007) Other benefits of this technology noted were "sharing resources by e-mail" (Subject E, personal communication, October 29, 207), the ease with which students could "set up an appointment with me" (Subject F, personal communication, October 31, 2007) and the fact that "we have less department meetings because the

information just gets passed on in e-mails" (Subject O, personal communication, November 1, 2007).

Table 17. Overall, does ECT make you more or less productive?

	All faculty (16)	SOB faculty (9)	Other faculty (7)
More productive	11	7	4
Less productive	4	2	2
Not sure	1	0	1

Note. ECT = electronic communication technology. SOB = School of Business.

While one person felt that they were more productive overall, they were concerned that this productivity boost was at the expense of less face-to-face contact. This person knew some of their students from e-mail conversations and not from direct contact.

> I hate e-mail. I hate e-mail. I hate Blackberries. I would not have a Blackberry if you bought me one. I think computers are great if you put them in their place, but I think they have really taken away ... they have increased efficiency, but they've taken away a lot of the face-to-face stuff. And I say that, not just for schools, but for kids socializing, all that kind of stuff. I think it's really had a devastating impact on the social lives of young people and how they relate to each other. It's funny, I go into my classroom and for the first three weeks, I made them put their nametags, name things in front, so I could figure out who they were, and I've got pretty big classes..... And so I will have a student come in and ask me questions and then, if she says "My name is Andrea," I'll say "Oh, Andrea Smith" and I'll know exactly

> who she is, because of how many times she's e-mailed. I don't know her in the classroom. I'd say I have about ten of those students. When they say "My name is Christopher Whatever," I say "Oh, Christopher Blah-Blah-Blah? Okay, I know exactly everything about you. I know your personal life, I know all the problems you're having", I know everything from the e-mails. But I've never met this kid. (Subject A, personal communication, October 29, 2007)

Four participants felt that they were less productive due to the use of electronic communication technology. One person said that electronic communication "snuffs out my creativity" (Subject K, personal communication, October 23, 2007) and they had defined productivity as the ability to be creative. A similar view was shared by another faculty member who feels that most e-mail is "reducing your face-to-face contact. And education, as you know, is about inspiration. Most people are more inspired by face-to-face contact than they would be by a note from their instructor" (Subject H, personal communication, October 24, 2007). Another said that while there is some benefit due to its asynchronous nature, the volume of e-mail makes it unproductive.

> There is the timing thing. If you're here in the morning and I'm here in the afternoon, there is some benefit to that. But I bet, for every e-mail that's like that, there are five that aren't. And so I think that it's just too many e-mails for that small productivity boost. (Subject P, personal communication, October 30, 2007)

That sentiment was shared by the fourth participant who said "spending less time on e-mail has definitely increased my productivity and improved my quality of life" (Subject L, personal communication, October 25, 2007).

One respondent was unsure of the impact of technology on their productivity as they are in the 21 to 30 age range and have never worked without technology. "So I have sort of always been a part of that since I'd left high school. So I don't really know what it would be like without it" (Subject G, personal communication, October 23, 2007).

Personal strategies for improving Productivity

Participants discussed many different techniques they have found helpful in improving their productive use of electronic communication. The most popular strategies discussed were use of folders for storing e-mails, and limiting the number of times they checked for new messages (Table 18). "You know how you have it, most people have it so that, if an e-mail comes in, it flashes that an e-mail's in, I have that turned off. I think that has helped my productivity, when I changed that" (Subject P, personal communication, October 30, 2007).

Deleting a lot of the e-mails, often without reading the body of the message, was also seen as a popular choice. "I find it just takes up too much time. And I'm not prepared to do that. I'm not going to sit in my office hour reading e-mails that doesn't (sic) relate to my work, and I don't even save them for later" (Subject L, personal communication, October 25, 2007).

Table 18. Strategies employed which improve participants' productivity

	All faculty (16)	SOB faculty (9)	Other faculty (7)
Use folders to store e-mails	7	4	3
Check only a few times each day	6	3	3
Delete a lot, often without reading	4	3	1
Turn off automatic e-mail	3	1	2
Encourage meetings, face-to-face	3	1	2
Use Outlook tools	3	2	1
Reply immediately	2	0	2
Check e-mail all the time	1	1	0

Note. More than one answer per person is possible. SOB = School of Business.

Other strategies suggested were to use Outlook tools, check e-mail frequently, reply immediately, and finally, to improve productivity by encouraging meeting instead of exchanging electronic communications.

> I really hate it too actually, in terms of the office environment with my colleagues. I really dislike e-mail, unless it's just purely an informational thing, because it's so limiting. You can't really decide anything that's complex or complicated that way. It just takes forever, with hundreds of e-mails going back and forth before you're done, when you could have just walked twenty feet and had a conversation and solved the whole thing. (Subject M, personal communication, October 26, 2007)

College-wide strategies for improved electronic communication usage

Most of the persons interviewed had suggestions to make regarding improved usage of electronic communication technology at Camosun College (Table 19). Many of the ideas involved reducing the volume of e-mail, such as

less 'cc'ing' of e-mails, use of bulletin boards, and better spam filters. "Obviously, continuing to reduce or eliminate spam, so we don't have that many more things to click on, when in fact it's such a major part of our productivity, that would be useful" (Subject J, personal communication, October 25, 2007).

Table 19. Strategies suggested for improving ECT at the College

	All faculty (16)	SOB faculty(9)	Other faculty (7)
More limited use of 'cc' feature	4	2	2
Use bulletin boards more and e-mail less	3	1	2
Better spam filters	3	2	1
Departments able to adopt own IT systems	2	2	0
Make student e-mail addresses available to faculty and staff	1	0	1
Increased storage space for e-mail	1	0	1
Centralized IT access for students	1	1	0
Common system for both campuses	1	1	0
Be informed when an e-mail is forwarded	1	0	1
Importance of e-mail is obvious from subject line	1	1	0

Note. More than one response per person is possible. ECT = electronic communication technology. SOB = School of Business. IT = information technology.

Other suggestions were to get removed from group e-mail lists, be informed when one of their e-mails was forwarded, and to be able to ascertain the importance of the subject by reading the subject line. "But do I need to be on a list for every instructor in the college? I don't think so" (Subject P, personal communication, October 30, 2007). "Don't just 'cc' to a whole bunch of people. I don't know if this is appropriate or not, but sometimes I have no interest to know anything in other departments" (Subject F, personal communication, October 31,

2007). Three people suggested bulletin boards for dissemination of college-wide or departmentally relevant messages.

> If I wanted to see something about the College community, I can go to see it, and I don't need to keep deleting these messages, because I hardly ever look at that....And that's why I'm saying, if Camosun had their themed-up section, put them on a bulletin. I don't need to see them on my plate every day, because I'm not doing anything with them. They're useless. (Subject K, personal communication, October 23, 2007)

Time logs

The data collected in the time logs has been assembled into a number of tables and is presented throughout the following section. Additional summaries of e-mails received during the work week and the handling of old e-mails are presented in Tables F5 and F6 respectively in Appendix F.

Volume of e-mail

Analysis of the time log data suggests that faculty members are sending few e-mails each weekday, with the number of work-related electronic communications sent ranging from 0 to 8, with just over 1 message sent on average by all faculty members (Table 20). While the School of Business faculty send almost twice as many electronic communications as other faculty on weekdays, one individual within School of Business sent one-third of the e-mails for the entire faculty group. Very few e-mails were generated by any faculty members on the weekends.

Table 20. Number of electronic communications sent by participant

	All faculty (16)	SOB faculty (9)	Other faculty (7)
Range	0 to 8	0 to 8	0 to 4
Average	1.3	1.6	1

Note. Table indicates the range and average number of e-mails sent on an average week day by individuals in each grouping, with averages rounded to the nearest tenth. SOB = School of Business.

A comparison of the average number of electronic communications received each workday showed a difference between the School of Business faculty and other faculty, with School of Business faculty receiving 9 communications and other faculty receiving 15 communications on an average workday (Table 21). This discrepancy could partially explain why only 40% of communications received by other faculty members was considered to be 'very important' to their work when School of Business faculty felt that 48% of similar communications were 'very important' to their work. If the communications that participants had rated as 'somewhat relevant' are included with the 'very important' messages, then these messages account for 68% of e-mail volume received by other faculty and 70% for School of Business faculty.

These relatively low rates may explain why a number of faculty members cited e-mail as a waste of time. Roberson's (2004) study, which collected time logs for individuals from a wide-range of organizations, found that 28% of e-mails received were considered 'very important' to work, with that number increasing to 60% when 'somewhat important' e-mails were included (p.75). While only seven of the 45 individuals interviewed by Roberson (2004) completed the time logs, the findings are similar to those generated by this study (p.76).

Table 21. Number of work-related e-mails received during the week

	Very relevant to my work	Somewhat relevant to my work	Unsure of relevance	Not relevant to my work	Total
SOB faculty (9)	194	90	39	82	405
Daily average per person					9
Other faculty (7):	209	149	59	107	524
Daily average per person					15

Note. Number of work-related e-mails received by all participants from Monday to Friday. SOB = School of Business.

Average time spent each day on electronic communications

The average amount of time spent each day on electronic communication by all participants is 27 minutes from the office and an additional 10 minutes from a remote location (Table 22). School of Business faculty's average time from a remote location is considerably higher than other faculty's time, with 14 minutes on average compared to 4 minutes. Weekend behaviour is similar between the two groups, with few e-mails being initiated or read, but again with more time spent by School of Business faculty than other faculty.

Table 22. Average time spent on work related electronic communications

	All faculty (16)	SOB faculty(9)	Other faculty (7)
Weekday average from work site	27 minutes	27 minutes	26 minutes
Weekday average from off-site	10 minutes	14 minutes	4 minutes
Weekday total average	37 minutes	41 minutes	30 minutes
Weekday total range	0 to 90 minutes	0 to 90 minutes	5 to 90 minutes
Weekend average	10 minutes	13 minutes	5 minutes
Weekend range	0 to 60 minutes	0 to 60 minutes	0 to 30 minutes

Note. Averages represent the average amount of time spent per individual within each group, rounded to the nearest minute. SOB = School of Business.

Categorization of e-mails by relevance to work

Participants were asked to categorize e-mails received in terms of relevance to their work and to identify actions taken for each e-mail. The time log data indicates that faculty members spent time on e-mails that they had rated as not relevant to their work – they deleted the item after reading it, replied, forwarded it, or took some other action (Table 23). Of all electronic communications received, 11% of the School of Business faculty's and 6% of the other faculty's e-mails fell into this category, suggesting that time is spent on communications that bring little or no value to the recipients.

While stopping this behaviour looks like an obvious and easy way to improve productivity, it may not always be possible to determine the relevancy of a communication without first reading it. Additionally, while this study considers the relative volume of e-mails, it does not identify the percentage or amount of time spent on irrelevant communications.

Table 23. Percentage of irrelevant e-mails on which time is spent

	SOB faculty (9) E-mails not relevant to my work	Other faculty (7) E-mails not relevant to my work
Deleted after reading	22	18
Replied and/or forwarded	20	13
Other action taken (phoned, met with person, etc.)	1	
Total of above e-mails	43	31
Total e-mails received	405	524
Irrelevant e-mails on which time is spent as a percentage of total e-mails received	11%	6%

Note. Other than 'percentage of total', amounts represent the number of e-mails received during the 5-day work week participants graded as 'not relevant to their work' as categorized by the action taken. SOB = School of Business.

Data was gathered on the number of electronic communications received during the 5 week days of the study that participants rated as 'very relevant', 'somewhat relevant' or they were 'unsure of the relevance' to their work. Both groups deleted without reading or took no action on 12% to 13% of items received that week that they said were 'very relevant', 'somewhat relevant', or 'might be relevant' to their work (Table 24).

Table 24. Summary of e-mails deleted with no action taken

	Very relevant to my work	Somewhat relevant to my work	Unsure of relevance to my work	Total
School of Business faculty (9):				
Deleted without reading entire body of message	2	4	27	33
Took no action (didn't read body of message, didn't delete)	7	9	2	18
E-mails with no action taken	9	13	29	51
E-mails on which action taken[a]	185	77	10	272
Sub-total	194	90	39	323
E-mails which were not relevant[b]				82
Total e-mails received				405
Relevant or potentially relevant e-mails on which no action is taken as a percentage of total e-mails				13%
Other faculty (7):				
Deleted without reading entire body of message	0	18	25	43
Took no action (didn't read body of message, didn't delete)	2	13	7	22
E-mails with no action taken	2	31	32	65
E-mails on which action taken[a]	207	118	27	352
Sub-total	209	149	59	417
E-mails which were not relevant[b]				107
Total e-mails received				524
Relevant or potentially relevant e-mails on which no action is taken as a percentage of total e-mails				12%

Note. Other than percentages, amounts represent the number of e-mails received during the 5-day work week participants graded as 'very relevant', 'somewhat relevant', or 'unsure of relevance' that they deleted or took no action on.

[a] Total of all other rows from time log where action is taken on e-mails received that were graded as 'very relevant', 'somewhat relevant', or 'unsure of relevance'.
[b] Total of all e-mails that were included in the 'not relevant to my work' column.

When communications for which participants were unsure of their relevance are removed, no action was being taken on 5 or 6% of the e-mails that were graded as relevant to their work (Table 25). Roberson's (2004) study of e-mail within organizations found 8% of e-mails judged to be very or somewhat important to work were deleted without reading or were left unread. This finding

suggests that this form of communication may not be entirely successful for the dissemination of important information.

Table 25. Relevant e-mails deleted with no action taken

	Very relevant to my work	Somewhat relevant to my work	Total
School of Business faculty (9):			
Deleted without reading entire body of message	2	4	6
Took no action (didn't read body of message, didn't delete)	7	9	16
E-mails with no action taken	9	13	22
E-mails on which action taken[a]	185	77	262
Sub-total	194	90	284
E-mails from other categories[b]			121
Total e-mails received			405
Relevant e-mails on which no action is taken as a percentage of total e-mails			5%
Other faculty (7):			
Deleted without reading entire body of message	0	18	18
Took no action (didn't read body of message, didn't delete)	2	13	15
E-mails with no action taken	2	31	33
E-mails on which action taken[a]	207	118	325
Sub-total	209	149	358
E-mails from other categories[b]			166
Total e-mails received			524
Relevant e-mails on which no action is taken as a percentage of total e-mails			6%

Note. Each category indicates the total number of work-related e-mails received by all participants in each grouping during a 5-day work week.

[a] Total of all other rows from time log where action is taken on e-mails received that were graded as 'very relevant' and 'somewhat relevant'. [b]Total of all e-mails that were included in the 'unsure of relevance' and 'not relevant to my work' columns.

A review of the logs and the comments made during the interviews suggests that most instructors deal with electronic communication shortly after receipt or not at all. Dealing with old electronic communications, defined as ones received prior to the day, varied. Some individuals spend no time at all on old e-

mails, preferring to deal with all incoming mail each day. One person spends about one hour each week cleaning out old e-mails, while others were only dealing with old e-mails on Monday, suggesting that the generation of these items had been over the weekend. One person dealt with old e-mails every workday and another dealt with old e-mails every day. This variety suggests that while it may be difficult to predict when a response is forthcoming, e-mails sent will likely get an immediate response or no response.

It would have been logical to assume that there would be a correlation between behaviour in terms of dealing with old e-mails and the number of e-mails in the inbox. Unfortunately, that was not the case, as some people who deal with all their e-mails as soon as they are received leave everything in their inbox during the term. Most of the faculty members interviewed had less than 30 e-mails in their inbox on the day that they were interviewed. The remaining individuals had over 100 e-mails saved in their inbox, with three faculty members having more than 500 e-mails in their inbox. One person whose e-mail volume fell in the 100 to 400 category said that increased workload led to this atypical volume and less than 30 e-mails was their norm.

Changes to behaviour patterns

Four of the participants stated that they changed their pattern of dealing with electronic communication when completing the time log portion of my study. Interestingly, all four were women, representing half of the women interviewed. Of the four women who changed their behaviour, three commented that they made a point of spending less time on e-mail than they would have normally, with

one woman consciously spending less time checking her e-mail on the weekend. One person felt it would be easier to count the number of times she checked her e-mail by closing her e-mail account, although normally she would have had her e-mail account open all day.

Two women commented that they used the time log to reinforce a change in their e-mail behaviour that they had been planning to make for a while. One woman indicated that she had changed her behaviour "a little bit, but not more than I had intended to. As I said before, I've been - there's been sort of a program of scaling back use" (Subject G, personal communication, October 23, 2007). One woman said because of her involvement in my study, she was more thoughtful about sending electronic communications and that she now considered communicating face-to-face before responding electronically.

> The time log helped me to realize which ones I had to respond to and which ones I could actually just file or talk to the person, so it helped me to be conscious of the communication that was coming in, which was great. (Subject H, personal communication, October 24, 2007)

One woman changed her pattern by deleting e-mails after she had dealt with them. These changes support Giddens' (1984) contention that communication may be altered by the participant, by the modality, or by both due to their recursive relationship.

Another gender issue relates to the volume of e-mails received. The women in the study received almost 40% more e-mail during the work week than their male counterparts, with little difference noted on the weekends (Table 26).

It is unclear what is driving this additional volume; there was no difference noted in terms of the number of e-mails sent by women as compared to men studied. This study did not determine from whom e-mails were received and so it is unclear whether this volume is generated by students, administrators or other faculty members.

Table 26. Comparison of the volume of e-mails received by gender

	Female participants (8)	Male participants (8)
Work-related communications received today - Monday to Friday	Total = 545 Weekly Average = 68	Total = 389 Weekly Average = 49
Work-related communications received today - Saturday and Sunday	Total = 41 Weekly Average = 5	Total = 43 Weekly Average = 5

Note. Averages were calculated by dividing each total by the number of participants in each group.

CHAPTER 5: LITERATURE REVIEW REVISITED

The literature reviewed in Chapter 2 examines faculty use of electronic communication at primarily English-speaking colleges and universities, in terms of communication, effectiveness, gender, and time issues. As a method of testing the validity and reliability of the study results, the study findings are compared with these corresponding studies, and any similarities and differences reported. In addition to those findings that correspond with the literature reviewed, other emergent results are discussed, and any consistencies between the study results and Giddens' (1984) Structuration Theory are noted.

Communication Issues

The literature on electronic communication highlights issues regarding this medium and its functionality at educational institutions. One issue is clarity of communication; a number of studies suggest that electronic communication creates confusion and that other communication devices, such as telephones or face-to-face conversation, are better suited for complex topics and equivocal tasks (Atamian & DeMoville, 1998; Duran et al., 2005; Haworth, 1999; Ishii, 2005; Montano & Dillon, 2005). Clarity of communication was definitely mentioned as a concern for participants in my study. Electronic discussions had exacerbated conflicts and resulted in hurt feelings. As a lean medium, "the tone can be so misunderstood, and can come across as so much more forceful by e-mail than it would face-to-face" (Subject N, personal communication, October 31, 2007).

As well, clarity of communication was seen as an issue with foreign students who are non-native English speakers as "sometimes their English is not very good....And sometimes it's a little hard to understand what they're asking, because they have difficulty composing their message" (Subject B, personal communication, October 22, 2007). One half of participants felt that electronic communications from English as a Second Language students were different, with the main difference being difficulty in understanding their requests. Chen's (2001) study involved a comparison of the actual wording of the e-mails sent by students to their professors. This study did not look at actual e-mails between faculty and their students. Therefore, while the differences that Chen found may exist, they were not revealed in this investigation.

The question regarding dissimilarities in electronic communication with older students did elicit answers that support Chen's (2001) study. While the interview questions did not specifically ask about writing style, some answers about older students obliquely referred to this topic. Different communication styles were exhibited in the e-mails sent by older students as compared to younger students.

Tapscott (as cited in Pletka, 2007) coined the phrase 'Net Generation' to characterize the group born between 1982 and 2002. Net Generation students are unlike earlier generations; "they are digital natives in a world of evolving information and communication technologies made for their interaction with all sectors of society" (Pletka, 2007, p.20). Having grown up with computers, they are used to the immediacy of information; where older generations perform

research at the library, the Net Generation has been trained to surf the web (Tapscott, 1998). A lot of their communication is text-based, including text messaging on cell phones, engaging in web-based conversations, and e-mail.

This phenomenon may be responsible for the style changes being observed, with some faculty members commenting that communications from older students tend to be "more formal than what some younger students would write. They might be less likely to say 'Hey' or use all lower case letters or that sort of thing" (Subject G, personal communication, October 23, 2007). Duran et al.'s (2005) study also mentions that some professors feel students' on-line behaviour is inappropriately casual.

These communication-style changes are consistent with Giddens' (1984) duality of structure notion, suggesting that agents are influenced by the structure of the organization within which they are operating and may alter the structure through their behaviour. Giddens' (1993) proposes that individual acts may cause social change but that social structure will only change when the new methods are institutionalized and thus form part of the social structure, suggesting that policies regarding electronic communication need to be formalized in order for an organization, such as Camosun College, to influence the changes that are occurring.

Participants reported that student communications were related primarily to course content and issues regarding missed classes. "So either actual content of the class or questions to do with the structure – 'When will this take place?' or 'What will be covered' on a certain test or things like that" (Subject D, personal

communication, October 22, 2007). The content of e-mails received was not studied and so this assertion is based upon respondents' answers to interview questions rather than an examination of the communications. This finding appears to be consistent with communications at the small, private institution in Duran et al.'s study (2005), as opposed to communications at the larger, public university, where students enquired mainly about grades.

Duran et al. also found that certain topics may not be well suited to electronic dissemination; this study supports this finding. Fifteen participants stated that they prefer to employ either face-to-face or telephone communication for sensitive or personal issues. "I would not use e-mail if I had to say something very private to someone, or something that had some emotional attachment to it, like I was upset with someone or if it was daunting" (Subject A, personal communication, October 29, 2007). Only one individual felt that electronic communication could be used for any discussion, including arguments or sensitive matters.

> There are some cases where I've seen someone face-to-face rather than writing an e-mail, but that's not necessarily because I'm against writing an e-mail, it's just because they're two doors down from me and it's easier to get an answer right away. I don't think there are very many things that I would outright refuse to use e-mail. (Subject D, personal communication, October 22, 2007)

Time Issues

No participants said that electronic communication technology increased their workload, despite frequent comments such as "it takes a fair amount of time to respond to e-mail" (Subject M, personal communication, October 26, 2007). This finding is consistent with Haworth's (1999) suggestion that e-mail did not increase the volume of student-faculty interaction; instead, it redistributed contact to an alternate form.

The findings are also consistent with Duran et al's (2005) study, which suggests the extent to which e-mail is augmenting or replacing other forms of communication is dependent upon instructor and student variables, such as personality and communication preferences (p.173). Certainly the amount to which e-mail is being used to replace or support face-to-face conversations or telephone calls varies by instructor and is determined to a large part by individual preferences.

A few studies suggest that office hours may no longer be adequate to meet students' needs and that electronic communication may be a replacement (Atamian & DeMoville, 1998; Haworth, 1999). Eleven of the interviewees felt students' use of their office hours had decreased due to electronic communication. "I think it reduces it, because they'll e-mail me in preference to stopping by my office. It's more immediate, so they can generally get answers more quickly than having to wait for an office hour" (Subject B, personal communication, October 22, 2007). The results of this study corroborate the findings of Atamian and DeMoville (1998) and Haworth (1999) on this point.

It is surprising to note that none of the participants complained about the amount of time they are spending on electronic communication in the evenings, on weekends, and even on holidays. Many academics appear to enjoy the flexibility offered by academia and adopt non-traditional working hours more conducive to their creativity. Electronic technology facilitates and enhances flexible work schedules and provides the opportunity to work off-campus. It is worth noting that all of the volunteers willingly agreed to an interview that could take up to an hour and a half, to devote time every day for seven days to complete a time log, and to review a transcript of their interview with no compensation. It was outside the bounds of the study to determine whether other instructors at the College would share this phenomenon.

Gender and Age Issues

Duran et al.'s (2005) study identified a gender difference in terms of electronic communication, with female faculty receiving more student e-mail than male faculty. Due to the qualitative nature of this study and the small number of individuals interviewed, a decisive supportive claim which would correlate Duran et al.'s study cannot be made. While this study, unlike Duran et al.'s work, did not distinguish between student e-mails and all other e-mails received, the eight female participants did receive 40% more e-mail during the work week than the eight male participants. Both groups received similar numbers of e-mails on the weekend and both groups sent similar numbers of e-mails. While the size of the sample base for this study did not allow for a deeper exploration of this issue, it does appear to be an area rich for further inquiry.

Another gender difference identified in the study is that half of the women, and none of the men, adjusted their behaviour when completing the time log. "I discovered a few things....I consciously spent less time checking e-mail on the weekends" (Subject J, personal communication, October 25, 2007). As well, of the four individuals who felt less productive as a result of electronic communication, three were women. These findings differ from Ogan and Chung's (2003) study which determined that gender did not affect faculty use of computers and computer-based technologies. Again, the small sample size may be an issue here in terms of making a definitive conclusion, though the finding does support Giddens' (1984) notion of the interaction between structure and agent and the ability of both to change recursively.

Certain studies look for a connection between age of faculty members and their ability to utilize electronic communication technology (Ogan & Chung, 2003; Wang & Cohen, 1998). Again, given the qualitative nature of the study and relatively few participants interviewed, strong assertions related to age are problematic, but age did not appear to play a major role. One might postulate that the age of the instructors would impact the perceived benefit of the technology, but this assertion cannot be supported by these findings. While very comfortable with technology, the two youngest participants felt that certain aspects of it diminished their productivity to some extent. Of the four instructors who said productivity was reduced overall by technology, two are in the 31 to 40 age range and the other two are between 41 and 50 years of age. All of the participants in the oldest category felt that their productivity was enhanced by

electronic communication technology. Wang and Cohen (1998) could not determine whether use of electronic communication varied with age and this study also suggests age is not a major factor in use of communication technology.

Productivity

Various studies propose that faculty productivity includes both quantitative and qualitative factors and is composed of such activities as advising, teaching, research and scholarly activity, and community involvement (Bock, 1997; Katula & Doody, 1990, Middaugh, 2001). Participants in the study cite similar components in their personal definitions of productivity. Creating new course material, aiding student progress, helping on college or departmental projects, personal learning and growth were some of the main areas mentioned. These definitions seem more in line with traditional notions of performance versus the more concrete, quantitative definitions of productivity.

Most instructors felt electronic communication enhanced their overall productivity, citing benefits such as its use for quick, procedural tasks and for asynchronous communication. "Because I can share things with so many people so easily. I can respond to things quickly and when I feel it's useful to do it, or in the right time to do it" (Subject E, personal communication, October 29, 2007).

They also remarked, however, on aspects of electronic communication that hinder their ability to do their job.

> Well, there's a trade-off between e-mails that are meaningful and help you to be productive and the ones that just clutter

> your inbox and that you have to wade through all the time....For me personally, it's a positive trade-off. On balance, it's a good thing. (Subject B, personal communication, October 22, 2007)

Some other instructors feel that their overall productivity is diminished by electronic communication technology.

> Well, if you take productivity as your effectiveness as an instructor, then there was a period of time when I found it really distracting and it got in the way of teaching....I think it gets in the way of the face-to-face contact. (Subject H, personal communication, October 24, 2007)

Many of the studies recommend faculty development and staff training for more effective use of technology (Amey & VanDerLinden, 2003; Brown et al., 2004; Shepherd, 2004; Wang & Cohen, 1998). The need for technical training was mentioned in the interviews. "I think it has the potential to make me far more productive. If I was more familiar with it. And what I struggle with is finding the time to be more productive with it" (Subject C, personal communication, November 2, 2007). Other comments made by participants suggest that some of the problems they are encountering with electronic communication could be resolved with appropriate staff training.

> We spend hours with students the first few weeks, setting up principles of how we're going to respect each other, trust each other, what happens when people challenge the status quo, how we're going to react, conflict guidelines in place to launch groups so that we can make learning happen in the

> classroom. We don't do that as faculty face-to-face, nor do we do that on e-mail. (Subject K, personal communication, October 23, 2007)

One difficulty with electronic communication is that different approaches and comfort levels with the technology exist within the organization (Roberson, 2004). Part of the potential for conflict or lack of increase in productivity is the use of a modality that is viewed differently by different players. Major differences exist in terms of response and access times and in terms of suitability of the medium to all tasks. Some faculty members happily embrace technology and use it for everything while others do not see it as useful for some tasks and consider it detrimental for other jobs. One person within the study, for example, did not want to discuss departmental issues over the internet and yet that person's department had decided to use both Facebook and e-mail as replacements for meetings.

Conclusion

The findings of this study support most of the findings of the literature reviewed. In particular, this study also found that clarity of electronic communication can be problematic, communication with older students tends to be different, and that this modality may not be best suited for certain topics, such as contentious or complex issues (Atamian & DeMoville, 1998; Chen, 2001; Duran et al., 2005; Haworth, 1999; Ishii, 2005; Montano & Dillon, 2005). In terms of time, most participants felt that use of communication technology re-distributed rather than increased their workload, with many experiencing a reduction in

student use of office hours (Atamian & DeMoville, 1998; Haworth, 1999). This study also found a gender difference in terms of volume of e-mails received and behavioural changes of female participants, consistent with Duran et al.'s (2005) study and in contrast to Ogan and Chung's (2003) results. Age was not seen as a major factor in determining use of technology among faculty (Wang & Cohen, 1998). Giddens' (1984) Structuration Theory is supported by the noted shift in writing style adopted by some students and by the change in behaviour of some faculty in terms of their use of the technology.

The over-arching question addressed in this study is: In the perception of college faculty, what impact does electronic communication technology have on their performance? The majority of participants felt that electronic communication enhanced their ability to do their work and that, overall, the technology improved their performance. Electronic communication was cited as useful for procedural tasks, for asynchronous and quick communication, and for encouraging contact with shy or reticent students. Participants had many suggestions for improving use of technology at the College that could further enhance their productivity and some of those ideas, along with ones based upon the findings of this study, will be discussed in the following chapter.

CHAPTER 6: RECOMMENDATIONS & SUGGESTIONS FOR FURTHER RESEARCH

Colleges and universities are operating within what has been called the *knowledge economy*; whereas natural resources and physical inputs were essential in the preceding post-industrial era, information and intellectual skill now take precedence (Powell & Snellman, 2004). One aspect of this shift is the enormous amounts of information now readily available to educators. The handling of such information is an essential element of daily tasks, and how well faculty deal with communication media such as e-mail, website postings, and text messaging has a significant impact on their productivity. Giddens (1991) posits that new information requires reflection or "chronic revision in the light of new information" (p.20), which suggests that educational institutions should be adaptive and thoughtful about their processes regarding information. Colleges, out of necessity, tend not to look at improving their handling of information, but rather focus on structural changes that deal with economic and financial elements (Fisher & Rubenson, 1998). Such a focus may lead administrators to miss out on an important arena where gains in productivity could be easily realized. My recommendations involve issues of strategic changes, policy changes, and the need for staff training.

Strategy

It is worth remembering that electronic communication is a relatively new medium. In the Australian study of the impact of technology on faculty performance, use of computer-based learning, such as websites and e-mail, increased from 5% in 1994 to 42% in 2004 (Krause et al., 2005). A number of individuals in my study indicated that their usage of electronic communication has evolved and changed over time, and will probably continue to evolve. While they previously used e-mail extensively, some participants now utilize it as little as possible.

> It's been an evolution. I was one that was loving e-mail when it first came out. It was a new toy, I used it like crazy, got caught up in the craze about it and, yes, I probably was a contributor to some of those bad e-mails as well....And then reflecting on that has pushed me in a completely different direction to e-mail. (Subject K, personal communication, October 23, 2007)

This evolution may continue to the point where e-mail is no longer the main form of electronic communication. Another participant feels that e-mail is archaic:

> The calendaring systems, scheduling systems, the websites, the blogs, the wikies, whatever we're trying to talk about, are a lot more richer and allow people to communicate, to coordinate things amongst themselves. I think this one-to-one e-mail, or one-to-many kind of e-mail thing is slowly becoming a thing of the past. (Subject I, personal communication, November 1, 2007)

Some people had already modified their usage of electronic communication. Others said they want the College to send fewer e-mails, using bulletin boards instead. A colleague mentioned that a notice to change departmental meeting times was posted in every weekly departmental e-mail for six months and yet there were still faculty members who did not know about the change. Certainly, the fact that participants deleted e-mails without reading them when they might be relevant to their work suggests this method may not be effective for the sharing of information. "If I'm feeling involved or want to get involved in college community, put it on a bulletin board, I'll go look at it" (Subject K, personal communication, October 23, 2007).

As instructors are clearly choosing to ignore e-mailed messages, it appears that this is not a good medium to use for dissemination of general information. Instead, a more appropriate forum might be via methods whereby the instructor chooses to access the information, such as bulletin boards. While this technique would reduce e-mail volume, and might increase the probability that those e-mails received will be read, it is unknown whether or not faculty members will actually read the general information posted to the bulletin boards.

Bulletin boards should be utilized for electronic communications disseminating general information intended for large groups within the college community.

Policy

Giddens' duality of structure notion suggests that agents may be making changes to the college structure through their behaviour (Macintosh, 1994). By

sending e-mails on the weekend, students are shifting faculty behaviour from one where faculty were only available during office hours to one where access is less restricted. Use of language is also changing, with communications from younger students being less formal in their writing style. It may be time to formalize these structural changes and give some control of the change back to the College and faculty.

The results of this study point to the need for additional policy regarding use of electronic communication at the college. The existing College policies do address general issues of computer usage, such as privacy of data, respect of other computer users' privacy, and appropriate use of computing resources (Camosun College, 2003a, 2003b) The Student Conduct Policy gives examples of unacceptable student conduct and discusses the ramifications for students who disobey the policy (Camosun College, 2007). The Student Conduct policy covers electronic communication indirectly, stating, for example, that "any complaint that is intentionally made by a person who knows it is false, frivolous, or vexatious" violates the policy (p.38). Obviously, electronic communications could fall into that category yet more explicit directions should be given regarding on-line conduct, including language and usage. Many faculty members mentioned inclusion on mailing lists as harmful to their productivity; the policy could suggest verbal or written permission be obtained prior to their name being added to a list. A search of a neighbouring university's website disclosed a document addressed to its students outlining appropriate on-line behaviour or

'netiquette'; Camosun College should consider posting a similar document to its website (Royal Roads, 2007).

In order to minimize confusion and inappropriate behaviour, colleges and universities should develop and disseminate clear policies regarding electronic communication usage, establishing norms and protocols that are understood by all users.

Within the study, there was a wide range of beliefs about what was an acceptable response time to student electronic communications, ranging from less than 6 hours to 3 days. In one interview, a situation was discussed where School administrators had implicitly agreed that it is reasonable to expect a faculty member to check their electronic communication messages within a certain number of hours. That decision, which was upsetting to the instructor, does not appear to have been based upon either a School-wide or College-wide policy.

Universities and colleges should establish policies regarding appropriate response times to student and other work-related electronic communications. While an institution-wide policy regarding all response times is recommended, instructors' right to decide their own, individual policies regarding response times for weekends and vacation should be considered.

Despite the varying response times to electronic communications amongst faculty members, there is very little communication to students or others regarding when they can expect a response. One faculty member found it

frustrating to not know when a response from a co-worker could be expected, saying that they didn't "want to wait five days for something I should have known yesterday. If we are going to use e-mail to communicate, then we need to do it" (Subject N, personal communication, October 31, 2007). And yet by not indicating when a response is likely, that is the situation that students are in if they send electronic communications to some faculty.

Instructors should be encouraged to state their particular policy regarding response times to electronic communications on their course outlines, including expected response time over weekends and holidays.

Training

Electronic communication has the capacity to enhance faculty productivity and performance but this capacity is not being fully realized. On average, participants spend the equivalent of almost one full workday a week on electronic communication. Even a small reduction in time spent on this activity could have a huge impact on the overall productivity of the institution. Participants remarked on areas in which they felt they could make improvements regarding their use of electronic communication. Some of the recommendations they made were that they limit the number of times they check their e-mail and stop reading communications that have little value.

> I get newsletters that are marginally useful. I spend some time reading that and keeping up, but it's more, yes, I read those. They're interesting but they take some time. It's partly e-mail, partly web-surfing. Once the thing's up, you

> know. (Subject E, personal communication, October 29, 2007)

The usefulness of technology at the College could be improved with training (Amey & VanDerLinden, 2003; Brown et al., 2004; Shepherd, 2004; Wang & Cohen, 1998). One person mentioned that their department invests a considerable amount of time training their students regarding interactions and behaviour but no staff training on electronic communication has taken place.

> There are not really any clear principles about creating learning environments. We spend hours with students the first few weeks, setting up principles of how we're going to respect each other, trust each other, what happens when people challenge the status quo, how we're going to react, conflict guidelines in place to launch groups so that we can make learning happen in the classroom. We don't do that as faculty face-to-face, nor do we do that on e-mail. (Subject K, personal communication, October 23, 2007)

In order to enhance use of system capabilities and therefore productivity, training should focus on appropriate electronic communication usage, on-line behaviour and technical skills. Such education could, by increasing user sensitivity and awareness, help reduce potential conflicts. Training may also reduce some of the behaviours that were noted as annoying by some participants, such as unnecessary copying on e-mails and inclusion on mailing lists that are of no interest to them. A fair number of conflicts arose around the use of electronic communication devices for handling complex issues.

> With (name)'s list of awards - it's saving us time maybe, because we haven't had to have a meeting, but there wasn't enough information on that for me to do any work with it. There's no dollar amount. It wasn't clear to me, because I'm the 'newbie', what those eight lists was supposed to be matched up with, and so it just made a lot of work that maybe, in this case, a meeting would have sufficed. (Subject P, personal communication, October 30, 2007)

Ishii (2005) suggests that training may improve the efficacy of electronic communication's use for more complex or equivocal tasks. Part of that training may be learning to identify which tasks are better suited to richer media, such as face-to-face or verbal communication.

Maintaining the time log highlighted for several faculty members the amount of time spent on potentially unproductive or less productive communications and they have since adjusted their online behaviour. It is likely that similar benefits could be gained by other faculty members through introduction of a time log exercise. Faculty could be encouraged to track their time spent on electronic communications for a short period of time. This low-cost, relatively simple exercise could begin the process of better time management of electronic communications

The benefit of electronic communication technology at tertiary institutions should be enhanced with training opportunities for staff and faculty members. Training should include technical aspects of the technology as well as behavioural aspects, such as appropriate online

behaviour and suitability of different modes of communication for different tasks.

Suggestions for Further Research

Faculty behaviour has shifted in terms of the amount of work that is being done from locations other than their office, such as at home, and that this shift is facilitated to the increased use and flexibility of electronic communication technology. This change could result in less interaction amongst colleagues, a condition which is seen as an essential part of faculty productivity (Baldwin, 1998; Cohen, 1996; Di Petta, 1998). Changes in face-to-face contact with students may also occur and such communication was viewed by some faculty as essential to their personal definition of productivity. This shift could be an interesting topic to explore in a future study, looking at possible adjustments in workload and altered patterns of contact between faculty and colleagues, faculty and administrators, and faculty and students.

While the study charted the amount of time spent at home on electronic communication it did not ask faculty members to report on the amount of time they spend each day physically at the office. It is possible that time spent at the office varies depending upon the school and the discipline, as well as individual preferences. A true comparison of School of Business faculty to other faculty would have included this question and future studies could perhaps investigate this issue more fully.

The appearance that women receive more electronic communications than their male counterparts merits further exploration. What is causing these additional e-mails: are they from students or from other faculty or from other parties? If they are from students, what prompts students to send more messages to female faculty than to male faculty? If they are not from students, who are they from and what, again, generates more electronic communications for this group?

As mentioned, use of electronic communication technology is evolving and changing. This technology has improved significantly since inception and users are becoming more experienced and sophisticated. A follow-up study in five or ten years' time may be interesting as an exploration of the progression of these elements. Items that faculty identified in this study as relevant, such as the need for timely feedback or the volume of e-mails, may no longer be significant, and other issues may emerge as topical. A follow-up interview with participants from this study would also be intriguing. Participants could implement some of their own or others' suggestions and a follow-up study could investigate the impact, if any, of these changes upon performance.

CHAPTER 7: RESEARCHER'S REFLECTIONS

I started my journey into this topic because I was bothered by a sense of unknowingly letting students down – electronic communications could be sent to me late at night or early in the morning and, unless I was constantly checking my computer, I was not responding quickly to their questions or comments. While I appreciated the benefits that technology afforded me, I felt constantly behind in my work due to the unread e-mails in my inbox. I was curious to know if other faculty members were equally bothered and what they were doing to deal with this issue.

I learned a lot from the interviews and have changed my behaviour in terms of electronic communication. I realized that I needed to set some boundaries regarding accessibility, and so I included a written policy on my course outlines, indicating that students can expect a response within 24 hours during the week and not on weekends.

I am more sensitive to the efficacy of electronic communication for certain discussions. When I see strings of electronic communications going back and forth between individuals on one topic, I suggest a meeting or telephone conversation may be more productive.

I am more disciplined in my use of electronic communication, and consequently am spending less time on the system and reaping greater returns to my productivity. I am more aware of the individual response times that are out

there – not everyone takes the same approach to electronic communication that I do. Messages sent to one colleague will be answered immediately while those to another colleague will sit unread in their inbox for a few days.

I am much more at peace with the unread e-mails in my inbox – I now view my inbox as similar to the newspaper – not all of it will be read but, just as I don't feel the need to rip apart the paper to only include articles I will read, I don't feel the need to get rid of the items in my inbox.

I have had many months to ponder and muse on this issue of electronic technology and I hope that some of the insights that have emerged can be communicated to others and perhaps inform future behaviours.

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Appendix A: Recruitment letter to School of Business Faculty

August 15, 2007

Dear Colleagues,

As some of you may be aware, I am engaged in a doctoral program at Simon Fraser University. As part of this program I will be conducting research in September and October 2007 on the impact of electronic communication technology on faculty productivity. I have approval from the College's Ethics committee to conduct this research.

The purpose of this letter is to recruit volunteers for my research. Participants must be full-time faculty within the School of Business whose primary job is instruction – that eliminates both Chairs and Program Leaders.

Participants will complete a time log and will then be interviewed by me on an individual basis. The interview will take about one hour. Completion of the time log will require you to track and record your electronic communication usage for a one week period and will take about five minutes each day. I will be selecting participants from those that volunteer who exhibit a range of characteristics. Participants may withdraw from the study at any time. The data of this study will maintain confidentiality of your name and the contributions you have made to the extent allowed by law.

If you are interested in participating, or have questions for me, please complete the bottom of this letter and return it to my mailbox.

Thanks,

Sheila Elworthy

Name: _____

_____ I have some questions. Please call me.

_____ I am interested in participating.

My age is in the range of (please circle) 25 – 40 41-55 over 55

Number of years teaching at the post-secondary level _____

Discipline of instruction (ie. Accounting, Economics, etc.) _____

Appendix B: Time Log

October 1, 2007

Dear Participant,

Thank you for agreeing to participate in the research component of my doctoral program in Educational Leadership which I am completing at Simon Fraser University. My research is studying the impact of electronic communication on faculty productivity, with faculty at Camosun College being my research population. Your involvement includes completion of a time log and participation in an interview. I will schedule the interview with you upon completion of the time log. I have approval from the College's Ethics committee to conduct this research.

Please be assured that this data will be kept confidential. The data will be correlated and results will not be attributed to any individual by name in the study. Please call me if you have **any questions at all** while completing this log.

(889-2994 cell, 592-2742 home, 370-4136 office)

There are three parts to this time log.

In **Part 1** please put one mark for every electronic communication that you send today that was self-generated as opposed to being in direct response to an electronic communication that you receive.

Part 2 is separated into your responses to electronic communications received today and electronic communications received on prior days. In both sections, please put one mark in the chart for each electronic communication related to your work as a faculty member at Camosun College dealt with each day for seven consecutive days. For each electronic communication (e-mail, text message, etc.) please decide how relevant it is to your work (columns) and what action you took (rows).

In **Part 3**, please record how many minutes you spend on Camosun College work-related electronic communication during the day and the number of times during the day that you check your electronic communication devices, which could include e-mail, websites and blackberries. Please record only the time spent on communication; if you are adding course material to your website, for example, that time would not be included but if you are posting a message to your website that time would be included. Please do not include telephone use or facsimile use. Include only text messaging and e-mail use of blackberries and cell phones.

Please return these logs to me as soon as the week is completed. Again, do not hesitate to call me should you have any questions about the completion of this log or my study in general.

Thank you again for your time,

Sheila

Appendix B (cont'd): Time Log

Tuesday, Oct. 9/07 Participant # 37859

Part 1

Number of work-related electronic communications sent today (these are self-generated, so not directly in response to an incoming communication)	

Part 2

Work-related communications received today	**Very relevant to my work**	**Somewhat relevant to my work**	**Unsure of relevance to my work**	**Not relevant to my work**
Deleted without reading entire body of message				
Deleted after reading				
Replied and/or forwarded				
Other action (phoned, met with person, etc.)				
Took no action (didn't read body of message, didn't delete)				

Work-related communications received before today	**Very relevant to my work**	**Somewhat relevant to my work**	**Unsure of relevance to my work**	**Not relevant to my work**
Deleted without reading entire body of message				
Deleted after reading				
Replied and/or forwarded				
Other action (phoned, met with person, etc.)				
Took no action (didn't read body of message, didn't delete)				

Part 3	**From my work-site**	**From a remote location**
Total minutes spent on work-related electronic communication		
Number of times I checked my electronic communication devices today		

Appendix C: Interview questions

Interviewee _____ Date _____

Housekeeping issues:

- Please read and sign the consent form – any questions?
- I will send you a copy of the transcript in a few weeks which I would like you to read to ensure that the transcription is accurate. Are you willing to do that?
- Please note that when I talk about electronic communication I am referring to your use of electronic communication technology for doing your work – interactions with students, with other faculty, administration, textbook publishers, etc. I am not talking about communication to your friends.
- Please note that when I say electronic communication I am not talking about telephones or facsimiles. I am talking about e-mail, text messaging, etc.
- Some of my questions will be specific to student contact and will say electronic communication with students.
- Feel free to say "I don't know" if that is the case – some of the questions ask for detailed information that may not be relevant to you!
- This interview should take about one hour.
- Any questions about that or about the interview itself?

1. How long have you been teaching at Camosun College? How long in total have you been teaching?
2. Which School and which discipline do you primarily teach in? Which age range are you within? Do you have internet access at home? Is it high-speed internet?
3. What modes of communication are you using for communicating with your students outside of the classroom? (Website postings, blogging, e-mail, face-to-face, telephone, msn)
4. What percentage of your working hours is spent communicating via electronic communication (exclude telephone and fax) with students? (0-20%, 20-40%, 40-60%, more than 60%)
5. Outside of class time, what percentage of your communication with students, is via: Electronic communication technology ___Face-to-face ___Telephone ___Other ____
6. During an average week, how much time in total do you spend communicating with students outside of class time via all media?
7. What percentage of your working hours is spent communicating via electronic communication (exclude telephone and fax) with others, such as administrators, publishers, support staff, etc.? (0-20%, 20-40%, 40-60%, more than 60%)

Appendix C (cont'd): Interview questions

8. What percentage of your communication with others, is via:
Electronic communication technology ___Face-to-face ___Telephone ___
Other ____

9. During an average week, how much time in total do you spend communicating with administrators, publishers, support staff via all media?

10. Do you save e-mails? If so, what percentage of e-mails do you save? For how long? Why do you save them?

11. Do you print e-mails? If so, what percentage of e-mails you receive do you print? Why do you print them?

12. Has the amount of time you spend on electronic communication changed as compared to one year ago?

13. Are there periods throughout the semester when time spent on electronic communication increases or decreases? What factors might be causing this change?

14. What is the nature of the student electronic communications? (Asking for assistance on course content, asking for assistance on assignments, administrative (due date, sickness))

15. Does electronic communication contact with students impact student use of your office hours? If so, how?

16. What do you consider to be an appropriate response time to student electronic communication requests?

17. How quickly do you tend to respond to student electronic communication requests?

18. Do you have any policy on electronic communication in your course outline or that you discuss with students at the start of a semester?

19. Do you check electronic communication on week-ends? How often do you check? Do you respond to electronic communications on weekends?

20. Do you check electronic communication in the evening? How often do you check? Do you respond to electronic communications in the evening?

21. Do you check electronic communication when you are on holiday? How often do you check? Do you respond to electronic communications when on holiday?

Appendix C (cont'd): Interview questions

22. How, if at all, is electronic communication with 'English as a Second Language' students different from electronic communication with other students?

23. How, if at all, is electronic communication with 'older' students different from electronic communication with other students?

24. In terms of work, what typically do you use electronic communication for? In terms of work, what, typically, don't you use electronic communication for?

25. How would you personally define productivity with regard to your work as a faculty member?

26. Are there certain aspects of electronic communication technology that increase your productivity? If so, please explain.

27. Are there certain aspects of electronic communication technology that decrease your productivity? If so, please explain.

28. What strategies have you found helpful for improving your productivity regarding use of electronic communication devices?

29. If you could change anything about electronic communications, what change would you make that might increase your productivity? What could be done to improve use of this technology at the College?

30. Overall, do you think electronic communication technology makes you more or less productive? Why? Is there anything else I should know about the connection between electronic communication technology and your productivity?

31. Did you discover anything while completing the time logs? If so, what?

32. Did you change your pattern of dealing with electronic communication while completing the time log? If so, how?

33. I notice that many people did not deal with old e-mails on a daily basis. What happens to your old e-mails? How many e-mails do you have in your inbox right now? How many are from yesterday or earlier? Is that the norm for you?

Please feel free to contact me should you have any other thoughts on this topic. As well, I will send you a copy of the transcript from this interview so that you can verify the transcription. Thank you for your time.

Appendix D: Informed Consent Form

Electronic Communication and Faculty Productivity Research Project

Informed Consent

I understand that the purpose of this study is to assess the impact of electronic communication technology on faculty productivity at the college. This study includes e-mail and other electronic communication devices that faculty might be using, such as blackberries and the text messaging capability of cellular phones, but does not include telephones and facsimile machines.

I understand that the researcher may make presentations to other educators regarding the outcomes of this study and that these presentations may also include writing articles for professional educational journals.

I understand that the data results may be used by the researcher in future research projects that involve her and possibly other researchers.

I understand that my participation involves a one-on-one interview with the researcher. My participation also involves completion of a time log for a one or two week period occurring between September 5, 2007 and November 30, 2007.

I understand that all my comments, written or oral will remain completely anonymous to those receiving the presentations, reports and/or reading the articles related to the project.

I understand that I will be given the opportunity to review the interview transcription to ensure that the transcription reflects my opinions and comments.

I understand that knowledge of my involvement in this project will be kept confidential by the researcher.

I understand that participation in this project is voluntary and that no coercion has been used to obtain my cooperation.

I understand that I may withdraw from the project at any time and that knowledge of my withdrawal will be confidential.

I understand that participation in this project is independent of and not connected to my employment at the college and has been approved by the Ethics boards of both Camosun College and Simon Fraser University.

I wish to give my cooperation as a participant in this research project.

Signed: _____

Date: _____

Place: _____

Appendix E: List of Codes

1. Expected response times
2. Actual response times
3. Frequency of checking
4. Electronic communication is good for
5. Electronic communication is not good for
6. English as a Second Language students
7. Older students
8. Strategies used to improve productivity
9. Suggested changes
10. Ways in which productivity increases and decreases
11. Dealing with old e-mail
12. Verbal and written policies
13. Printing and saving behaviours

Appendix F: Tabular results of Interviews and Time logs

Table F1. Schools within which participants teach

	All faculty (16)
School of Business faculty	9
Arts and Sciences	4
Trades & Technology	2
Health & Human Services	1

Table F2. Number of years teaching at Camosun College

	All faculty (16)	SOB faculty (9)	Other faculty (7)
Range	1 to 25 years	1 to 25 years	2 to 13 years
Average	8 years	8 years	7 years

Table F3. Number of years teaching in total

	All faculty (16)	SOB faculty (9)	Other faculty (7)
Range	2 to 27 years	2 to 27 years	4 to 17 years
Average	10 years	10 years	10 years

Table F4. Age range of participants

	All faculty (16)	SOB faculty (9)	Other faculty (7)
21 to 30 years	2	0	2
31 to 40 years	2	1	1
41 to 50 years	5	4	1
51 to 60 years	7	4	3

Appendix F (cont'd): Tabular results of Interviews and Time logs

Table F5. Time log results for e-mails received during the work week

	Very relevant to my work	Somewhat relevant to my work	Unsure of relevance	Not relevant to my work	Total
School of Business faculty (9):					
Deleted without reading entire body of message	2	4	27	36	69
Deleted after reading	65	49	9	22	145
Replied and/or forwarded	98	25		20	143
Other action (phoned, met with person, etc.)	22	3	1	1	27
Took no action (didn't read, didn't delete)	7	9	2	3	21
Total	194	90	39	82	405
Average number of e-mails received per person per day					9
Other faculty (7):					
Deleted without reading entire body of message		18	25	74	117
Deleted after reading	68	54	11	18	151
Replied and/or forwarded	122	56	15	13	206
Other action (phoned, met with person, etc.)	17	8	1		26
Took no action (didn't read, didn't delete)	2	13	7	2	24
Total	209	149	59	107	524
Average number of e-mails received per person per day					15

Note. Numbers represent the volume of e-mails received by all participants within each group from Monday to Friday.

Appendix F (cont'd): Tabular results of Interviews and Time logs

Table F6: Handling of old work-related e-mails during the work week

	Very relevant to my work	Somewhat relevant to my work	Unsure of relevance	Not relevant to my work	Total
School of Business faculty (9):					
Deleted without reading entire body of message	2	1	3	12	18
Deleted after reading	29	16	3	2	50
Replied and/or forwarded	24	3		4	31
Other action (phoned, met with person, etc.)	10	2			12
Took no action (didn't read body of message, didn't delete)	4		1	1	6
Total	69	22	7	19	117
Other faculty (7):					
Deleted without reading entire body of message	7	1	3	4	15
Deleted after reading	6	5	5	1	17
Replied and/or forwarded	13	17	1	1	32
Other action (phoned, met with person, etc.)	8	1			9
Took no action (didn't read body of message, didn't delete)	1	4	1		6
Total	35	28	10	6	79

Note. This table summarizes the handling of old work-related e-mails from Monday to Friday by the two faculty groupings. Old e-mails are ones received on a day prior to the day in question.