Running Head: INSTRUCTIONAL IMMEDIACY AND ONLINE LEARNING

The Effects of Instructor Immediacy Behaviours on Student Learning Experience in an Online Course

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A thesis submitted in partial fulfilment of the requirements for the degree of

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Abstract

Immediacy behaviours are a particular type of instructor communication behaviour which increase psychological closeness between an instructor and students (Mehrabian, 1967). Interest in immediacy behaviours originated in physical classrooms (Anderson, 1979; Gorham, 1988). The purpose of this exploratory qualitative study was to determine whether these traditional immediacy behaviours would occur in online learning, and if so, to examine their effects on student learning experience. Evidence of verbal immediacy was observed in the instructor-student interactions throughout an online graphic design course. These behaviours were related to student participation behaviours and their levels of perceived affective and cognitive learning. This research extended verbal immediacy by proposing two new behaviours, instructor encouragement and use of a shared vocabulary with students. A set of initial guidelines based on the research is also provided for online instructors and students considering online learning.

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Introduction

Online courses are becoming increasingly popular and accessible. Overall online course enrolment in the United States increased from 1.98 million in 2003 to 2.35 million students in 2004 (Sloan, 2005). Sixty-five percent of American institutions for higher education who offer face-to-face courses also offer such courses online (Sloan, 2005). Online learning is increasing in Canada as well. According to EduSpecs (2001), approximately 23 000 students are taking online courses at Athabasca University, "Canada's Open University". The university was running 435 online courses in 1999. Athabasca University's graduate programs are entirely online. Téle-université du Québec has more than 17 000 students in Canada (EduSpecs, 2001). Students from Mexico, Latin America and sixteen African countries are also taking advantage of Canadian university online courses (EduSpecs, 2001). Online courses are instrumental in facilitating access to learning material and resources, especially for people who live in remote areas, or who may not be able to attend a traditional college or university. Online courses can thus support and encourage life-long learning, expanding access to education and training to people who could not otherwise participate.

This thesis investigated immediacy behaviours, a particular type of instructor communication behaviour which increases psychological closeness between an instructor and students (Mehrabian, 1967, 1981). Interest in immediacy behaviours originated in traditional physical classrooms (Anderson, 1979; Gorham, 1988; Rodriguez, Plax and Kearney 1996). While work on immediacy has been done in distance education classes (Freitas, Myers, and Avtgis, 1998, Guerrero and Miller, 1998; Hackman and Walker,

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1990), the unique concerns of online classrooms have not been fully addressed in the literature.

To the best of our knowledge, research on the effect of immediacy behaviours in online courses has been confined to survey data (Baker, 2004; Arbaugh, 2001) or to simulations of online courses (LaRose, Gregg and Eastin, 1998). This thesis, however, applied an empirical approach to investigating instructor immediacy behaviours in an online course. The study was exploratory in nature, so distinct and explicit hypotheses were not proposed. Baker's (2004) and Arbaugh's (2001) surveys tended to include several different online courses without distinguishing between them. This study examined a single course. In addition, this thesis examined the interactions between the instructor and the students throughout the entire online course, not just after the course is completed, as has been the case with previous studies.

Online courses have a high drop-out rate, especially when compared with traditional courses. Online education researchers (for example, Frankola, 2001; O'Connor et al, 2003; Sims, 1999; Jonassen, 1991; Garrison and Shale, 1990; Laurillard, 1997) suggest a wide range of factors that may contribute to this attrition rate, including limited interaction, student isolation, lack of motivation, poor course design, instructor inexperience and technology anxieties. These researchers propose that interaction and engagement in the course could increase student retention rates. Since immediacy behaviours are directly concerned with the interaction of the instructor with his or her students, they may improve the quality of instructor-student interaction and reduce student attrition rates. Even if immediacy behaviours do not come naturally to instructors as they teach and communicate with their students, there is evidence that instructors can

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learn immediacy behaviours and successfully apply them in their classes (Jensen, 1999). Immediacy behaviours can thus be a powerful tool for improving instructor-student interactions.

This thesis focused on the use of immediacy behaviours in interactions through low-level technologies such as email and discussion forums, rather than more expensive high-level technologies such as live video conferencing. Online education provides students access to courses they may not otherwise be able to attend. It is expected that the research into immediacy behaviours via low-level technologies in this thesis will help online courses become even more accessible and affordable for education providers and for students.

There is a large body of literature examining the use of technologies in online courses (see for example, Benbunan-Fich and Hiltz, 1999; Joy and Garcia, 2000). Instructor interaction via different media is the most significant contributor to perceived student learning in online courses (Fredericksen, Pickett, Shea, Pelz and Swan, 2000). Interaction, particularly instructor-student interaction, enables various forms of participation and communication, creates a sense of community, facilitates course adaptation based on student input, and is a factor in meaningful learning (Sims, 1999). In fact, Garrison and Shale (1990, cited in Anderson, T., 2004) defined distance education as essentially interactions between content, students, and teachers.

High-level technologies such as streaming video, video conferencing and virtual worlds allow students of online education to have audio and visual contact while interacting with instructors, which help mitigate the limitations of online education and facilitate student learning. However, they also require expensive infrastructure, technical

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expertise and equipment. Not all educational institutions or online course providers can afford the time and resources for such expensive technology; and fewer students have access to the necessary computing equipment (such as speakers, high resolution monitors and video cards, high bandwidth Internet etc.) required for these technologies.

On the other hand, low-level primarily asynchronous text-based technologies such as online discussion forums are more common, easily available, less expensive and more accessible than high-level technologies. For example, public libraries often provide free access to computers and courseware, so students don't even need their own home computers, and several online services such as Google, yahoo, and hotmail offer free email facilities. In addition, almost any online course can make use of low-level technologies. The initial motivation for this thesis was therefore to investigate the use of low-level technologies for interaction in online courses. Specifically, this thesis investigated the effects of immediacy behaviours in such reasonably impoverished environments.

Mehrabian (1969, 1981) defined immediacy as the extent to which selected communication behaviours enhance physical or psychological closeness in interpersonal communication, reducing perceived distance between people. Examples of immediacy behaviours include smiling, asking questions, making eye contact and using people's names. Instructor immediacy behaviours have been found to promote perceived affective and cognitive learning (for example Anderson, 1979; Richmond, Gorham and McCroskey, 1987; McCroskey, Richmond, Plax and Kearney, 1985; Gorham, 1988; Baker, 2004). Bloom's Taxonomy of Learning (1956) described affective learning as

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encompassing a student's emotions towards learning experiences and cognitive learning as involving the acquisition of knowledge and the development of intellectual skills.

Online Learning

Different terminologies have been used for online learning which makes it difficult to determine a common definition. Terms include e-learning, Internet learning, distributed learning, networked learning, tele-learning, virtual learning, computer-assisted learning, computer-mediated learning, web-based learning and distance learning (Ally, 2004). However, these terms all have several factors in common: the student is in a different place than the instructor; the student uses some form of technology (usually a computer) to access the learning materials; and the student uses technology to interact with the instructor and other students (Ally, 2004). This thesis will use the term "online learning" throughout.

Distance learning is the acquisition of knowledge and skills through mediated information and instruction, including all available technologies, to deliver knowledge and skills to the learner (Elloumi, 2004). Historically, its predominant medium of instruction has been printed materials. Distance education may also incorporate videotapes, CD or DVD ROMs, audio recordings, faxes and telephone communications (DETC, 2005). After completing a lesson, the distance education student returns assigned work to the institution for correction, grading, comment, and subject matter guidance by qualified instructors. Corrected assignments are returned to the student. According to the Distance Education and Training Council (2005), this "exchange fosters a personalized student-instructor relationship, which is the hallmark of distance education instruction." (retrieved from http://www.detc.org/frequentlyQust.html)

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Online education can be considered a dynamic, interactive extension of distance education. Carliner (1999, cited in Ally, 2004) defines online learning as educational material that is presented on a computer. Harasim, Hiltz, Teles and Turoff (1995, as cited in Anderson, T., 2004) define online learning as any class that delivers its entire curriculum online, thus allowing students to participate regardless of geographic location and independent of time. However, online learning involves more than just the presentation and delivery of the materials using the Internet: the learner and the learning process should be the focus of online learning (Ally, 2004). Thus, online learning can be defined as the use of the Internet to access learning materials; interact with the content, instructor, and other learners; and obtain support during the learning process, in order to acquire knowledge and generate meaning (Ally, 2004). This thesis will use Ally's (2004) definition of online learning.

Online learning allows for flexibility of access, usually from anywhere and at anytime. The "anytime, anywhere" catch phrase, used to publicize online courses, means that students have access to courses and course materials 24 hours a day (time independent), regardless of location (place-independent), making them much more convenient than the traditional physical classroom (Swan and Richardson, 2003). In asynchronous online learning, students can access the online materials at any time, while synchronous online learning allows for real-time interaction between students and the instructor (Ally, 2004). Asynchronous online learning also allows students to reflect upon the materials and their responses before responding, unlike traditional classroom learning. Students have the ability to work at their own pace, which is especially important for non-native speakers (Swan and Richardson, 2003). Online courses can allow personal

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identities to remain concealed so that all students, regardless of race, sex, disability, or appearance can participate equally (Swan and Richardson, 2003). Students can use the Internet to access up-to-date and relevant learning materials, and can communicate with experts in the field in which they are studying. Students can complete online courses while working or in their own home (Ally, 2004). No significant differences have been found in learning between students taking online courses and students in traditional classroom settings (Joy and Garcia, 2000; LaRose, Gregg and Eastin, 1998).

Online course instructors can teach at any time and from anywhere. Online materials can be updated, and students are able to see the changes immediately (Ally, 2004). When students are able to access the Internet, it is easier for instructors to direct them to appropriate information based on their needs. If designed properly, online learning systems can be used to determine students' needs and current level of expertise, and to assign appropriate materials for students to choose from to achieve the desired learning outcomes (Ally, 2004). While online learning has great potential, it requires commitment and resources, from both teachers and students. According to Ally (2004), online learning materials must be designed properly, focusing on the learners and learning, with an emphasis on interactivity and collaboration.

However, a study of 4,100 online learners showed drop-out rates of approximately 70 percent (Meister, 2002). Meister (2002) also stated that this was an improvement over previous studies which showed online drop-out rates of 85%. Frankola (2001) claimed a 20 to 50 percent online learning drop-out rate. O'Connor, Sceiford, Wang, Foucard-Szocki and Griffin (2003) surveyed 375 users of online learning, and discovered the attrition rate for online courses was approximately 26 percent. This was

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much greater than the attrition rate for classroom learning (3 percent) reported by the same group of respondents. Currently, the attrition rate for the online graphic design course studied in this thesis is approximately 10%.

Several researchers (Frankola, 2001; O'Connor et al, 2003; Sims, 1999; Jonassen, 1991; Garrison and Shale, 1990; Laurillard, 1997) have suggested that increasing student motivation, engagement and interaction is the key to reducing this attrition rate. It is possible that the inclusion of more immediacy behaviours using relatively low-level technologies may help to reduce the drop-out rate by enhancing interaction in online courses. Fredericksen et al. (2000) surveyed over 1,400 students who took online courses and found that interaction with other students and student motivation for taking the online courses were significant contributors to perceived learning. Swan (2001) also examined how instructional factors affect student satisfaction and perceived learning in asynchronous online courses. She found design clarity, interaction with instructors, and active discussion among course participants significantly influenced student's satisfaction and perceived learning of the course material.

According to Swan (2001), there are three types of interaction in online courses, namely, interaction with the instructor, interaction with the course content and interaction with other students. For this thesis, the analysis of student-student interactions was limited to group-based student-student interactions such as those which occurred during audio chat sessions or on a discussion forum. Individual student-student interactions (such as one student sending another student an email) were beyond the scope of this study and were not investigated for several reasons.

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First, the primary focus of this thesis is instructor immediacy behaviours, and thus, instructor-student interactions. It may not be possible to determine links between instructor immediacy behaviours and student-student interactions. Second, it is likely that students may feel self-conscious while writing emails to their fellow students when they are aware of the fact that the researcher would also be reading these emails. Students may even modify what they were originally intending to write in the emails. Third, it is the students who would have to provide the researcher with copies of these messages, which may have burdened them, whereas, in the case of instructor-student correspondence, it is the instructor who provided the copies. The instructor provided the researcher with copies of both the emails he sent to students as well as those he received from students, so no additional workload was imposed on the students. Fourth, the students may have forgotten to keep or to pass on copies of emails to other students to the researcher. For these reasons, data was not collected on student-student email correspondence for this study. The different types of courses for online learning are described next.

Types of Online Courses

Online courses range from those that are primarily text-based with computer-mediated enhancements to courses that are designed specifically for the distributed Internet setting, and that merge several smaller educational components into a single course of study (Caplan, 2004). Currently, the majority of distance-education courses found on the Web are of the first type, involving text that has merely been converted to electronic form and placed on a website for students to read (Caplan, 2004). The advantages of this type of online course include getting the materials to the student

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almost immediately; facilitating searching and manipulation of the text; reducing the costs of publishing; and increasing the ease of development and revision of materials.

In addition, the Internet allows for a variety of forms of student-student; student-content, and student-teacher interaction during the course. However, this type of online course does not take advantage of the multi-modal, computer-mediated instructional technologies that are available. While these text-based online courses are often supplemented with electronic interactive tools such as discussion forums and chats, Caplan (2004) states that they are implemented as afterthoughts to the course and "their pedagogical value is often artificial and suspect" (Caplan, 2004, p 177).

Online course types at the other end of the spectrum take advantage of the strengths of the Internet as a teaching and learning environment; that is, its open, distributed, dynamic, globally accessible, filtered, interactive, and archival nature (Elliot and McGreal, 2002). In this type of online course, all course materials and activities are wholly Internet-based. Text only appears in short, concise sections and is just one component of the course. The course instruction is distributed amongst other multimedia components. According to Caplan (2004), these online components, known as learning objects, include electronic mail, discussion boards, chat utilities, Voice over Internet Protocol (VoIP), and instant messaging; synchronous audio; video clips; interactive activities, simulations, games, self-grading exercises, quizzes, examinations and websites.

Other types of online courses tend to fall in the middle ground between the two extremes of text-based and learning-object-based online courses. For example, correspondence or self-paced online courses can provide a structured learning experience that leads the student through a series of activities and challenges with limited

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instructional assistance. However, according to Haavind, Rose, Galvis and Tinker (2002), the online self-paced model is a poor use of the available technology, so it tends to be closer to the text-based courses.

Another major category of online courses is modeled on the traditional lecture in a physical classroom. The online course instructor replicates traditional lectures by using audio and video technology, often accompanied by real-time feedback. Without feedback, this type of course is more accurately considered a television-based distance education course. Haavind et al. (2002) propose that the online lecture is almost as good as a traditional lecture course. Most online courses using lecture-hall pedagogy employ some synchronous technology such as whiteboards, shared applications, or multi-way audio or video. However, providing real-time feedback is often expensive and creates huge scheduling problems. It is extremely challenging to find a time period for synchronous feedback or discussion that is convenient for all students and the instructor. Since online courses are generally supposed to be time-independent, students can be in several different time zones around the world. Lecture-based online courses also suffer from the limitations of the traditional lecture model. For example, students are more passive in this model of learning.

The webinar is an online learning course focusing on guided collaboration. Students create their own learning through thoughtful conversation and collaboration, guided by a knowledgeable instructor who is expert in facilitating online groups. This design is based on social constructivist learning principles where students create their own understandings based on group conversations (Haavind et al., 2002). Haavind et al, claim that when group-based learning is implemented online, inexpensive asynchronous

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technologies (typically, threaded discussion groups) are not only satisfactory, they can be superior to synchronous ones. A webinar can be better than a traditional seminar, because each student has time to think about the conversation as it unfolds and make thoughtful contributions. In addition, well-designed online collaborations are more inclusive than typical classes (Hsi and Hoadley, 1997).

Blended or "Hybrid" learning involves a course in which a mixture of face-to-face and online instruction is used (Anderson, K., 2004). There are many different combinations of these two approaches that can be used for any given class. Blended learning instructors try to select the best combination for their students and subject matter. However, some blended learning courses are simply online supplements to face-to-face courses. Supplementary online materials typically include a course syllabus, assignments, an optional discussion board, and links to relevant websites. Haavind et al. (2002) believe the online supplement model is not an online course at all due to the fact that it still forces students to attend a class at a particular time in a physical location.

The majority of online courses tend to go beyond only text-based interactions but do not take full advantage of Internet learning objects and capabilities. Different types of courses allow instructors to interact with their students using different media or technologies. As described earlier, this thesis focused on online courses using commonly available and relatively inexpensive technologies to increase accessibility to learning. The next section describes the particular online course used in this study.

Online-Learning.com Graphic Design Course

The online graphic design course studied in this thesis is an introductory six-week commercial course designed for people with no formal graphic design training. The

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course can be considered an amalgamation of a webinar and a self-paced online course. The instructor acted as a facilitator as students work through the material at their own pace. Collaboration occurred amongst the students during the teleconference sessions (facilitated by the instructor), during which they usually worked through an example or discussed solutions to an assignment. The course also used a threaded discussion forum for student collaboration and interaction with the instructor.

According to Online-Learning.com, the graphic design course teaches students a simple process to create graphics through three design projects. Students are taught how to use size, shape, color, and text and how to apply the principles of contrast, repetition, alignment, and proximity. Students are expected to be able to communicate in English and to be familiar with email and Microsoft PowerPoint. Students also need to have access to a computer with Internet capabilities.

The course included approximately 260 pages of course materials which were downloadable from the course website. The materials also included an electronic version of Horton's (1991) book "Illustrating Computer Documentation". Once a student was registered in the course, he/she could access the course materials and course website via a personalized student page on the course web site.

The types of interactions that made this course an attractive test bed for this thesis included three bi-weekly teleconference sessions between the instructor and all students, the course chat room and discussion forum as well as emails between the instructor and students. The course allowed for live audio communication between the instructor and students and among the students themselves through the teleconference sessions. The chat room, which is an optional venue for students, enabled synchronous written

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communication. Emails and the discussion group forum provided students and the instructor with asynchronous media to ask questions or share ideas. Finally, the instructor typically provided detailed feedback on the assignments. This course thus allowed research into written and verbal interactions between the instructor and students in a variety of different media by using several different Internet-based learning objects.

In addition, this online course avoided expensive technologies such as live video conferencing. Instead, it used low-level, inexpensive and easily accessible technologies such as emails, discussion board forums and teleconference calls where students could simply dial in with an ordinary telephone. According to the United States Distance Learning Association (2005), in distance learning, the ability of the instructor and students to see each other is not necessarily a condition for interactivity. However, audio contact can be a critical component for interactivity and learning (USDLA, 2005).

The fact that the graphic design course used regular teleconference sessions made it particularly valuable. The distance education course studied by Newlands and McLean (1996) complemented audio-taped lectures with telephone conferencing sessions conducted by tutors (instructors). The tutors were taught to compensate for the lack of eye contact and body language with more precise language and increased verbal fluency. Newlands and McLean (1996) found that the combined use of multiple audio media enhanced student learning, interaction and satisfaction with the course. Students stated that the teleconference sessions were their most valued learning aid. Newlands and McLean (1996) believe this reflects the fact that the audio conferencing sessions were the only live contact students had with their instructor. This is true of the online course used

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in this study as well. The next section explains the instructor immediacy behaviours investigated using this online course.

Immediacy Behaviours

Immediacy behaviours were first defined by Mehrabian (1969, p 203) as communicative behaviours that enhance closeness to and interaction with another person. Examples of such behaviours are smiling, eye contact, vocal expressiveness, open gestures and body movement behaviours. Immediacy behaviours were initially studied in the classroom by Andersen (1979), who examined student perceptions of their teachers' nonverbal immediacy. Richmond, Gorham and McCroskey (1987) constructed a 14-item Likert-type scale to measure perceptions of nonverbal instructional immediacy based on the work of Andersen (1979). The scale included such items as using gestures while talking to the class, having a very relaxed body position while talking to the class and moving around the classroom while teaching.

Gorham (1988) expanded the definition of instructional immediacy to include verbal immediacy behaviours (in addition to the nonverbal behaviours). She defined verbal immediacy behaviours as verbal interactions that increased psychological closeness between teachers and students. Richmond, Gorham and McCroskey (1987)'s Nonverbal Immediacy Behaviours Instrument was extended by Gorham (1988) to include verbal immediacy items such as the use of humour, frequent use of student name, encouragement of discussion, following up on student-initiated comments and sharing personal examples with the class.

While a large body of research has been conducted into nonverbal immediacy (see Andersen, 1979; McCroskey, Richmond, Plax and Kearney, 1985; Plax, Kearney,

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McCroskey and Richmond, 1986; Gorham, 1988; Kelley and Gorham, 1988; Christophel, 1990), this thesis will focus exclusively on verbal immediacy since it is more relevant to online learning, especially in a low-level technology environment such as the one studied here. As discussed previously, online learning usually involves textual, asynchronous, computer-mediated instructional settings. The online course instructor is not physically present to provide nonverbal cues in such settings. Since there is no face-to-face contact between the instructor and the students and because televised/audio/video-taped lectures are absent in many online courses, including the one studied here, physical gestures, movement and eye contact required for nonverbal immediacy behaviours would be impossible to use. The nonverbal immediacy behaviours are thus excluded from this study. Verbal immediacy behaviours, such as addressing a student by name, on the other hand, can easily be used in an online course, and are further discussed below.

Verbal Immediacy

McCroskey, Richmond, Plax and Kearney (1985), Plax, Kearney, McCroskey and Richmond (1986) and Gorham (1988) investigated the verbal behaviour of instructors in terms of power relationships and Behavioural Alteration Techniques (BATs). Instructors were considered classroom managers who use strategies such as prompts, motivational messages, structured transitions and positive questioning techniques to encourage students to stay on task. McCroskey et al. suggested that instructors can use pro-social messages and BATs based on reward, expert and referent power, rather than using antisocial messages and BATs based on coercive and legitimate power, to alter student behaviour. Pro-social messages and BATs increased student learning while antisocial BATs negatively affected perceived learning.

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Gorham suggested that pro-social messages and BATs such as "recognizing individual students and their ideas and viewpoints, ... incorporating student input into course and class design, ... communicating availability and willingness to engage in one-to-one interactions, and ... enhancing their "humanness" via humour and self-disclosure" (Gorham, 1988, p 52) were verbal communicative behaviours which could enhance closeness between instructors and their students. Gorham (1988) thus proposed that such verbal techniques could be considered immediacy behaviours. Gorham's (1988) aim to identify a set of "effective teacher" behaviours associated with increased immediacy and learning (Gorham, 1988, p 41) resulted in a verbal immediacy scale. The verbal immediacy measures are not dependent on face-to-face nonverbal cues, unlike the immediacy measures proposed by Richmond, Gorham and McCroskey (1987).

The verbal immediacy scale (Gorham, 1988) consists of 20 items measuring instructor verbal immediacy behaviours (Appendix H). Students typically rate these behaviours on a five-point Likert-type scale (0=never to 4=very often). Four of the items are considered non-immediate, for example "Refers to class as "my" class or what "I" am doing", and scores on these items are reversed for the overall score calculation. The split-half reliability coefficient for the initial development of the scale was .94 (Gorham, 1988). Other studies (see Christensen and Menzel, 1998; Christophel, 1990; Gorham and Christophel, 1990) have found reliability measures ranging from .86 to .94. Studies of distance education and online courses usually focus exclusively on verbal immediacy. The verbal immediacy scale is also often used in addition to the nonverbal immediacy scale in traditional classrooms (Richmond, Gorham, et al. 1987). It is the most commonly

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used verbal immediacy instrument in the literature and was thus used to measure instructional immediacy in this thesis.

However, since Gorham (1988) originally developed the scale for use in a traditional classroom rather than an online class, only a subset of the behaviours outlined in Gorham's verbal immediacy scale were expected to be observed in this study. Table 1 below lists the complete set of immediacy behaviour items (Gorham, 1988, p 44, Table 1) from the verbal immediacy scale, but reorders them from the original scale so that those items that were most applicable to this study are shown first. Table 1 describes how the relevant immediacy behaviours were operationalized for the present study, and provides each of these particular behaviours with a new identification code as well. The remaining behaviours, which were not expected to be observed during the online course, do not have this additional information.

Verbal immediacy behaviours which require the notion of "outside or after class" (such as items with original item numbers 7, 8 and 14 in Table 1) did not seem to be applicable in an online setting because online courses do not occur in specific classrooms or places. There are rarely scheduled classes (or instructor lectures during specific time periods) for online courses, as there are in traditional and certain distance education courses. Students typically access the course materials for an online course at their convenience, although there may be scheduled teleconference or live video sessions. Other items on the verbal immediacy scale (for example items with original item numbers 5 and 6, or 7 and 8 in Table 1) are redundant because they refer to the same behaviour type only differing in regard to whether the behaviour is addressed to students in the class in general or to the scale respondent in particular. Finally, non-immediate

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behaviours such as items with original item numbers 9, 12 and 18, identified with asterisks in Table 1, were not used in the study because they were the antithesis of proper immediacy behaviours (and in fact, their ratings are always reversed when scoring the scale).

Table 1. Verbal items for immediacy behaviours (adapted from the verbal immediacy scale, Gorham, 1988)

New ID for this study (if applicable)	**Original ID**	**Original Verbal Immediacy Behaviour**	**Definition**
IB1	2	Ask questions or encourages students to talk	Make statements/ask questions that are obviously intended to evoke a response e.g. open-ended questions rather than ones with specific right and wrong answers
IB2	13	Ask how students feel about an assignment, due date, or discussion topic	
IB3	16	Ask questions that solicit viewpoints or opinions	
IB4	3	Get into discussions based on something a student brings up even when this doesn't seem to be part of his/her lecture plan	Discusses/follows up on comments and questions by students even if they are tangential
IB5	4	Uses humour in class	Makes jokes; Uses funny examples; Uses abbreviations such as LOL; Uses smiley face/humorous emoticons
IB6	5, 6	Address students by name Addresses me by name	Uses students' names
IB7	11	Provides feedback on my individual work through comments on papers, oral discussions, etc.	Gives constructive suggestions to improve work, not just point out flaws

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IB8	17	Praises students' work, actions or comments	Points out what is good and/or correct
IB9	20	Is addressed by his/her first name by the students	Allows/encourages students to address the instructor by his/her first name. Students use instructor's first name
	1	Uses personal examples or talks about experiences she/he has had outside of class	
	7	Gets into conversations with individual students before or after class	
	8	Gets into conversations with me before, after or outside of class	
	9	Refers to class as "my" class or what "I" am doing*	
	10	Refers to class as "our" class or what "we" are doing	
	12	Calls on students to answer questions even if they have not indicated that they want to talk*	
	14	Invites students to telephone or meet with him/her outside of class if they have questions or want to discuss something	
	15	Asks questions that have specific, correct answers*	
	18	Criticizes or points out faults in students' work, actions or comments*	
	19	Will have discussions about things unrelated to class with individual students or with the class as a whole	

* Presumed to be *non*immediate. Item scoring reflected for analyses.

Research into verbal immediacy behaviours appears promising for online classes (Freitas, Myers, and Avtgis, 1998) and offers a novel approach to bridging the virtual distance between the instructor and students. In addition, focusing research on instructor

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behaviours rather than on the technology used may help address the gaps concerning the teaching and learning process in online classes as noted by several reports (the Commission on Technology and Adult Learning 2001; Congressional Web-based Education Commission 2000; National Education Association,. 2000; EduSpecs, 2001).

Finally, verbal immediacy behaviours can be learned easily by instructors (Jensen, 1999). Faculty participating in instructional immediacy training increased their use of verbal immediacy behaviours by 42 percent and experienced a 59 percent increase in student participation in class compared to those in the control group. Jensen (1999) suggested that verbal immediacy is especially relevant for faculty training because it is easily controlled and not bound by physical proximity as with nonverbal immediacy behaviours. Therefore, it should also extend to online instruction. The following section further describes the potential benefits of instructional immediacy behaviours on student learning.

Instructional Immediacy and Student Learning

Immediacy behaviour is the instructor communication variable most consistently associated with increases in (perceived) student affective and/or cognitive learning (Rodriquez, Plax and Kearney, 1996). McCroskey, Richmond, Plax and Kearney (1985) define affective learning as positive attitudes toward the course, its content, and the instructor. Researchers of immediacy behaviours (such as Andersen, 1979; Richmond, Gorham and McCroskey, 1987) tend not to define cognitive learning. However, Kelley and Gorham (1988) suggest that immediacy researchers may conceptualize cognitive learning as the acquisition of knowledge and the development of intellectual skills as defined in Bloom's Taxonomy of Learning (Bloom, 1956, 1964).

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Instructional immediacy behaviours can encourage students to appreciate or value classroom work, which has been found to enhance cognitive learning by influencing students' time on the work (Rodriquez, Plax and Kearney 1996). Immediacy has been positively related to affective learning in numerous studies (Andersen, 1979; McCroskey, Richmond, Plax and Kearney, 1985; Plax, Kearney, McCroskey and Richmond, 1986; Gorham, 1988; Christophel, 1990; McCroskey, Sallinen, Fayer, Richmond and Barraclough, 1996; Guerrero and Miller, 1998; Christensen and Menzel, 1998; Witt and Wheeless, 2001, Arbaugh, 2001, Baker, 2004).

Andersen (1979) first investigated nonverbal immediacy as a potential predictor of instructional effectiveness and determined that perceptions of immediacy were highly correlated with favourable student attitudes. Instructors who used more immediacy behaviours were perceived as being more positive and effective by students, which led to increased affect towards the instructor and the course itself.

While Anderson (1979) concluded that immediacy is a meaningful predictor of instructional effectiveness, and determined that immediacy behaviours increased affective learning, she did not find a relationship between instructional immediacy and cognitive learning as operationalized by test scores. Anderson proposes several possible reasons for this result. It may have been because of the difficulty of measuring cognitive learning or the type of course under investigation in her study. Andersen (1979) also suggests that perhaps affective learning (which she operationalized as student affect for the teacher and the course as well as behavioural commitment) either interferes with or may not even be related to cognitive learning, at least at the college level.

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Other researchers (McCroskey, Richmond, Plax and Kearney, 1985; Plax, Kearney, McCroskey and Richmond, 1986; Gorham, 1988; Kelley and Gorham, 1988; Christophel, 1990; Baker, 2004) obtained a relationship between cognitive learning and instructional immediacy, particularly nonverbal immediacy. Perceived cognitive learning and instructional immediacy behaviours were assessed with the learning loss scale (described later on p 32) and the immediacy scale (described previously on p 17) respectively.

Sanders and Wiseman (1990) determined that instructor immediacy behaviours were positively correlated with perceived affective, cognitive and behavioural learning as measured by the learning loss scale, the affective learning scale (described later on p 29) and the instructional immediacy scale for all racial and ethnic groups (namely White, Asian, Hispanic, and Black students) in their study. While individual immediacy behaviours had differing meanings for different racial and ethnic groups, overall, instructor immediacy behaviours had a positive impact on learning in the multicultural classroom (Sanders and Wiseman, 1990). McCroskey, Sallinen, Fayer, Richmond and Barraclough (1996) conducted a multicultural study with students from Australia, Finland, Puerto Rico as well as the USA, in the primary language of each sample studied. Perceived cognitive learning and instructional immediacy behaviours were, as usual, assessed with the learning loss scale and the immediacy scale for all the students. Similar to the findings of Plax, Kearney, McCroskey and Richmond (1986), Sallinen et al., (1996) also determined that higher levels of nonverbal instructor immediacy were associated with increased affective learning across these diverse cultures.

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Rodriguez at al. (1996) found verbal immediacy to have a greater impact on learning that did nonverbal immediacy. Gorham (1988) and Plax et al. (1986) suggest that verbal immediacy could be mediated by instructors' overriding nonverbal behaviours. Richmond et al. (1987) concluded that instructors' verbal message strategies influence cognitive as well as affective learning.

Freitas, Myers, and Avtgis (1998) found that students enrolled in conventional, face-to-face classes perceived higher levels of nonverbal immediacy behaviours in their instructors compared to those students enrolled in a synchronous distributed-learning course. However, there were no differences in perceived verbal immediacy behaviours between the two samples. Freitas et al. (1998) also suggested that distance education students may have had lower expectations concerning nonverbal instructor immediacy behaviour than students in traditional classrooms, since the distributed-learning students were aware that face-to-face interaction would not take place and that classroom interaction would be computer-mediated when they enrolled in the course.

Several researchers have investigated the relationship between immediacy behaviours and student satisfaction. Hackman and Walker (1990) found that off-campus students taking televised courses felt greater satisfaction with certain instructor immediacy behaviours than others, namely, when their instructor provided specific feedback on individual work, solicited phone calls and contact and used an expressive vocal quality during lectures. Arbaugh (2001) investigated the extent to which instructor verbal immediacy behaviours are significantly associated with student learning and satisfaction in online MBA courses. A factor analysis produced two factors: (a) classroom demeanour, which reflected the instructor's use of personal examples, humour,

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and openness toward and encouragement of student ideas and discussion; and (b) name recognition, referring to the extent to which the instructor and students addressed each other by name. Arbaugh (2001) proposed that instructors who readily used verbally immediate behaviours in a face-to-face classroom should find it reasonably easy to use these behaviours in an online format, since many of the verbal immediacy behaviours should be similar in both formats.

Baker (2004) found that students in online classes who perceived their instructors as more verbally immediate expressed greater perceived affective learning and increased perceived cognitive learning than students taught by less immediate instructors. However, that data consisted only of student evaluations via an online survey instrument. The students were not only from different courses, but also from different institutions. Baker (2004) admits that his voluntary invitation approach to recruiting participants resulted in participant self-selection and hence probably a biased sample of responses. It appears that motivated students responded to this call for participation and completed the survey. To overcome these concerns, this thesis used an empirical approach in which participating students' interactions and behaviour throughout the online course (in addition to their perceptions) were utilized for the study.

Other studies (Arbaugh, 2001) of immediacy in online courses share methodologies similar to those used by Baker (2004), namely, enlisting volunteer student participants from a wide variety of online courses that had been taught by different instructors using different software packages. It is questionable whether the individual online courses attended by the students in these studies are comparable. The courses had different subject matters, came from different disciplines, had different assessments, were

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in different formats with a variety of online course types and content delivery systems, with different media or technologies for interaction and different levels of instructor support. Any of these factors could have affected the students' perceptions of immediacy behaviours and learning. The validity of comparing across a number of different courses is unclear. This thesis thus examined a single course.

Fredericksen et al. (2000) found that students who reported that they participated in their online classes at higher levels (submitted more assignments, asked more questions, participated in more discussions, interacted more with the course materials, the instructor and other students) also reported the highest levels of perceived learning. However, both the increased participation and the increased learning in Fredericksen et al. (2000) are self-report measures. To overcome this limitation, this thesis examined actual student participation levels via analysis of the students' oral and written activities throughout the entire course, and not just the extent to which students themselves reported that they had participated after the course ended. The study also examined their levels of learning as measured by both self-reports and instructor grades.

Student participation levels for this study were determined by the frequency and degree to which students actively contributed to the graphic design course and interacted with the instructor and fellow students. Student participation behaviours included asking questions, sending emails, speaking up during the audio teleconference sessions, submitting assignments and posting on the discussion forum. Table 2 below lists the potential student participation behaviours that were expected to be observed in this thesis. These student participation behaviours, as well as any changes in student behaviour and

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involvement in the course, were studied relative to the occurrence of instructor immediacy behaviours during the course.

Table 2. Expected student participation behaviours

Behaviour Number	**Student Participation Behaviour**
SB1	Student asks a question
SB2	Student sends an email to the instructor
SB3	Student starts a discussion group thread
SB4	Student speaks during a teleconference session
SB5	Student submits an assignment

However, participation in terms of student-student interactions was not examined. While such data could prove valuable with respect to the study of community in online courses (Sims, 1999; Swan, 2001), it was not examined in this study, as the purpose here is to unravel the potential effects of instructor immediacy behaviours. Thus, Table 2 does not list students sending emails to other students in the course (rather than to the course instructor) as one of the potential types of student participation behaviour.

To the best of our knowledge, no one has investigated the objective occurrence of immediacy behaviours in online courses, that is, examining what the instructors actually do during an online course, and how frequently, if at all, they engage in immediacy behaviours. The focus in the literature (for example Baker, 2004; Arbaugh, 2001) has been exclusively on what students had *perceived* the instructors to do. Therefore, the first major research issue investigated by this study was whether instructor immediacy behaviours actually occurred during an online course. Furthermore, could such behaviours occur in an online course that used only simple, easily accessible, low-level technology, where there may be limited direct interaction between the instructor and the students? In order to investigate this issue, the study examined the actual instructor

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behaviours during the online course in addition to student perceptions of those behaviours.

There also appears to be a lack of empirical evidence to support the claims that instructor immediacy behaviours affect student learning and participation in online courses (see Baker, 2004 for example). One way to test these claims would be to study all interactions of students and the instructor throughout an online course to see if any instances of student participation behaviour can be linked to an instance of instructor immediacy behaviour. Where there is a link between instructor immediacy behaviour and subsequent student behaviour, one would expect that student participation would increase with increasing instructor encouragement. This behaviour may be observed over time; therefore, the amount of student participation should increase over time in a course run by an instructor who engages actively and continually in immediacy behaviours. To the extent that student participation behaviours occur directly following instructor immediacy behaviours, these could be interpreted as representing consequences of instructor behaviour, unlike student behaviours which occur spontaneously, without being prompted by instructor behaviour. Therefore, cases in which there is doubt about the link between immediacy behaviour and student response were treated separately from those in which the link is clear and unambiguous.

This research thus attempted to trace student behaviours occurring during the instructor-student interactions throughout the online course in an attempt to identify these as consequences of the instructor's immediacy behaviours if and when they occurred. Thus, a second major research issue investigated in this thesis was whether the

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occurrence of instructor immediacy behaviours could be related to student behavioural patterns in the online course.

This section discussed how numerous studies (including Andersen, 1979; McCroskey, Richmond, Plax and Kearney, 1985; Plax, Kearney, McCroskey and Richmond, 1986; Gorham, 1988; Christophel, 1990; Guerrero and Miller, 1998; Christensen and Menzel, 1998; Witt and Wheeless, 2001) suggested that verbal and nonverbal instructional immediacy behaviours increase (perceived) student learning. These claims have been made for traditional face-to-face classes as well as distance education classes. Increases in perceived learning have also been reported across many different cultures in the immediacy literature (McCroskey, Sallinen, Fayer, Richmond and Barraclough, 1996).

For online courses, the focus has been on the positive relationship between student learning and verbal (rather than nonverbal) instructional immediacy (Arbaugh, 2001, Baker, 2004). Thus, a final research question for this thesis was how verbal instructor immediacy behaviours would affect student learning experience in an online course. Since research into instructional immediacy behaviours in online contexts has been limited to survey data, this thesis used an observational study to empirically examine the effects of instructor immediacy on student participation and learning in an online course. The instructional immediacy literature distinguishes between two types of student learning; affective and cognitive learning, which are described next.

Affective Learning

McCroskey, Richmond, Plax and Kearney (1985) defined affective learning as positive attitudes toward the course, its content, and the instructor. Anderson (1979)

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operationalized affective learning in terms of student attitudes toward the course subject matter, practices recommended in the course, and the instructor. Plax, Kearney, McCroskey and Richmond (1986) suggest this operationalized definition is parallel to the affective domain objectives specified in Bloom's (1956) taxonomy of learning.

Anderson (1979) initially developed four seven-point bipolar scales: good/bad, worthless/valuable, fair/unfair, and positive/negative, to assess affective learning. McCroskey at al. (1985) added another four seven-point bipolar scales: likely/unlikely, impossible/possible, probable/improbable, and would/would not, to measure behavioural intention through inquiries about the likelihood of the student to engage in the behaviours recommended by the course and to enrol in a course of related content. The total affective score was determined by summing the scores on the five scales.

McCroskey at al. (1985) found that each of the scales had a reliability coefficient above .90 and the overall reliability of the measure was .94. Gorham (1988) used these same scales in her study of the relationship between verbal instructor immediacy behaviours and perceived student learning. However, she differentiated between the affective and behavioural learning component scale items. Gorham (1988) grouped the three attitude scales as a measure of affective learning and the other two scales as a measure of behavioural learning. She also added an additional scale to the original two likelihood scales, namely, an inquiry about the likelihood of taking another course with the same instructor. The split half reliability of the six item scale was .98. Other researchers (Christensen and Menzel, 1998; Christophel, 1990; Gorham and Christophel, 1990; McCroskey, Sallinen, Fayer, Richmond, and Barraclough, 1996) have used all six

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or selected items from this scale in their measure of affective learning and obtained reliability scores between .82 and .98.

However, the affective learning scale (Appendix I) fails to include items that assess actual behaviours indicative of actual behavioural commitment. The behavioural commitment scales are broad and imprecise, which may make it difficult for students to judge and complete the scales. For example "in real life situations your likelihood of actually attempting to engage in behaviours recommended in the course" is not only a vague statement, but also clearly does not measure whether the students actually did use the behaviours recommended by the course, only whether they were planning to do so. This calls into question the accuracy or validity of the behavioural component of the affective learning scale. In fact, rather than measuring the likelihood of students to actually engage in particular affective learning behaviours (taking a related course with similar subject matter, taking another course with the same instructor, using the skills taught in the course), as claimed by (McCroskey at al., 1985), the affective learning scale measures their *intention* of engaging in these behaviours. Since it focuses on student self-reports rather than actual behaviour or (affective) learning outcomes, this scale should be considered a measure of perceived affective learning.

Nevertheless, the McCroskey at al. (1985) affective learning scale seems to be the only scale used for measuring affective learning in the immediacy literature. Thus, in order to replicate earlier studies, this thesis also used the same affective learning scale to measure (perceived) affective learning. This study used the complete six-scale measure of affective learning, including the third behavioural commitment item added by Gorham (1988). In addition, it replaced the term "behaviours" with "practices" in the scale.

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Although Anderson stated that she was assessing affect towards the "practices suggested in the course" (Andersen, 1979, p549), Plax et al., (1986) used the term "behaviours" in the affective learning scale, for example, "My attitude about the behaviours recommended in the course is:". Subsequent researchers (Gorham, 1988; Christophel, 1990; Gorham and Christophel, 1990; McCroskey, Sallinen, Fayer, Richmond, and Barraclough, 1996; Christensen and Menzel, 1998; Baker, 2004) continued to use the term "behaviours" in the affective learning scale. However, it is possible that the term "behaviours" may confuse students completing the scale, since many courses, for example, mathematics and history, do not recommend behaviours. Since this term is not necessarily applicable for all courses, and in particular, for the graphic design course used in this study, and in line with Andersen's (1979) original statements, this thesis thus used the term "practices" instead of "behaviours" in the affective learning scale (Appendix I).

Affective learning has been related to student motivation to learn (Christophel, 1990, Rodriquez, et al., 1996). Since online learning researchers believe student motivation is a key factor to increase retention rates in online courses, affective learning may be essential for successful online courses. The other type of learning commonly studied in the immediacy literature, cognitive learning, is discussed next.

Cognitive Learning

Researchers of immediacy behaviours (such as Andersen, 1979; Richmond, Gorham and McCroskey, 1987) do not directly define cognitive learning. Rodriquez, Plax and Kearney (1996) even commented on the noticeable absence of a "constitutive definition of the cognitive learning construct" (p 295) in the instructional immediacy research. Rather, immediacy researchers relied on operational definitions such as

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standardized test scores (Andersen, 1979), short-term recall (Kelley and Gorham, 1988) and student self-reports of their own perceived learning (Richmond, et al. 1987; Plax, et al., 1986). Sanders and Wiseman (1990) operationally defined cognitive learning as how much students thought they had learned in a course. Kelley and Gorham (1988) suggest that immediacy researchers may conceptualize cognitive learning as the acquisition of knowledge and the development of intellectual skills as defined in Bloom's Taxonomy of Learning (Bloom, 1956, 1964). Rodriquez, Plax and Kearney (1996) also propose a comprehensive conceptual definition of cognitive learning based on Bloom's (1956) work.

Researchers of immediacy behaviours have found it difficult to establish valid measures of cognitive learning. McCroskey, Sallinen, Fayer, Richmond, and Barraclough, (1996) suggested that it is not appropriate to simply use whatever learning measure is already being used in the courses utilized in the instructional immediacy studies because these measures are insufficiently related to instructor behaviour. The methods typically used to evaluate students do not necessarily give an accurate indication of the instructor's impact on student learning (McCroskey, Sallinen et al. 1996).

In addition, different measures are used for cognitive learning and these measures are not standard across different instructors and different courses (Richmond, McCroskey, Kearney, Plax, 1986). Assessments via grades are confounded by variables such as attendance, writing skills, class participation, student preparation, punctuality, perceived motivation, student attitude, late assignments and teacher affect towards the student (Gorham, 1988; McCroskey, Sallinen et al. 1996). It is unclear what Gorham (1988) meant by affect in the context of cognitive learning, but it appears to refer to

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attitude. Students may already know the material before they enrol in a course, or may severely lack background knowledge required for the course material, which may result in grades which do not measure how much the student learned in this particular course (McCroskey, Sallinen et al. 1996).

Final grades also tend to have extremely restricted ranges and may have little relationship with what students have learned in a particular class from a particular instructor (McCroskey, Sallinen et al. 1996). Richmond et al. (1987) and other immediacy researchers (Baker, 2004; Gorham, 1988) are concerned that a final grade is unreliable as a measure of student learning, since it often consists of a single number or letter which has to summarize the learning for an entire course. In fact, they propose that grades can be considered merely as teacher perceptions of student learning, i.e. subjective teacher impressions, rather than actual measures of learning (Richmond, McCroskey, Gorham, 1987). McCroskey, Sallinen et al. (1996) also state that the majority of individual instructors who prepare and administer their own exams have limited training in the development of reliable and valid exams. These exams "have no established norms, usually are not based on publicly stated objectives, and are only marginally related to what is taught in class" (McCroskey, Sallinen et al., 1996, p201). Thus, grades can be based on inappropriate and unreliable exams.

Despite the problems associated with their validity, final grades can be interpreted as a learning outcome, and a potential measure of recall and transfer of learning (Mayer, 2001). Anderson (1979) used test scores as a measure of cognitive learning in students for her study on immediacy behaviours. Because it is beyond the scope of this thesis to investigate alternative means of measuring learning outcomes, final course grades were

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also used as learning outcomes in the study. However, the grades were examined in association with other data, including the students' own perceptions of their cognitive learning. This was determined by their cognitive learning (learning loss) scores. The cognitive learning (learning loss) scale is discussed later in this section.

Measuring cognitive learning is more difficult as class size increases, as time pressure increases, and as resources decrease, when instructors are forced to use simplistic assessments such as multiple choice questions which could be even less accurate at measuring learning when compared with, for example, open ended questions. Standardized testing may overcome these issues. However, standardized scores of different subject matters, especially in disparate fields, are not necessarily comparable. McCroskey, Sallinen et al. (1996) also suggest that standardized tests are not valid measures of what students have learned. In addition, standardized tests by their very nature are "teacher proof" (McCroskey, Sallinen et al., 1996, p202) because instructors do not know what is on the exam so they cannot "teach the exam" to their students. Finally, administering standardized tests to immediacy research participants in a wide variety of subjects and courses is not feasible. It would be expensive, time consuming for the students and require instructor co-operation. Of course, difficulties in the measurement of (cognitive) learning are not limited to immediacy behaviour research, but impact research in the field of education in general. While no solution has been universally accepted, self-report measurement has emerged as a popular and widely accepted measure of cognitive learning, particularly in the immediacy behaviour literature.

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In particular, university students, with their experience of the university setting and learning environment, are assumed to be able to assess their own learning accurately (Gorham, 1988). In fact, according to Gorham, student perception or a student's own measure of learning is just as good, if not better, than a teacher's perception of the student's learning. Richmond, McCroskey, Gorham, (1987) also argue that student perceptions of cognitive learning are at least as valid as the subjective grades provided by instructors or exams without clear objectives.

Thus, Richmond et al. (1987) proposed a new measure for cognitive learning, namely, the "learning loss" scale (Appendix J). In this self-report measure, students are asked to rate, on a scale of 0-9, how much they would have learned from the class with their ideal instructor and how much they actually learned in the class (with this instructor). The difference between their ideal and actual learning is classified as learning loss, with smaller numbers indicating greater (perceived) cognitive learning. According to Baker (2004), the learning loss measure can be employed across disciplines and class types.

While the learning loss measure is a subjective assessment, it does provide a measure of perceived student learning. Anecdotal evidence shows a student can get an A grade but tell his/her friends "I didn't learn anything in the course" or get a B and say, "Well, I knew my stuff, I learned a lot in the course, but I didn't do well in the exam." This suggests that academic assessments of learning do not necessarily measure actual learning, or at the very least, do not always reflect the student's own perceptions of learning.

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However, it is difficult to determine what the ideal instructor means or how an ideal instructor would be assessed. Every student's perception of an ideal instructor is likely to be idiosyncratic. Thus, one would expect large individual differences in both of the assessments that compose the learning loss scale. Unfortunately, this is the most commonly used learning measure in the immediacy literature (Christensen and Menzel, 1998; Christophel, 1990; Chesebro and McCroskey, 2000), and indeed, seems to have been used exclusively to measure cognitive learning since Richmond et al. (1987) introduced it, especially from 1990 onward. Since this cognitive learning measure is comprised of a single item, Rodriquez, Plax and Kearney (1996) state that it is impossible to assess its reliability. However, Chesebro and McCroskey (2000) determined a strong indication of concurrent validity between student self-assessment of cognitive learning through the learning loss measure and a test of the lecture material in the class.

Despite the concerns described in this section, in order to replicate earlier studies, the study in this thesis used the learning loss scale as one measure of (perceived cognitive) learning. The study also used final grades as an additional measure of cognitive learning, where cognitive learning is defined as the comprehension and retention of knowledge (Bloom, 1956, 1964). This thesis thus examined the effect of instructor immediacy behaviours in an online course on student perceptions of affective learning and cognitive learning as well as on course participation, through an observational study.

Updating the scales

All three rating scales discussed above, namely the verbal immediacy scale, the affective learning scale and the cognitive learning or learning loss measure use 5-, 7-, or

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9-point scales, as is typical in opinion research. However, one serious limitation to these scales is that they do not offer much opportunity to obtain statistically significant differences. This problem is exacerbated by the tendency of people to be 'conservative', that is, avoiding the ends of the scale so that most scores tend towards the centre of the scale (Lindgaard, 1985). In addition, it can be difficult for people to translate a judgment into a figure (Lindgaard, 1985). It has been shown that a continuous line is easy for people to use and that the point at which their line intersects the standard line corresponds well to their opinion (Lindgaard, 1985). A 10cm long line yields a percentage measure when measured from the lower anchor (e.g. "very unfavourable") to the participant's intersecting mark (Lindgaard, 1985). Therefore, all three of the scales were translated into continuous interval scales for this thesis.

This section described the verbal immediacy scale, the affective learning scale and the learning loss scale used by this study to obtain data on student perceptions. Methods of assessing data on actual instructor and student behaviours in addition to these perceptions are discussed next.

Qualitative Data Analysis Methods

As mentioned earlier, the online course used in this study had three teleconference sessions between the instructor and his students, an online discussion forum and three main assignment projects. Emails could also be exchanged between the instructor and students at any time during the course. Thus, the instructor-student interaction data from the study included teleconference audio recordings, posts from the discussion forum, the student assignments, including instructor feedback for these assignments, and email messages. Other data generated by this study include student responses to the immediacy,

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affective learning and cognitive learning (learning loss) scales discussed above, student interviews before and after the course, as well as responses to the standard online course evaluation satisfaction questionnaire provided by the instructor.

Three content analysis methods were considered for analyzing these various types of qualitative data: verbal protocol analysis, thematic analysis, and grounded theory. Verbal protocol analysis is a rigorous methodology for eliciting verbal reports of thought sequences as a valid source of data, either while participants are performing an activity as in 'concurrent' protocols or in 'retrospective' protocols where they report what they were thinking during a task execution after the event (Ericsson, 2002). However, protocol analysis is typically used when participants are solving a problem in real time, which is not the case for this thesis. While verbal protocol analysis could determine what the students were thinking while they participated in the immediacy behaviour study, it is not possible to use the think-aloud protocol in an online course such as the one investigated in this thesis, especially as the researcher was a silent and passive observer 'lurking' in the background, without participating in the course interactions. The students were on their own, accessing the course website at their convenience, and were not under direct physical observation during the course. In addition, the requirements of the verbal protocol analysis might have made the students feel self-conscious as they described and explained what they were doing while they participated in the course activities. For these reasons, verbal protocols were not generated or used in this research and will not be discussed further.

Thematic analysis (Taylor and Bogdan, 1998) first identifies themes and patterns of behaviour and experiences from the data. Themes and patterns can include

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conversation topics, vocabulary, recurring activities, meanings, feelings, folk sayings and proverbs (Taylor and Bogdan, 1998). Themes are identified by integrating components or fragments of ideas or experiences which may be meaningless individually. Emerging themes are integrated to form a meaningful and comprehensive view of the information or process under study (Taylor and Bogdan, 1998). Themes can be direct quotes or can paraphrase common ideas. The next stage of thematic analysis identifies all data that correspond to the already classified patterns (Taylor and Bogdan, 1998). Related patterns are then combined and catalogued into sub-themes. Finally, a valid argument for choosing the themes is established by relating them to the literature (Taylor and Bogdan, 1998). Thematic analysis is typically used to analyze interviews or conversations.

A third form of content analysis, grounded theory (Glaser and Strauss, 1967; Strauss, 1987; Strauss and Corbin, 1990) is widely used to analyze data from a variety of sources, including interviews and field observations. First, open coding (Strauss and Corbin, 1990) is used to determine categories, variables and/or concepts and their interrelationships by analyzing the data. Coding involves identifying, naming, categorizing and describing the phenomena found in the data. In addition, the properties, dimensions and/or characteristics of each category are determined. Next, axial coding (Strauss and Corbin, 1990) groups together related codes (categories and properties). Grounded theorists emphasize causal relationships, and fit themes into a basic frame of generic relationships (Glaser and Strauss, 1967). Selective coding (Strauss and Corbin, 1990) is then used to determine the core category, and relate all other categories to that category. Grounded theory assumes that such a core concept always exists (Glaser and Strauss, 1967). During the analysis, an inventory of codes with their descriptions (i.e., a

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codebook) is typically maintained, along with pointers to text that contain them. The codebook can also contain memos. Memos are short personal documents (such as field notes, code notes, and theoretical notes) that the researcher writes during the process of the grounded theory analysis of the data (Strauss and Corbin, 1990). As codes are developed, theoretical implications are developed along with links between the codes and the literature. Finally, a general theory may be developed by integrating the overall data analysis, resulting in a theory grounded in the data.

According to Glaser (1978), the fundamental distinction between grounded theory and other research is that grounded theory is an explicitly emergent methodology. Grounded theory does not test a hypothesis. It sets out to find what theory accounts for the research situation as it is. The primary goal is to understand the research situation and discover the theory implicit in the data (Glaser, 1978). Initially, grounded theory seemed to be the most suitable method for analyzing the wide variety of qualitative data generated by this study. However, this study was inspired by the instructor immediacy behaviour literature. It was expected that immediacy behaviours would account for the research situation, which in this context, is the online course and the interactions between the instructor and his students. Grounded theory analysis is typically used in situations where there is no background theory, in order to discover the categories and interrelationships, and perhaps develop a theory derived from the data. However, the core category (namely, instructor immediacy behaviours) that would ordinarily have been derived from the data using the grounded theory coding process, had already been established prior to the data analysis for this study. Thus, grounded theory did not seem to be the best match for this study, with its predetermined categories and behaviours.

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Content analysis is defined as a systematic, replicable technique for compressing text into fewer content categories based on explicit rules of coding in order to make inferences (Stemler, 2001). For this thesis, the content analysis coding was based on the instructor immediacy behaviour types identified by Gorham (1988), and operationalized for this study in Table 1 (p 19). Content analysis involves objectively identifying specified characteristics of messages, typically the frequencies of their occurrences (Stemler, 2001). Thus, the content analysis for this study first determined the frequencies of occurrences of the different immediacy behaviour types within the data.

Conaway, Easton and Schmidt (2005) used content analysis in an online business research methods course to investigate learner-to-learner interactivity, immediacy behaviours and learning outcomes. They did not identify the specific type of content analysis they utilized. However, Conaway et al. described analyzing the asynchronous postings and messages posted in the course discussion boards by searching for evidence of instructor immediacy behaviours. They observed immediacy indicators in most messages. Conaway et al. suggested that instructors play an important role in fostering immediacy behaviours and increasing student interactivity to build a learning community. Similar to Conaway, Easton and Schmidt's (2005) approach, this thesis focused on analyzing the content of the qualitative data for evidence of instructor immediacy behaviours as well as possible student reactions to these behaviours.

The methodology for this thesis adapted aspects from both thematic analysis and the grounded theory approach to analyze the qualitative data from this study. For example, all possible instances of instructor immediacy behaviours were identified within the data generated by instructor-student interactions and behaviours during the online

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course, namely, the teleconference sessions, discussion forum posts, emails and marked assignments. This phase was analogous to the second stage of thematic analysis which identifies all data that correspond to the already classified patterns of behaviour, in this case, instructor immediacy behaviour types. As recommended by the grounded theory approach, a codebook including memos was maintained during the content analysis for this thesis. This memo book was used to record all ideas, questions, implications, and insights relating to the data and its interpretation. Therefore, a modified form of content analysis was used in this thesis.

Research Questions

This thesis focused on the following research issues:

1. Can instructor immediacy behaviours be observed in an online course using low level technology where there is limited direct interaction between the instructor and the students?
2. If so, can the occurrence of these instructor immediacy behaviours be related to student behavioural patterns in the online course?
3. How do these immediacy behaviours affect the student learning experience?

Since this was an exploratory study, no explicit hypotheses were proposed.

Preliminary Analysis of Archived Data

A preliminary content analysis was performed on two years of archived data from the same graphics design course used for this study, including email correspondence between the instructor and students, feedback on assignments, and the course evaluation questionnaire responses. These data were provided by the same instructor from previous sessions of the online course. The analysis was conducted to determine the feasibility of

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the formal study. The archived data and the results of the analysis will not be published elsewhere because it was impossible to obtain students' informed consent post hoc.

The primary purpose of the data analysis was to determine if immediacy behaviours had occurred in the instructor-student interactions in the past, and if so, whether instances of such behaviours and student participation behaviours could be identified from the data. It was also used to determine the suitability of the qualitative data analysis methodology (discussed previously on p 42) for the formal study.

Unfortunately, the students cannot be quoted directly, since it was not possible to obtain their consent prior to performing this analysis. In addition, portions of email message texts, the dates of the emails, discussion forum postings and the general student comments from the course evaluation questionnaire were missing in the data received from the instructor. These missing data rendered it impossible to establish the chronological order of events, and to analyze the kinds of behavioural patterns expected in the formal study.

Email Correspondence

The data archive included some 864 email communications between students and the instructor from November 2003 to November 2005. The data shows that one or two students in each class typically account for most of the email traffic. The computer application to which the emails were exported truncated the message bodies at 256 characters, so it is impossible to ascertain the actual length of many of the messages. In addition, while the subject header and the sender for each message were available, there were no dates for the messages. Hence, the sample did not allow analysis of the chronological sequence or of the intervals between, for example, instructor-initiated

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emails and student responses, or between instructor feedback on assignments and student responses.

In an attempt to apply open coding (Strauss and Corbin, 1990), a random sample of 101 (of 864) messages was analyzed. Of these, two emails were sent by the instructor to the class as a whole; the remaining 99 messages were received by the instructor from his students. The majority of these addressed the instructor by his first name, which is one of the immediacy behaviours in the list presented in Table 1 (p 19). The messages were sorted into preliminary categories, coded as follows:

Table 3. Preliminary coding of student emails received by the instructor

Category/subcategory	**Frequency**
Questions	
Questions of clarification	13
Requests	13
Information	
Explanation/notification	30
Comments on the class	5
Student initiating social contact	7
Responses to instructor emails	
Social responses to instructor	9
Response to assignment feedback	5
Answers to instructor emails	3
Miscellaneous	
Technical updates	9
Spam	3
Missing information (impossible to categorize)	2
TOTAL	99

As Table 3 shows, most of the emails dealt with "information" in some fashion, followed by "questions", with relatively few responses to instructor emails and miscellaneous emails. The largest sub-category, "explanations or notifications", covers messages informing the instructor why the student did or did not do something, for example, submitting an assignment late. The "social responses to instructor" sub-category encompasses messages that go beyond the formal boundaries of the course, with students

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referring to aspects of their personal life and making "small talk" when they reply to an instructor query. The "requests" category contains messages which ask the instructor for help or for permission, for example, to be able to submit homework in a different format than the one specified.

Course Evaluation Questionnaire Summaries

Every student is asked to fill in the course evaluation questionnaire at the end of the course. The instructor tries to make it as easy as possible for students to complete the questionnaire, emailing a link so they can work online, allowing the students to be anonymous if they want, using multiple choice questions which are quick and simple to answer, limiting the number of questions, and providing areas for comments. However, completing the questionnaire is optional. The response rate for the course evaluation questionnaire is typically 40%, which is relatively favourable, as anecdotal evidence suggests that the expected response rate for a questionnaire is approximately 20-30%. Unfortunately, the student comments were missing from the questionnaire data exported from the database. However, all the responses to the multiple choice questions were available. There were 55 completed responses in the data archive. Table 4 illustrates the historical questionnaire results that were relevant to the formal study. All 26 questions of the questionnaire are available in Appendix K.

Table 4. Course evaluation questionnaire archive results (sample n = 55)

Was your instructor accessible?	
a. Rarely (0)	0%
b. Somewhat (2)	4%
c. When needed (16)	29%
d. More than expected (5)	9%
e. Always (32)	**58%**

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How would you rate your instructor's response?	
a. Too slow (0)	0%
b. Slow (0)	0%
c. Acceptable (10)	18%
d. Prompt (27)	**49%**
e. Incredibly prompt (18)	33%

How would you rate your instructor's help?	
a. Not very useful (0)	0%
b. Somewhat useful (1)	2%
c. Useful (4)	7%
d. Very useful (15)	27%
e. Always useful (35)	**64%**

How would you rate the marking of the assignments?	
a. Not very useful (0)	0%
b. Somewhat useful (2)	4%
c. Useful (10)	18%
d. Very useful (24)	**44%**
e. Always useful (19)	35%

Please rate the interaction between the instructor and fellow students.	
a. Poor (0)	0%
b. Satisfactory (1)	2%
c. Good (10)	18%
d. Very good (17)	31%
e. Excellent (27)	**49%**

Clearly, the responses were very favourable, with very few responses falling below a rating of 3/5; in every case the number of "very good" or "excellent" responses were close to or exceeded 70%. Although it is possible that the ratings may have been somewhat inflated because they were submitted to the instructor directly, the content of the relevant email messages suggested that students did enjoy both the course and the way the instructor treated them. Because the instructor also collected responses in the

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formal study, an attempt was made to shed light on the possibility of inflated responses from the researcher's post-course interviews with students instead.

Marked Assignments

The data archive also contained instructor assignment feedback from two classes for the graphic design course. A random sample of 12 (of 28) marked assignments was analyzed. The assignments showed evidence of the following immediacy behaviours: providing detailed, constructive feedback to students, praising students, using humour, and using students' names. Students' names have been changed in the examples below to protect their anonymity. In general, the instructor began his critique of the students' work by stating something positive:

> Hi NameofStudentX:
> These are very nice conservative cover designs. I think you have a very good understanding of the grammar rules.
> (Talbott, WMark2.ppt, January 2005)

The instructor always suggested how the students could improve their work:

> "The table works very well. Great job. The chart needs more work. I think the pie color could have been more aligned with your other color choices."
> (Talbott, EMark2.ppt, January 2005)

He also showed more appropriate solutions for the assignments through concrete examples:

> I did a quick little redesign (at left). … this kind of structure allows you to flow from one item to the next in a logical fashion. Obviously this would mean rethinking the picture, the shape of the chart and the table …. The flow and order is now more aligned to the logical reading order.
> (Talbott, SMark3.ppt, January 2005)

He typically framed his suggestions as his opinion, not necessarily the only way to do the work:

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> Colors work quite well. I would be inclined to add a little gray or black to the color to give it a bit more elegance.
> (Talbott, EMark3.ppt, January 2005)

Occasionally, he used humor:

> Are you [already] a graphic designer? <grin>. This is a lovely design.
> (Talbott, WMark2.ppt, January 2005)

Consistent with the student ratings, the above examples support the notion that the instructor is constructive and supportive in his whole approach to teaching.

The analysis of the archived data also determined the frequency of instances of the types of instructor immediacy behaviours (Table 1 on p 19) and of student participation behaviours (Table 2 on p27). These results are presented in Table 5 below. For every data source, each occurrence of a particular behaviour was considered a separate instance of that behaviour. For example, if a student asked several questions, each question was treated as an individual instance of that type of student participation behaviour. Similarly, instructor feedback on an assignment usually contained several suggestions on how to improve the work; each suggestion was considered an individual instance of immediacy behaviour. Thus, a single assignment could have multiple instances of feedback.

Table 5. Preliminary analysis of archive data

Behaviour Type	**Frequency**	
	Emails (n=101)	**Assignments (n = 12)**
Instructor Behaviours		
IB5 Use humour		**2**
IB6 Address students by name	**2**	**12**
IB7 Provide constructive feedback on assignments		**47**
IB8 Praise students' work, actions or comments		**29**
IB9 Allow students to address the instructor by his first name	**80**	
Student Behaviours		
SB1 Students ask questions	**36***	
SB2 Students initiate emails to the instructor	**65**	

*Partial frequency because it is based on email messages with incomplete text

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As Table 5 shows, and not surprisingly, given the nature of the types of interactions, students usually addressed the instructor by his first name. On the surface, the rather high proportion of student-initiated emails could suggest that students were quite pro-active in communicating with the instructor. However, Table 3 showed that nearly one third of the 101 messages concerned explanations from students for delayed submission of assignments. Even so, the figures in Tables 3 and 5, taken together, suggest that when students asked questions, they typically asked more than one in a given email. In terms of feedback on assignments, Table 5 shows clearly that the instructor consistently provided constructive feedback, and that he attempted to motivate the students by praising them.

Overall, the preliminary analysis provided evidence of the occurrence of immediacy behaviours and student participation behaviours in the online graphic design course. It would thus seem that instructor immediacy behaviours do occur even in settings in which the technological tools are quite primitive, and in which communication is asynchronous. The analysis also confirmed the suitability of the proposed measures of student participation behaviours.

While the limitations of the data archive prevented a chronological analysis and the determination of most behavioural patterns and interrelationships, all data from the formal study were analyzed in such detail. The formal study also provided additional data sources for instructor-student interactions, namely, the discussion forum postings and teleconference sessions.

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Formal Study

Design

The formal research was exploratory and qualitative, aiming to investigate the extent to which instructor immediacy behaviours may be demonstrated in subsequent student behaviour, and also the degree to which students show awareness of the occurrence of such behaviours in an online course. The observational study took a case study-like approach in which instructor-student interactions were analyzed for patterns involving immediacy behaviours. Possible effects of immediacy behaviours were explored via observations, inspection and content analysis of instructor and student interactions, written work and interpersonal communications during the course.

Student perceptions were obtained from their pre-course and post-course interviews and from rating scales measuring perceived immediacy, affective learning and cognitive learning (presented in Appendices H, I and J) taken from the literature. The scales were administered during the last week of the course. Verbal instructor immediacy behaviours specified in Table 1 (p 19) were utilized during the course. According to the instructor, these behaviours are reasonably consistent with the manner in which he normally interacts with his class. Throughout the course, the researcher was silently observing the interactions between the instructor and the students (the teleconference chat sessions, postings on the online discussion forum, emails and comments on assignments) with their consent. The researcher never participated actively in these interactions. The data obtained from these interactions were analyzed using a modified content analysis approach (see p 42).

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Data Sources

The online graphic design course used in this study was described in the introduction. The data sources for the study are described below.

Sources of Instructor-Student Interactions

Instructor-student interactions were observed from four main data sources: teleconference sessions, discussion group postings, student assignments and instructor feedback and email correspondence. Scheduled audio chat *teleconference sessions* between the instructor and the students were conducted three times during the six-week course. These sessions were audio recorded and monitored in real-time and subsequently submitted to a detailed content analysis. Students could post messages on various topics on the online *discussion board* forum provided for the course. This forum was reviewed regularly every few days throughout the course. The forum postings were also included in the content analysis.

Students were required to complete three assignments (projects) during the course, which they submitted to the instructor online via their personalized course webpage. Projects typically involved creating a page layout using text, charts, graphs, simple drawings, diagrams, procedures, icons, and screen captures. The instructor marked these assignments and provided detailed personalized feedback and a percentage grade to the student for his/her assignment. The *marked student assignments* were used as another data source. Finally, copies of all *email correspondence* between students and the instructor were also analyzed. As discussed previously, this correspondence did not include student-student emails.

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Sources of Instructor and Student Perceptions

Rating Scale Scores. Students completed the immediacy scale, the affective learning scale, and the cognitive learning scale in the final week of the 6-week course. All the three rating scales were converted into continuous rating scales as described earlier.

Student Final Grades. The course instructor evaluated and gave final grades, in the form of a percentage, to all the students on successful completion of the course.

Course Evaluation Questionnaire. Students completed the course evaluation satisfaction questionnaire that is routinely provided by the instructor at the end of the course. The standard Online-Learning.com questionnaire was used as is.

Interviews. Students were interviewed by the researcher before the course began and again at the end of the course. The initial interview was presented and completed online at the students' convenience, and the final interviews were conducted via telephone. The semi structured interview protocols are presented in Appendix L.

Materials

A recruitment notice and a study definition including prerequisites (Appendices A and B) was used to recruit and screen the participants for the study. Appendix C contains the informed consent form that participants were asked to sign before the start of the course. Non-paying students had an additional payment section, marked with an asterisk in the appendix, on their informed consent form. Appendix D provides the participant instructions for the study.

A demographic questionnaire (Appendix E) developed for this study was then administered. The course website was accessible from the moment participants were

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selected for the study (See Appendix F for images of the online course website). The course website includes three assignments for participants to complete. One such sample assignment is shown in Appendix G.

Three rating scales taken from the literature (described earlier) were administered: the immediacy scale (Appendix H), the affective learning scale (Appendix I), and the cognitive learning scale (Appendix J). An online course evaluation questionnaire, which is routinely administered by the course instructors at the end of the course, was also administered in this study (see Appendix K). Finally, Appendix L contains the questions for the interviews conducted with participants at the beginning and at the end of the course, and Appendix M presents the debriefing notes.

Participants

Ten course participants were scheduled to be observed. Five of these were paying the normal course fee, and another five volunteer participants were not paying. The latter were included because the online course classes are usually very small, with a maximum of five (paying) students. In addition, according to the instructor, one or two students typically fail to complete the course, which would render the sample extremely small without the additional students. Therefore, while it is recognized that the introduction of non-paying participants was a potential source of bias, these participants were added to increase the sample size. Participants were required to be able to communicate in English and be familiar with browsers, email, and computer file system functions. However, no formal training in graphic design was required.

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Procedure

The notice of recruitment was posted with permission in various buildings on campus including the University Center and Loeb Building. This same notice was emailed to some personal contacts who may have been interested in participating in the study. The study prerequisites were provided to potential participants along with the recruitment notice. Only those non-paying participants who satisfied the online course prerequisites were invited to complete the course and hence the study. Others who applied but who did not qualify were informed that they were no longer needed and thanked for their time.

Participants were introduced to the study and sent an informed consent form to read and sign. After this, participants read the instructions for the study. Participants then completed the brief demographic questionnaire. They also completed an online interview according to their convenience at the beginning of the six week formal course.

After the final assignment for the course had been submitted, the researcher administered three rating scales. Participants also completed an online course evaluation questionnaire administered by the course instructor at this time. Finally, the participants were interviewed by phone after the course was completed, debriefed and thanked for their time.

Data Analysis

A content analysis was performed on all the data obtained from the various data sources described earlier. As recommended by Glaser (1978), the analysis aimed to determine how to better manage the research situation, in this case, instructor-student interactions in an online course. The analysis was performed as follows:

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Instructor-Student Interactions

Similar to the preliminary analysis conducted on the archived data discussed above, the content analysis of all instructor-student interactions focused on identifying evidence of instructor immediacy behaviours and student reactions to these immediacy behaviours during the teleconference sessions, discussion group postings, marked student assignments, and email correspondence. The analysis thus determined the total number of instances of instructor immediacy behaviours directed at each student and also those directed at the class as a whole. For each data source, the behaviour instances were categorized according to the immediacy types shown earlier in Table 1 (p 19). The analysis also determined the total number of instances of student participation behaviours. For each data source, the behaviour instances were categorized based on the participation behaviours proposed in Table 2 (p 27).

Student behaviours were examined in context to determine if their responses were situational. For example, the analysis examined what event(s) occurred before a student initiated an email or made a comment during a teleconference session. A timetable of all the course events, e.g. the assignments and teleconference sessions, instructor emails to the class, etc., was built to establish the temporal aspects of the interactions, specifically to determine the time elapsed between instructor immediacy behaviours and student response behaviours and the sequence and order of the various behaviours.

In addition to determining the frequencies of instructor immediacy behaviours and student participation behaviours, the actual content of each data source was analyzed using the techniques described on p 42 to identify the occurrence of instructor immediacy behaviours that could potentially be related to student behavioural patterns. The content

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analysis analyzed the interactions between the instructor and individual students chronologically to observe if there were changes over time. The analysis also compared emerging patterns of different students' behaviour with each other and attempted to determine if the behaviours were responses to instructor immediacy behaviours.

Instructor and Student Perceptions

Rating Scale Scores

Scores for the immediacy scale, the affective learning scale, and the cognitive learning scale were calculated. All items were made unidirectional, and the participants' markings were measured to obtain their ratings for each item. The ratings were then summed to obtain the score for the immediacy and affective learning scale. The cognitive loss score was calculated by subtracting the second scale item value from the first.

Final Grades

Final grades were compared with the students' cognitive learning loss scores in order to relate the instructor's evaluation of student learning with the students' own perceptions of their learning.

Course Evaluation Questionnaire

Responses from the course evaluation questionnaire were used to determine overall student satisfaction with the course. Student rankings to questions using a five point scale (for example "poor, satisfactory, good, very good, excellent") with the anchor at lower end of the scale (e.g. poor) considered a 1 and the higher end (e.g. excellent) as 5 were summed to obtain a general satisfaction score. Student comments from the open-ended questions were used as data in the content analysis.

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Interviews

Since interviews were conducted with the students both before they start the course and after they completed it, it was expected that it would be possible to note if and how their perceptions and expectations changed over the period of the course. Interview comments were also used in the content analysis.

Results

This section begins with brief profiles of the people involved in this research: the students who participated in the study, the online course instructor, and the researcher herself. It then summarizes the data collection. Finally, the findings from the qualitative analysis are described.

Profiles

Instructor Profile

The instructor, Doug Talbott, is vice president of Online-Learning.com and is responsible for developing Online-Learning.com's Information Design curriculum. He has a B.F.A. in Communications Design and approximately 25 years of experience in design. The instructor is also the Director of eLearning Content Solutions at XIA Systems, which specializes in the design, development and deployment of eLearning. He finds it easy to empathize with his students since they tend to be mature, part-time learners who are usually working full time. The instructor spends approximately three hours per student during the course, of which two and a half hours are used to mark assignments, and half an hour is spent answering emails and discussion posts. He also spends three hours biweekly on the teleconferences. The instructor is an enthusiastic

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proponent of online learning, stating that it is simply "antiquated to force everyone to go to physical classrooms to learn. It is a waste of time, gas, money and energy."

The instructor believes that retaining students in an online course depends on two factors that he calls "mentoring" and "high touch". He describes mentoring in terms of the amount of attention an instructor provides to a student, and "high touch" as making a student feel valued, providing them with encouragement and constructive feedback, increasing their motivation and getting closer to them. This is strikingly similar to the concept of instructor immediacy, which aims to increase psychological closeness with students. The instructor considers the teleconference sessions a cost-effective way to increase "high touch" and believes that they have reduced the drop-out rate for his course over the past few years.

Researcher Profile

This section is provided to help the reader assess the researcher's explicit and implicit biases, prejudices and limitations. The researcher is a 28 year old female Master's student in Human-computer interaction in the Department of Psychology at Carleton University. She completed her undergraduate degree in Computer Science and has several years of work experience in implementing and testing computer technology for various high tech products. Working with qualitative data is a new area for her; she feels more comfortable with numbers and direct, clear-cut answers. She tends to be systematic, and prefers structure in her life and work.

The researcher has never taken an online course. However, she has had experience with distance education as a student of Carleton University Television (CUTV), formerly ITV, courses, which were broadcast on a dedicated television channel

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via local cable and also available as videocassette tapes from the library. She is a highly competitive student who strived to get excellent grades throughout her academic career. She realized the joy of learning for learning's sake, regardless of what she scored on a final exam, during her years as an undergraduate student at university. She passionately believes that education is critical to human progress and the improvement of society. Thus, she is eager to investigate ways to increase accessibility to education for all students. This desire motivated her thesis in online education.

Participant profiles

Nine students enrolled in the graphic design class. One was withdrawn when it was discovered that he had paid with a stolen credit card. A second student dropped out approximately half way through the course. A third student refused to participate in this study. Thus, six students, four females and two males, participated. Only one of the participants, KC, who lived in the United States, paid for the course herself, which may have influenced her motivation. All other students resided in Canada, and all of them had been given the course as a gift from the instructor and Online-Learning.com. English was the first language for every participant.

Individual profiles were assembled from the participant information questionnaire, interviews before and after the course, and the content of students' introduction posts on the discussion board forum. Table 6 below summarizes the demographic information. Participants ranged from 21 to 52 years in age. Four were currently undergraduates who were also working part time; one had completed her undergraduate degree and was unemployed, and one who had completed an MBA was working full time. Three participants underestimated the amount of time they would

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spend on the course per week by approximately five hours. The other participants spent approximately the amount of time that they had predicted.

Table 6. Demographic information for participants

Student	Gender	Age	Education & Work	Graphic Design Knowledge	Estimate of Course Time	Actual Time Spent
KC	Female	52	Completed MBA, working full time	None	5-8 hours	10-12 hours
TH	Male	26	Undergraduate, working part time	1-5 yrs experience, no formal education	4 hours	On average 4 hours
HA	Female	28	Completed undergraduate	1-5 yrs experience, no formal education	4-10 hours	10-15 hours
TN	Female	21	Undergraduate, working part time	1-5 yrs experience, no formal education	3-5 hours	5-15 hours
SD	Female	34	Completed undergraduate, working part time, school part time	None	4-8 hours	4-5 hours
TW	Male	25	Undergraduate, working part time	None	6 hours	5 hours

Participant motivations and learning goals

KC was taking the course "mostly for fun, justified by some possible application to my work" and because she loves graphics but knows "nothing about it". She was particularly interested in experiencing an online course and wanted to design online courses herself. During the course, the readings took several hours and she spent a lot of time learning the software tools while doing the assignments. She was hoping "to learn some basic graphic design" from the course.

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TH took this course thinking it would help his future work experience and education in interface design. He was "really excited to be doing this course! [He'd] always been passionate about graphic design." For two or three weeks during the course he spent no time at all on it, but usually he spent eight hours per week. TH wanted to "learn and apply practical graphic design principles and practices that are applicable to user interface design".

HA enrolled in this course "to develop a formal knowledge of graphic design", in particular, "the vocabulary and rule set for design". She anticipated it would help her "fill in a lot of the gaps in the learning [she had] done on the job" and that it would be both challenging and fun. During the course she spent five hours per week on the readings and two to eight hours on assignments, averaging approximately five hours on each project.

TN uses graphic design at work for communication and presentation purposes. She decided to take the course because it was free. She wanted "to gain a better understanding of graphic design and what is behind the methodology." After the course, she said the hours spent on the course differed every week. When assignments were due, she spent between 5 and 15 hours completing the readings and then the assignment, e.g., for assignment 2 she spent 12 hours on readings and then 3 hours on the actual project.

SD took the course "to learn how to communicate more effectively using visual elements" and to learn the "fundamentals of good graphic design." In the initial interview she hoped the course would help her overcome her fear of designing: "I'd kind of convinced myself that I can't do design...but perhaps it's because I didn't know the rules/principles...so I'm hoping to learn those and how to apply them." She spent a lot of time on the critical readings, saying it was "time well spent."

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TW decided to take this course because he "always wanted to have some skill in graphic design" and because he would not have been able to afford the course otherwise. In the initial interview he stated that he "would like to know the basics of graphics design" but that he was "not expecting to be an expert. If I know how to better incorporate graphics into my school and future work, I will be happy." He believed the course would help him with future employment and he was looking forward to putting the course on his resume.

None of the participants had taken an online course before. Having experience with online learning could have affected their perceptions and experience with this course. Most participants also stated that graphic design is at least somewhat related to their work, which may have affected their motivation and participation in the course. Some participants developed very strong opinions in the first few days of the course. HA, for example, complained about course organization in the initial interview; KC praised the course, TH was extremely unimpressed with the course, and SD thought the course was interesting, but a lot of work, especially the readings. Neither of the two males discussed anything of this nature with the researcher at the beginning of the course.

Issues with Data Collection

Not all participants completed all course activities. Only four of the six participants submitted all the assignments. One student did not return the course evaluation questionnaire. Several students missed teleconference sessions due to their schedules and inclinations. However, all of them submitted the rating scales and participated in both the interviews. The instructor described the lack of assignment submissions and attendance in teleconference sessions by some students as typical for

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online courses, particularly since they were so busy. He believed the power of online courses is that they still enable students to learn despite their hectic lives.

There were also two issues with the data sources. First, student emails were forwarded to the researcher via the instructor's email software, rather than as copies directly from the students. Unfortunately, email headers were missing for 11 out of 64 emails; thus, dates and timings for these student emails were not available. Second, the entire third teleconference session was not recorded due to a technical malfunction. Thus, there is no transcript or recording available for this session. Finally, since consent was not obtained for the student who refused to participate in the study, their interactions and data were not analyzed. Nevertheless, this study was a wonderful opportunity to observe an online course in real-time and to have access to the communications exchanged between the instructor and the students. Although it was impossible to obtain a complete set of data, the data collected was sufficient to glean a coherent picture of the course, the students, interactions with the instructor, and immediacy behaviours.

Major Findings

This section first describes the results of the data analysis performed on all instructor-student interactions during the course in the four interaction modes, namely discussion board posts, assignments, email messages and teleconference sessions, focusing on instructor immediacy behaviours and student participation behaviours. It then describes student perceptions of the online learning experience as obtained from the immediacy, affective and cognitive learning scales, the course evaluation questionnaire and the interviews.

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Instructor-Student Interactions

The frequencies of occurrences of instructor immediacy behaviours, categorized by behaviour type, as well as student participation behaviours, were determined for all interaction modes. Student participation was originally intended to be determined by students initiating contact with the instructor as specified in Table 2 (on p 27). However, students were not as active as expected and tended to respond to instructor behaviour rather than initiate their own during the course. For example, students preferred to answer questions rather than ask them, they did not start a single discussion board thread and they rarely spoke before being spoken to in the teleconference sessions. Other than SD and KC, students did not send the instructor emails of their own accord. Thus, the criteria for student participation behaviours were revised and student responses to instructor-initiated behaviour were also considered as instances of student participation.

The original intention was also to consider every individual communication as an instance of instructor immediacy behaviour or student participation behaviour. However, the data analysis suggested that it was more sensible to group related communications into a single instance. For example, multiple comments on the same issue in a student's assignment were considered a single instance of instructor feedback. Similarly, all consecutive comments by a single student on the same topic were considered a single occurrence of participation behaviour.

Discussion Board Interactions

There were only four threads on the discussion board for the whole course, one for each assignment. The first thread was titled "Project 1: Introductions", the second was

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on "Project 2: Annual Report Layout", the third was called "Project 3: Layout With Table" and finally, the fourth was "Project 4: Layout With Diagram".

Students posted nine messages in total: SD and HA each posted 3, whereas KC, TW and TH each posted one, and TN none at all. As can be seen in Figure 1, students only contributed to the first two threads. The first assignment required students to introduce themselves via the discussion board, which explains why students posted so much in the first thread. In all the other threads, however, instructor posts outnumbered student posts. Figure 1 thus demonstrates the extremely limited extent to which the students participated on the discussion board. As a consequence, the use of immediacy behaviours in the discussion board communications was very limited, with most of these occurring in the first discussion thread. In fact, there was only one instance of an immediacy behaviour (the use of student name) in the second thread, and one (humour) in the third. No immediacy behaviours occurred in the fourth discussion thread.

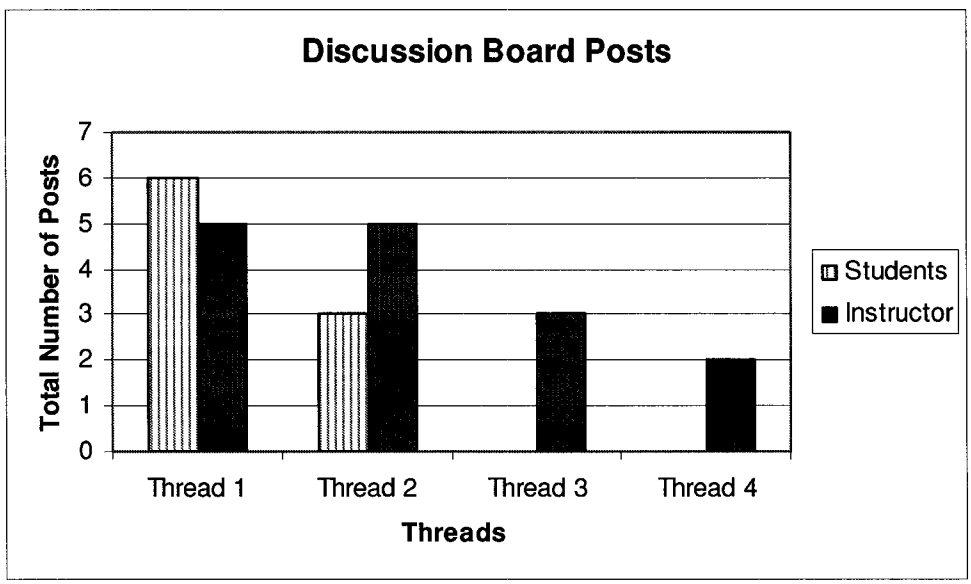

Figure 1. Instances of student and instructor posts per discussion board thread Thread 1 = "Project 1: Introductions"; Thread 2 = "Project 2: Annual Report Layout"; Thread 3 = "Project 3: Layout With Table"; Thread 4 = "Project 4: Layout With Diagram".

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The most common immediacy behaviour was addressing students by name which was expected as standard behaviour or netiquette on a discussion board forum. Therefore, it is questionable whether the use of student names should be considered an immediacy behaviour in this context. There were several instances of humour, which the instructor seemed to utilize to create a more comfortable environment on the discussion board. For example, "Many people actually say they prefer the [online] format over classrooms because it is way more convenient. Particularly in snowy climates (grin)" or "Most people 'wing' PowerPoint so you won't be alone (grin)". These instances encouraged some students to make jokes as well with HA for example writing, "I generally use Mozilla Firefox. If this is an incompatibility I guess I can be strong-armed into using Explorer… ☺" and TW posting "I am also looking forward to learning more about these CRAP principles. Its just fun to say "I'm working on CRAP!""

Copies of every discussion post arrive as emails in student and instructor inboxes. During the post-course interview, HA actually misremembered these email notifications as email interactions with the instructor. In fact, HA never emailed the instructor at all, but because of the discussion board email notifications, she thought she had exchanged emails with him.

The limited use of the discussion board yielded only three types of immediacy behaviours: addressing students by first name, using humour and discussing issues unrelated to class, such as snowy weather. However, as noted earlier, the use of student names is standard for this kind of interaction; it is thus not a meaningful immediacy behaviour. In addition, as students stopped posting or responding to messages, the

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occurrence of immediacy behaviours naturally decreased to a level well below other forms of interaction.

Assignment Interactions

Since the first assignment was simply posting introductions on the discussion board, it is not included here. 'Assignment 1' thus refers to the first project to apply the principles of graphic design, rather than the posts on the discussion board.

SD, HA, KC, and TN submitted all four assignments. TW submitted all but the final assignment; TH did not submit any, illustrating that success in an online course requires student commitment and self-discipline. Thus, there were five submissions each for assignments 1 and 2, and four for assignment 3. Students unanimously praised the excellence of the assignment feedback in the post-course interview. In fact, TW said this was "the best and most useful feedback [he had] ever received in [his] life."

Figure 2 shows the average number of immediacy behaviours observed in the three graded assignments across all the students. As expected in assignments, the two most commonly observed immediacy behaviours were praise for student work (IB8) and constructive criticism (IB7). In some cases, the instructor appeared to be 'teaching' concepts in the assignment feedback. He explained what was wrong, what was correct, and give detailed reasons, examples and explanations, almost like textbook notes. His comments in the assignments were thus another source of learning for students.

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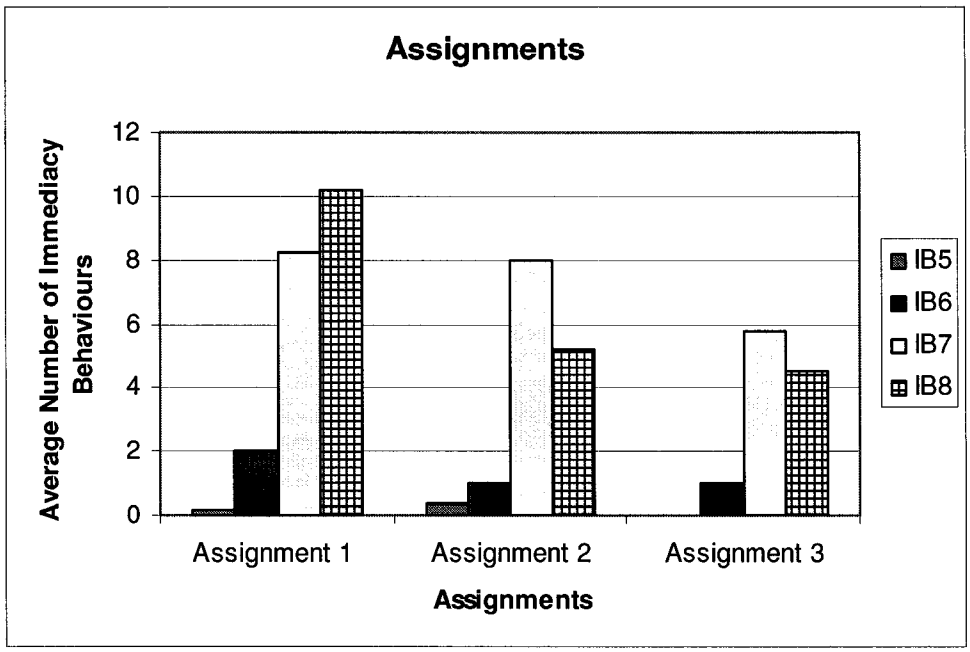

Figure 2. Average number of immediacy behaviours in assignments. (IB5 = humour, IB6 = student names, IB7 = constructive feedback, IB8= praise).

Figure 2 also shows that the most praise occurred in the first assignment, dropping to approximately half of that in assignment 2, and dropping slightly further in the final assignment. However, suggestions for improvement remained almost the same across the three assignments. It seems that the instructor softened constructive feedback by offering praise at the beginning, and then adjusting his focus to encourage student improvement in later assignments. The progressive decline in the amount of constructive feedback across the three assignments also suggests that the students' work improved with experience.

Students were greeted and addressed by name in each section of the assignments. In this context names were not necessary for identification purposes, since assignments are not publicly shared. This confirms the suggestion that the use of student names as an immediacy behaviour in online learning should be context-dependent. Humour (IB5) was usually used to break tension in assignment marking. For example, when pointing out the unsuitability of HA's use of a certain picture in her assignment, he wrote "I am not sure if

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a sleeping sailor image is really appropriate though I do see the humour <grin>". He also used self-deprecating humour, suggesting that he could have provided a complete redesign but he was "lazy <grin>"

Figure 3 shows the number of instances of immediacy behaviours received by different students in an individual assignment, the first.

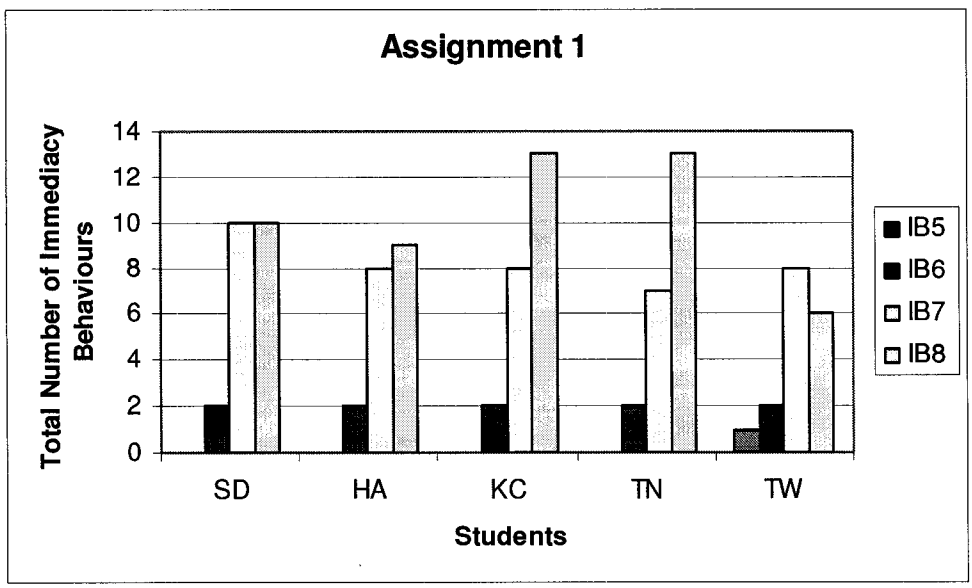

Figure 3. Instances of immediacy behaviours received per student for assignment 1 (IB5 = humour, IB6 = student names, IB7 = constructive feedback, IB8= praise).

As figure 3 shows, constructive feedback varied little between students; praise ranged much more widely, with TW receiving the least, and KC and TN the most instances of praise. All students except TW received more praise than constructive criticism in this assignment, possibly because TW's assignment had more room for improvement compared to the other students' work. One might predict that the higher a student's assignment mark, the more praise, and the fewer constructive suggestions the student would need. However, close scrutiny of the data revealed no such pattern. For example, KC and TN received the same amount of praise, but KC's mark was 82.5% and

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TN's, 87.5%. While it is possible that TN simply performed better, there appears to be no systematic relationship between assignment marks and immediacy behaviours. Thus, student marks cannot explain the varying amounts of immediacy behaviour in figure 3. The same is true for assignments two and three as well.

Taken together, the above results show that immediacy behaviours in feedback on assignments were largely limited to praise and constructive criticism, and that the number of instances of these decreased somewhat across assignments. No clear relationship could be demonstrated between the amounts of feedback, praise and student assignment marks.

Email Interactions

A total of 64 emails were exchanged between students and the instructor. Email was expected to be a rich source of immediacy behaviours because of the flexibility, freedom of expression, and privacy afforded in this interaction mode. However, the instructor rarely initiated emails to individual students, and most of his messages were very short, thus using limited amounts of immediacy behaviours. Yet he responded with courtesy and thoughtfulness to student emails, and replied to every email he received.

Figure 4 illustrates the number of messages each student sent to and received from the instructor (excluding group email newsletters). With few exceptions, the number of messages sent and received is approximately equal. Occasionally some students (HA, TW and TH) did not respond to informational messages. Figure 4 also shows how SD's use of email greatly exceeded that of the other students'.

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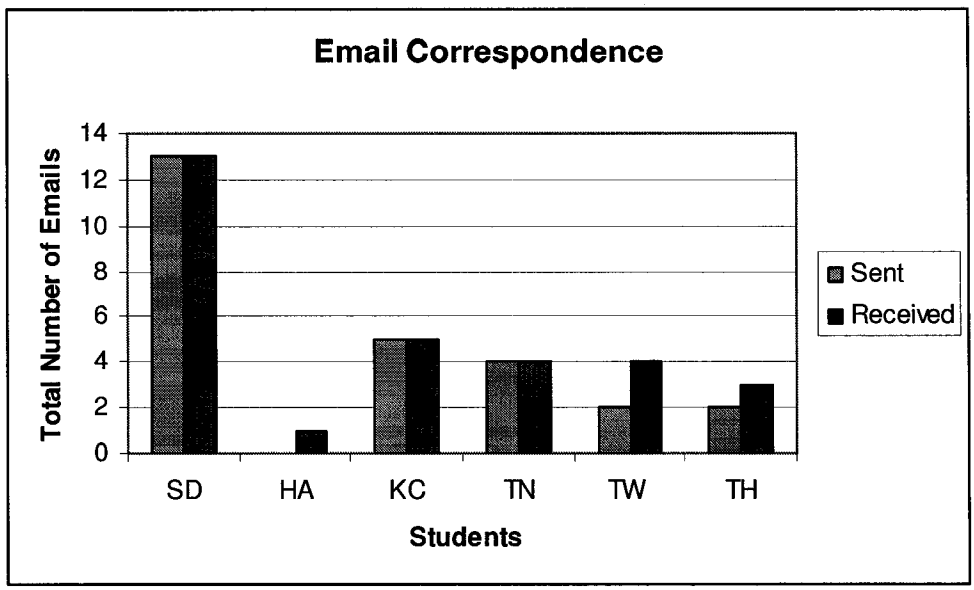

Figure 4. Instances of emails sent and received by each student.

Figure 5 below shows the immediacy behaviours observed in the emails exchanged between the instructor and students. As expected, the use of student names and the instructor's first name (IB6 and IB9) were the two most common immediacy behaviours observed. The instructor always addressed students by their first name, and in most cases this was also true for students writing to the instructor. However, as with the discussion board, it is common courtesy to address a person by name in email messages. In addition, emails arrive in inboxes equipped with the sender's name, so no look-up elsewhere is needed to respond using the sender's name. Therefore, these immediacy behaviours are not meaningful in this context.

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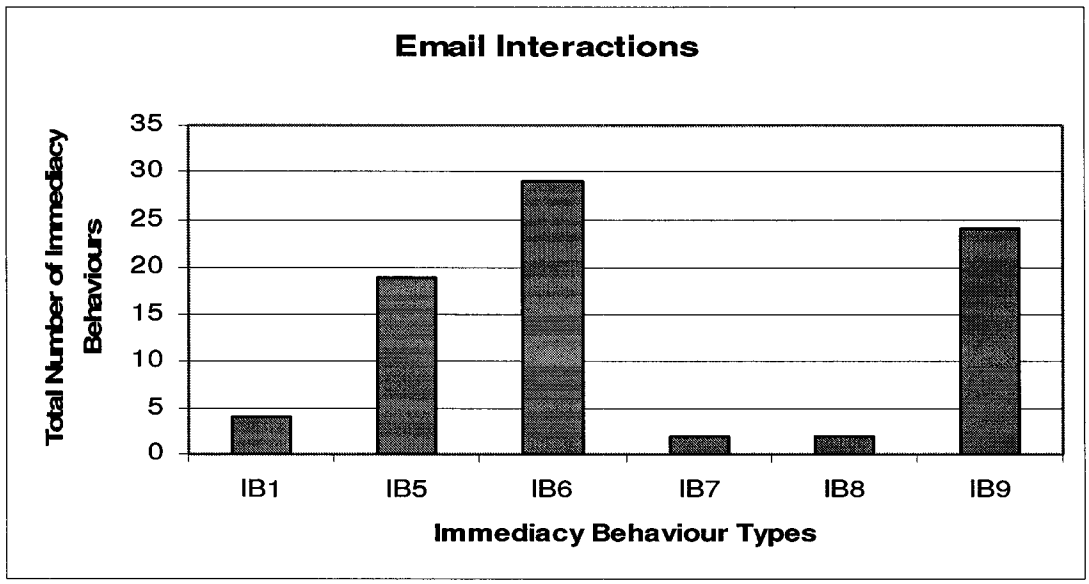

Figure 5. Instances of immediacy behaviours in instructor-student emails (IB1 = ask questions, IB5 = humour, IB6 = student names, IB7 = constructive feedback, IB8 = praise, IB9 = allowing students to use instructor's first name)

The instructor used humour (IB5) in a variety of ways, for example, to comfort and reassure students, "Try not to worry too much…learning is supposed to be fun (grin)" and "If it is any consolation, I am currently struggling with learning a 3D drawing application – a task that is definitely not for the timid (grin)." The latter example illustrates how the instructor combined humour with the sharing of personal experience (another type of immediacy behaviour). He also utilized humour to joke about off-topic issues like "as far as our [new] government goes, I've given up entirely <grin>."

The instructor used the immediacy behaviour of sharing personal anecdotes and outside experience in email exchanges, for example, discussing his experience on a government project with KC. He also used this particular immediacy behaviour to empathize with students who submitted assignments late or failed to attend a teleconference. For example, when SD wrote how she was behind because of her projects

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and exams for other classes, he responded "I understand. I have two kids and I am also working on consulting contracts as well <grin> life gets interesting some weeks." However, he only revealed personal details after students had shared similar information, thus respecting personal boundaries.

Content analysis of the email messages revealed that student emails were always related to course events such as scheduling conflicts with teleconference sessions or issues with assignments. The instructor's messages were mainly information updates (such as reminders of course event dates), responses to student queries, reassurance or encouragement, and assignment-submission reminders. It is interesting to note that SD received five of the seven emails in the encouragement category, and also two of the three messages with the highest number of immediacy behaviours, responding favourably to the reassurance. Of six separate messages concerning firm, yet polite requests for students to submit assignments and inquiring if they were experiencing problems (IB1), four were sent to individual students (TH and TN).TH received multiple such reminders to which he responded with promises to do so that were never followed through. IB1 also occurred when the instructor asked TN how her laptop was doing in an effort to encourage her to talk.

Despite the expectation that emails would be a rich source of immediacy behaviours, surprisingly few such behaviours were observed since this communication channel was not used as extensively as predicted. Apart from using first names, there were instances of humour, asking students questions, praise and additional feedback in the emails. The instructor also repeatedly emphasized his accessibility through email, for example, reminding students "As always, write to me if you have any questions."

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Teleconference Interactions

The instructor considered teleconferences to be similar to workshops, providing active learning opportunities and stimulating discussion, rather than to traditional lectures where students listen passively. Four students (KC, TH, HA, SD) took part in the first teleconference, two students (KC, TH) in the second, and three (TW, TN, SD) participated in the third. Figure 6 illustrates the immediacy behaviours observed in the first two teleconferences.

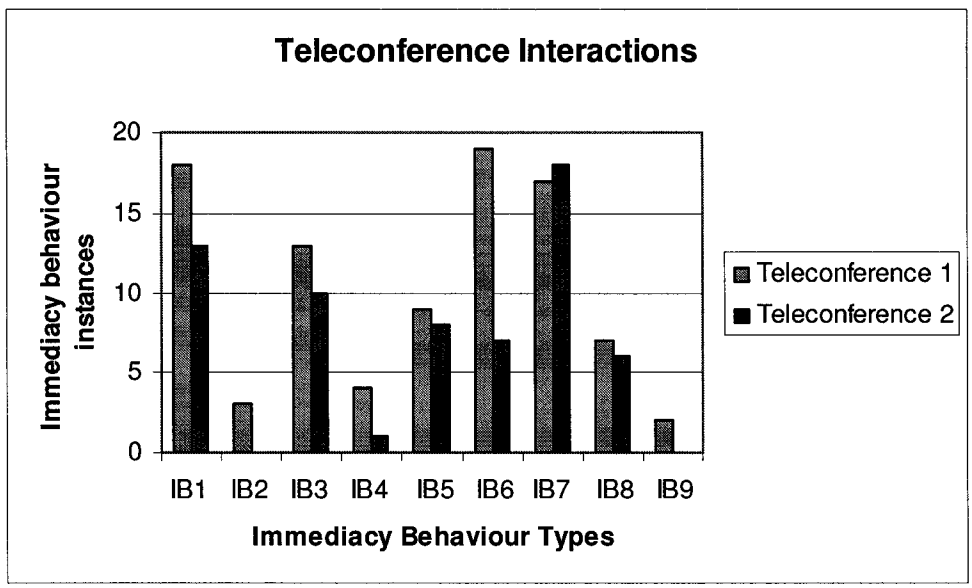

Figure 6. Instances of immediacy behaviours in the first two teleconferences. (IB1=ask questions, IB2=ask how students feel, IB3=solicit viewpoints, IB4 = tangential responses, IB5 = humour, IB6 = student names, IB7 = constructive feedback, IB8 = praise, IB9 = allowing students to use instructor's first name)

Unlike other modes, most immediacy behaviours in the teleconferences were directed toward the entire group of participants rather than at individual students. As figure 6 shows, overall, there were fewer immediacy behaviours (except for IB7) in the second than in the first session, possibly because it was approximately twelve minutes shorter, and had fewer students participating in it than in the first session. As usual, the

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use of student name (IB6) was observed most frequently, followed by feedback on student contributions (IB7). However, the frequency of use for IB6 is inflated, particularly in the first session, because the instructor would misidentify a student's name, asking for example, "Is that you KC?" when HA was speaking. Since students primarily responded to the instructor rather than to fellow students, they rarely needed to address him by name, thus reducing the frequency of IB9.

The instructor used IB1, asking questions and IB3, soliciting viewpoints extensively during the sessions. Questions ranged from "Tell us a little bit about yourself" to "Can anyone tell me how the consistency principle was applied in the second design sample?" He often followed up a question with another requiring a more detailed response in an effort to get the students to continue talking. When students did not respond, usually because they were unsure of the answer, the instructor repeated or rephrased the question. Students were more likely to respond to open ended questions like "How would we fix the background?" than questions they perceived had specific right and wrong answers. The instructor also occasionally asked how students felt about a particular topic (IB2): "Does that resonate with you?" or "Have I explained the issue fairly?"

The immediacy behaviours IB7, providing feedback, and IB8, giving praise, were associated with student responses to IB1 and IB3, asking students different types of questions. The instructor would indicate that students' answers were accurate by using phrases such as "absolutely" and "I agree". Alternatively, he would repeat their correct answers for the other students. However, he never directly said a student was wrong. Instead, he would try to subtly lead the student to the right response through his feedback

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behaviour. For example, he would say "These points are well taken but I am looking for something much simpler." KC, in particular, appreciated this feedback technique, stating that she would recommend this course because of the "excellent instructor guidance. In the telephone conferences Doug always found a way to build on people's input, even if it was a little off course. He held everybody well and I certainly felt free to chime in with ideas even though I was very new at the topic of the course." A final type of instructor feedback was putting general student responses into the appropriate technical terms so that students could learn the correct terminology. For example, when KC suggested that the title should be black but the headlines white, the instructor replied, "In other words, increase their contrast."

The instructor always discussed any issues students brought up during the session even when they were not part of his lecture plan (IB4). For example, "Let's take this on a bit of a tangent. TH, your suggestion of showing only half the headlines...well, like SD's problem of coming up with ideas…what is the idea behind this sample cover?" which deviated from the agenda concerning how to apply design principles to the report cover. Humour (IB5) was typically used to lighten the atmosphere, for example, regarding a previous student's design: "his head [in the photo] looks like it is being crushed by the frame [hahaha]" then adding "of course this student passed the course." The instructor occasionally used sarcasm, for example, praising the vast amount of student sketches although students had actually not shared any. This was a considerate way to use sarcasm since it was addressed to the whole class, avoiding the risk of insulting any individual student.

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Several other traditional verbal immediacy behaviours were observed during the teleconferences. For example, discussions unrelated to class (e.g. hobbies, plans for the weekend) occurred at the beginning and at the end of each session during social small talk. The instructor also shared personal anecdotes such as describing his industry experiences during the teleconferences. In addition, the instructor referred to the class as 'our' class and what 'we' are doing several times throughout each session. Finally, the instructor continually advertised his accessibility and availability to students, saying for example "I am just an email away." Such communications seemed to be a translation of the traditional immediacy behaviour "invites students to telephone or meet with him/her outside of class if they have questions or want to discuss something" for the online environment.

The instructor occasionally used informal language in the same way as the students, with phrases like "bogged down", "yay" and "yeah, I guess". Using this shared vocabulary seemed to increase the instructor's bond with his students as they laughed together and agreed with each other. The teleconference sessions also provided excellent opportunities to learn from fellow students. For example, listening to the interactions of SD and HA with the instructor seemed to trigger new ideas in KC and TH and they would spontaneously join in the discussion.

Figure 7 illustrates the student participation rates in the first two teleconferences. The participation rate consists of all student comments excluding syllabic utterances such as "uh huh" and "mmm" to indicate paying attention to the instructor. HA and SD did not attend the second teleconference and TH joined it 13 minutes late.

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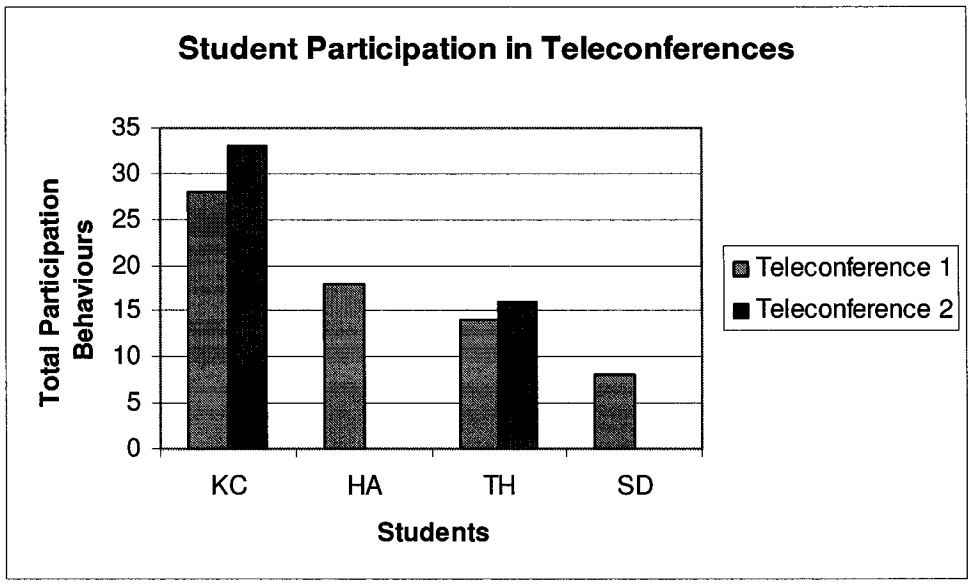

Figure 7. Instances of student participation behaviours in first two teleconferences

Figure 7 shows that KC and TH were slightly more active in the second than in the first session, perhaps because there were fewer students, or because they had become more comfortable with teleconferences. Clearly KC participated the most in both sessions. Surprisingly, SD, who had been most vocal and active in the course until then, participated least actively, possibly because asynchronous communication channels allow her more time to reflect on her contributions or because she expresses herself more confidently in written rather than oral media. The instructor tried to draw her out by addressing a few questions directly to her.

The teleconference sessions were thus a rich source of immediacy behaviours: all nine expected traditional verbal immediacy behaviours were observed in this single data source. The use of student names was observed most frequently, partly because the instructor repeatedly needed to identify who was speaking and partly to praise or give

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feedback to a specific student. The instructor also made extensive use of open ended questions and humour to engage the students during the teleconference sessions.

Instructor Immediacy Behaviours

All nine of the original verbal immediacy behaviours expected in the formal study were observed during the instructor-student interactions. Four additional behaviours, namely, inviting student contact; using personal examples; referring to "our" class or what "we" are doing; and having unrelated discussions, were also used, which was surprising given the absence of traditional lectures, instructor office hours, tutorials or other instructor-student meetings in an online setting. Appendix N lists the complete set of traditional verbal immediacy behaviour types (Gorham, 1988), identifying which of them were expected and which behaviours occurred during this online course.

Figure 8 shows all instances of immediacy behaviours in the four interaction modes, with each mode's contribution as a proportion of the total number of instances observed for a particular immediacy behaviour type. As figure 8 illustrates, most of the immediacy behaviours occurred in assignments and during teleconferences. Email interactions had a surprisingly limited number of instances of immediacy behaviours and the discussion board interactions were almost devoid of such behaviours. The figure also shows that the most popular behaviour in the course was constructive feedback (IB7), as one would expect given its effectiveness in the student learning process. It was closely followed by praise (IB8).

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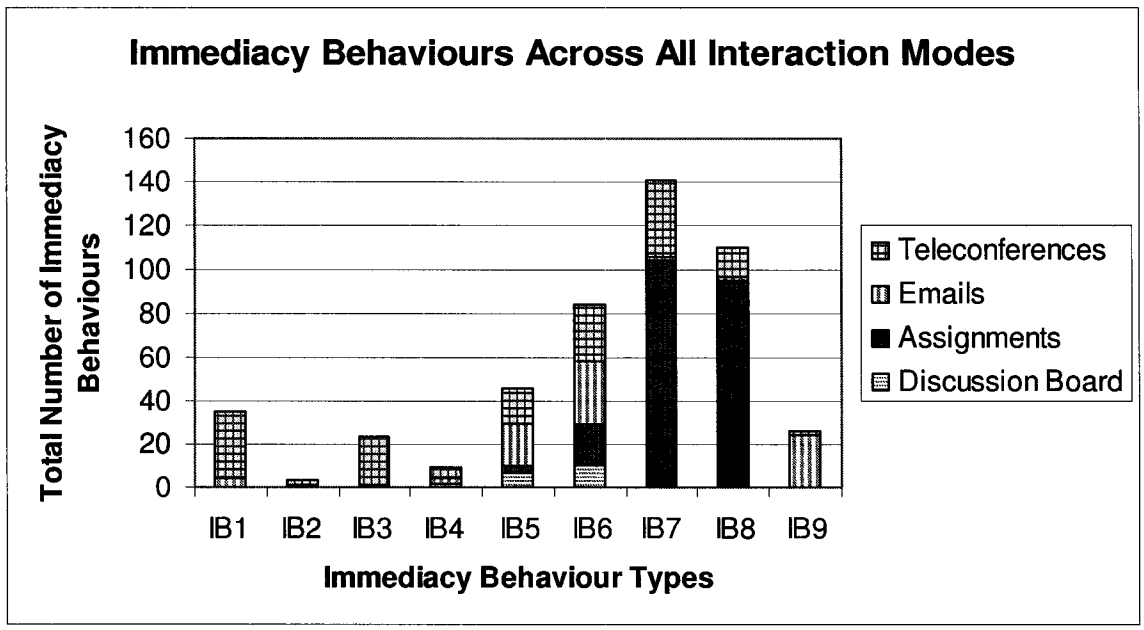

Figure 8. Instances of immediacy behaviours across all interaction modes (IB1=ask questions, IB2=ask how students feel, IB3=solicit viewpoints, IB4 = tangential responses, IB5 = humour, IB6 = student names, IB7 = constructive feedback, IB8 = praise, IB9 = allowing students to use instructor's first name)

While the instructor regularly asked students what they thought and understood about the course concepts (IB1 and IB3), he only occasionally asked them how they felt (IB2) about assignment due dates or topics. The instructor also used humour (IB5) throughout the course, but restricted sarcasm to group modes such as the discussion board and the teleconference sessions. When he interacted with individual students such as through email, the humour tended to be more light-hearted. Allowing students to address the instructor by name (IB9) occurred primarily in email interactions.

Figure 8 also shows that different immediacy behaviour types tended to be clustered in particular interaction modes. For example, asking questions occurred most often in the teleconference sessions, whereas feedback and praise behaviours tended to occur in connection with student assignments. Thus, analysis of instructor-student behaviours revealed patterns based on the different interaction modes in this online

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course. Student perceptions of the course and the instructor's evaluations are discussed next.

Rating Scale Perceptions

Immediacy Scale Scores. Students' perception levels of instructor immediacy, as measured by the 20 item scale, could range from 0 to 200 (see Appendix H, p 123). Scores obtained ranged from 127 to 154.2 suggesting that most students perceived high levels of instructional immediacy in the online course. These student perceptions of immediacy behaviours are consistent with the actual immediacy behaviours observed during the course within the instructor-student interactions. Not surprisingly TH, who participated the least and therefore had limited opportunity to receive immediacy behaviours, gave the lowest overall score (127).

Detailed analysis of individual items in the immediacy scale showed that scores were generally consistent with the behaviours and events of the course. Students who participated in the teleconference sessions were more likely to give the instructor higher scores on items relating to the instructor asking questions than those who did not participate in them. However, SD gave the instructor a very low rating on these items; her perception differed substantially from that of other students, and indeed from what one would have expected given the large amount of instructor attention she received. Thus, ratings corresponded by and large with expectations based on observed results, but this was not invariably the case suggesting that student perceptions are not necessarily a reliable data source.

Affective Learning Scores. Affective learning was measured on 24 items yielding a possible total score from 0 to 240; with a lower score meaning higher affective learning

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than a higher score (see Appendix I, p 126). Student scores ranged from 1.2 to 80.8. KC had the highest levels of both cognitive and affective learning, expressed the most positive attitude to the course and the instructor, and perceived that she had learned a tremendous amount, although, her assignment marks as well as her final grade were in the midrange of the class. However, one of her learning goals was to learn to design and teach online courses, which she stated that the course fulfilled, but which was not assessed by the course grade. Low ratings by TN and HA were, on closer scrutiny, partly due their responses to the behavioural components of the affective scale such as the likelihood of them taking another course in the same subject, and partly due to a somewhat negative attitude towards the course content. An assessment of scores on their attitude towards the instructor, however, revealed a positive attitude.

Cognitive Learning Scores. Cognitive learning loss scores, calculated by subtracting the second scale item value from the first, can range from 0 to 10, with a lower score indicating greater perceived cognitive learning (see Appendix J, p 129). Thus, a score of zero suggests no learning loss, or that students perceive they could not have learned more with a different instructor. Three students (KC, TW and TH) gave a score of zero, or close to, zero. However, SD's score was -0.2, suggesting that she either misunderstood the way the scale should be rated or that she somehow perceived the instructor to be better than ideal. It is a stark reminder of the limitations and confusion with the cognitive learning scale. The cognitive learning scale score also gave a skewed picture of students' learning experience: two students gave mediocre scores on their overall learning in the course, yet their learning loss scores were close to zero suggesting no learning loss. Unfortunately, final grades were not available for these two students,

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which prevented a comparison of their perceived learning with the instructor's evaluation.

Appendix O (on p 141) provides the individual scores of the each student on the immediacy, the affective learning and the cognitive learning scales as well as their final grades given by the course instructor. The next section describes student responses to the course evaluation questionnaire.

Course Evaluation (Satisfaction) Perceptions

Course evaluation scores could reach a maximum of 65. The scores obtained ranged from 42 to 62, suggesting that students were satisfied overall with the course. TN, who had prior knowledge of the subject matter, rated the instructor very highly but the course content and depth of the material covered as insufficient. TH, who participated the least in the course, was also the least satisfied. KC, who reported the greatest satisfaction with the course, participated the most in the course as well. The two remaining students' evaluation scores fell between these extremes.

Students stated that the teleconferences and the tutorials were the most effective and useful aspects of the course. Not only did they find teleconferences helpful, but they also enjoyed them the most. Students liked the readings the least and likened them to a chore. They thought visual illustrations of concepts and their practical applications needed more depth in the course. Their suggestions for the course included improving the readings and providing videos of graphic design concepts. Three of the five students would recommend the course to a friend. With the exceptions noted above, students generally gave a positive evaluation of the course.

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Post-Course Interview Perceptions

Since none of the students had previously taken an online course, they had no preconceived ideas of the online learning experience. Thus the pre-course interviews primarily provided demographic information and learning goals (see p 60) for the participants. Thus, their initial perceptions could not be compared with post-course comments to detect potential changes in student expectations. A detailed discussion of the students' post course interviews is provided in Appendix P.

In general students complimented the instructor's friendly, courteous behaviours throughout the course. They enthusiastically praised the depth and quality of his assignment feedback. With respect to instructor-student interactions, all students thought email was a useful means of communication because the instructor responded so quickly to their messages. Most students considered the teleconference sessions valuable learning opportunities as well as social outlets. Students gave three reasons for failing to use the discussion board: first, they were too busy, second, it afforded no "dialogue" or conversation, and third, they believed the other interaction modes were more effective.

The course generally met or exceeded students' expectations. Students believed they had learned as much in the online course as they would have in a traditional course, but that the experience was different. Two students preferred the convenience and accessibility of online learning over traditional classes. However, another two thought they may have progressed better in conventional classrooms because of the anonymity, social isolation and excessive freedom to avoid course-related activities in online courses. This suggests that potential online students should first decide if they regard the traditional classroom experience as a prerequisite to effective learning.

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Student Participation Behaviours

Figure 9 below illustrates the total number of instances of participation behaviour for each student during the course based on the revised participation criteria (p 65). It also shows the amount of instructor immediacy behaviours directed specifically towards each student.

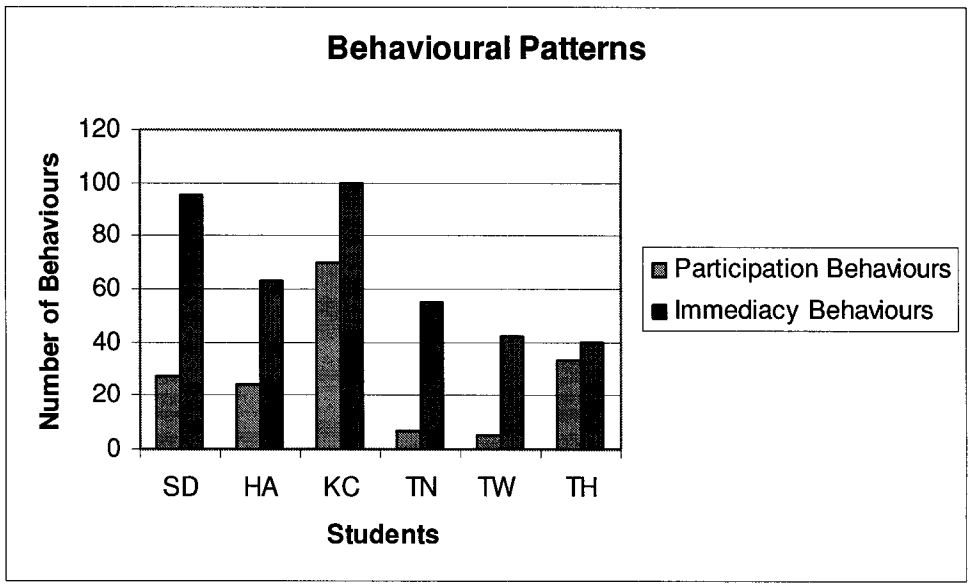

Figure 9. Instances of participation and immediacy behaviours for each student.

Figure 9 clearly shows that KC participated most actively in the course, followed by TH, primarily due to their active participation during the teleconferences. KC received the most instructor immediacy behaviours too. She also had the highest affective learning score and lowest learning loss (highest perceived cognitive learning) score. SD received the second highest amount of immediacy behaviours and had the second highest levels of affective learning and satisfaction with the course. In addition, her cognitive learning level was extremely high. Out of all the students, SD had participated the most in asynchronous media such as emails and the discussion board. Thus, the more students

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participated in the course, the more immediacy behaviours they were exposed to, and the higher their perceptions of learning.

Those students who participate actively in the course and appear to have a natural affinity for social interaction during learning, such as KC and SD, are thus likely to benefit from instructor immediacy behaviours. These behaviours also helped to mitigate the social isolation felt by both students in the online learning environment. Both SD and KC were considering dropping out of the course, but decided against it as a consequence of instructor immediacy behaviours. SD said that because the instructor encouraged her to talk (IB1), she "felt a sense of connection with [him], which was incentive to keep going." KC directly stated that she felt so overwhelmed that she would have abandoned the course without the instructor's support, in particular, his personalized feedback (IB7) on her first assignment.

Differences in student participation. Students not only had different rates of participation in the course, but also participated differently in various interaction modes. SD made extensive use of email and occasionally used the discussion board. However, she rarely spoke up during the teleconference sessions. TH was the complete opposite, enthusiastically embracing discussions during the teleconference session, but rarely if at all participating in the other interaction modes. KC also utilized the teleconference session interactions the most, although she also interacted with the instructor via email. TW, HA and TN all relied on assignment submissions as their primary mode of interaction with the instructor. Since certain immediacy behaviours were clustered in particular interaction modes, students thus had different learning experiences based on which communication channel they used. TH, for example, did not experience any

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written feedback behaviours, and HA and TN did not experience the sharing of personal examples or open ended questions immediacy behaviours.

Student participation and instructor immediacy. Student behaviours were directly related to instructor immediacy behaviours when they were obvious reactions to those behaviours, for example, HA laughing at the instructor's joke during a teleconference session, or TH offering his viewpoint when the instructor asked about a layout's flaws. However, in situations when students initiated behaviour or when there was a long interval between the student activity and instructor behaviour, the relationship seemed to be between series of behaviours, rather than an individual instance of immediacy behaviour triggering the student's behaviour. For example, KC sent the instructor an email of her own accord in the fourth week of the course, expressing her frustrations with implementing a design. While there was no specific immediacy behaviour directed at KC just prior to her writing to the instructor, until that point the instructor had repeatedly invited students to contact him, demonstrated willingness to discuss personal issues with the class on the discussion board, provided KC with detailed feedback and suggestions on her first assignment, shared jokes and had animated discussions with her and the rest of the group during the teleconference. It seems likely that this set of immediacy behaviours encouraged KC to inform the instructor of her struggles. The instructor responded to KC both through email ("Sorry to hear that you are "fighting" with tools") and in his assignment feedback comments ("Take heart, you were definitely on the right track"), reassuring and encouraging her as well as giving practical information. KC continued emailing the instructor at least partly as a result of his sustained use of immediacy behaviours throughout the course, particularly in his email interactions with her. After

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receiving targeted help, KC successfully completed all assignments, illustrating the importance of online students informing the instructor of any problems during the course.

The more the students participated, the more the instructor used immediacy behaviours, as observed in the instructor-student interactions for the discussion board and teleconferences. Thus, while student behavioural patterns were often consequences of instructor behaviour (as was expected), surprisingly, instructor immediacy behaviours also occurred in response to student behaviour. The instructor pointed out that "establishing rapport with students is a two-way street." KC realized this, stating that "Each time I had contact [with the instructor] e.g. phone conference, assignment feedback, I felt encouraged to go on. Next time I will know to initiate a bit more contact myself to keep from getting bogged down."

Student participation and learning. All students experienced instructor immediacy behaviours in the course, with KC and SD at one extreme and TN and TW at the other. However, instructional immediacy affected their learning experiences in different ways, depending on students' participation levels and learning preferences. For example, during her interview HA described herself as an introvert who preferred to avoid social interaction while in a class. HA, TW and TN chose to work directly with course material rather than learning from the instructor, and thus their learning perceptions were less affected by instructor immediacy behaviours when compared with students like KC (who interacted more often with the instructor). Nevertheless, it is possible that such students may not have been active even to the limited extent that they were, if the instructor had not used immediacy behaviours and other communication behaviours to request their participation.

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It was challenging to assess the effect of instructional immediacy on student performance since two of the six students did not receive a final grade. However, based on increases in assignment marks, it seemed that the instructor's feedback and praise behaviours on initial assignments helped students improve their work on later assignments. In order to determine the extent to which immediacy behaviours may affect actual student learning rather than student's perceptions of their learning, it is instructive to examine a single student, SD, who showed an obvious improvement over the duration of the course.

After submitting the second assignment, SD sent the instructor a message stating how nervous she was as to the quality of her work and the mark she would receive. When the instructor returned the graded second assignment, she sent him another long email stating that she was disappointed with her grade. She wanted to know how to get a higher grade in the final assignment. The instructor's response to this email had the highest number of immediacy behaviours of all the emails. The instructor used humour to defuse the tension, praised her work, provided her with constructive criticism and additional feedback, and discussed tangential topics such as skiing with her. SD and the instructor exchanged several additional emails regarding the assignments whereby the instructor continued to provide her with encouragement and reassurance regarding her skills and her work. SD then submitted the final assignment.

While SD had received her lowest mark (77.5%) in the second assignment, she received the highest mark in the class (90%) for assignment 3. Thus, SD improved the most in assignment marks, and her improvement could be traced back to instructor

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immediacy behaviours. SD's experiences also illustrate the importance of online students' written abilities and communication skills to success in online learning.

Summary of main findings

All the traditional immediacy behaviours expected to be observed in an online setting (please refer to Table 1, on p 19) occurred in the instructor-student interactions. Use of students' names (IB6) and humour (IB5) occurred in all four interaction modes. Feedback (IB7) and praise (IB8) were the most popular behaviours and were mostly observed in the instructor's responses to assignments and during the teleconference sessions, which were a rich source of immediacy behaviours. The three behaviours related to asking students questions (IB1, IB2, IB3), and encouraging discussion (IB4) were observed most consistently in the teleconference sessions and occasionally in emails. Certain immediacy behaviours were observed unexpectedly such as using personal examples and experiences, discussing issues unrelated to the course, and instructor accessibility. Students were generally satisfied with the course, and with the instructor, experienced most acutely in the much preferred teleconferences in which his immediacy behaviours were perceived directly. Most students achieved their learning goals. The levels of perceived affective and cognitive learning were high, and impressions gleaned through these were consistent with a positive learning experience.

Discussion

The purpose of this study was to determine (1) if instructor immediacy behaviours based on traditional classrooms would occur during an online course using low level technology, (2) to examine links between these immediacy behaviours and student behaviour and (3) the effects of these behaviours on student learning experience.

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The results clearly show that verbal immediacy behaviours did occur in the online graphic design course. While obvious student reactions to these instructor immediacy behaviours were easy to detect, it was a challenge to link less directly related student activities to instructor immediacy behaviours, especially when the behaviour-response intervals were very long and when they crossed interaction modes. Occasionally instructor immediacy behaviours resulted from student actions. Nevertheless, student behavioural patterns in general seemed to be responses to the approachability and courtesy of the instructor's communication behaviours. Instructor immediacy was positively associated with perceived learning in two students who valued the social aspects of classroom learning and participated actively in the course. By the same token, two students who regarded learning as a solo endeavour and preferred not to socialize while learning, restricted their interactions during the course, and benefited minimally from the instructor's immediacy behaviours. Thus, the effects of instructional immediacy on student learning experience depended on student participation levels and learning preferences.

Verbal Immediacy Behaviours in an Online Learning Environment

A surprisingly large proportion of the traditional verbal immediacy behaviours (Gorham, 1988) were observed in the study. This included several behaviours, such as the use of personal examples or discussing things unrelated to the course, that were not predicted to occur in an online learning environment. However, this research suggests that the traditional immediacy behaviour of addressing students by name should only considered meaningful in online learning if it occurs when not expected, and is deliberately used to get closer to students, for example, when personalizing assignment

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feedback. Similarly, allowing students to use the instructor's first name (IB9) is not particularly meaningful in an online setting where such behaviour is standard netiquette.

It will be recalled that immediacy behaviours were defined as communicative behaviours that enhance closeness to and nonverbal interaction with another person; more recently, the definition was extended to include verbal interaction that increased psychological closeness between teachers and students (Gorham, 1988). During this course, the instructor continually provided encouragement, support, positive reinforcement and reassurance to anxious students, thereby increasing psychological closeness with the students, who reacted with gratitude. This communicative behaviour also seemed to have a motivating effect on the students, increasing their confidence and belief in their ability to successfully complete their work. Written and verbal reassurance and encouragement to students should thus be considered a new type of verbal immediacy behaviour.

The instructor also often adopted students' vocabulary, using similar phrases, making him more approachable, so students became willing to share personal information and even made jokes in response. Students explicitly stated that such instructor communications caused them to feel closer and more connected to the instructor; therefore, using the students' language should also be considered a type of immediacy behaviour.

Instructor-student interactions in this course thus provided evidence for two potential new immediacy behaviours, encouragement and shared language, which seemed to increase the bond between the instructor and his students. These behaviours are not restricted to online settings but could equally occur in traditional classrooms. However,

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further studies would be required to confirm this. The updated and extended set of verbal instructional immediacy behaviours for online learning based on Gorham's (1988) verbal immediacy scale for traditional classrooms are listed in table 7 below.

Table 7. Verbal immediacy behaviours for online learning instructors (adapted from the verbal immediacy scale, Gorham, 1988)

Number	**Verbal Immediacy behaviour**
1 (IB1)	Asks questions and encourages students to talk
2 (IB2)	Asks how students feel about an assignment, due date or discussion topic
3 (IB3)	Asks questions that solicit viewpoints or opinions
4 (IB4)	Gets into discussions based on something a student brings up even when this doesn't seem to be part of his/her agenda
5 (IB5)	Uses humour while interacting with students, for example through emoticons, humorous asides, jokes, pseudo-html gestures such as <grin>
6 (IB6)	Addresses students by their first name in contexts other than those required standard netiquette such as to personalize assignment feedback or when directing praise at a particular student while interacting with the whole class
7 (IB7)	Provides feedback on student work and contributions through comments on assignments, oral discussions, etc.
8 (IB8)	Praises students' work, actions or comments
9 UNEXPECTED	Invites students to email and contact him/her via any available interaction technology if they have questions or want to discuss something
10 UNEXPECTED	Uses personal examples or talks about experiences she/he has had outside the course
11 UNEXPECTED	Refers to class as "our" class or what "we" are doing when interacting with the group
12 UNEXPECTED	Will have discussions about things unrelated to the course with individual students or with the class as a whole
13 NEW	**Provides verbal reassurance and encouragement**
14 NEW	**Uses a shared and common language and vocabulary with students**

Guidelines for Online Learning Instructors

This section briefly discusses recommendations for instructors and designers of online courses based on the instructor-student interactions observed in the course. Course materials could be provided on a simple webpage, a wiki or via an email newsletter, thereby eliminating the discussion board, which turned out to be virtually useless. An

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FAQ (frequently asked questions) section for logistic and technical issues could reduce the amount of email traffic, especially for large classes where it would be difficult for an instructor to respond quickly and thoughtfully to every student email.

Scheduling conflicts were a common complaint among students regarding the teleconferences. In addition, several students mentioned that they missed the sessions because they forgot that the day of the week on which they occurred changed on different weeks. Thus, it is recommended to schedule teleconferences or other such live sessions consistently at the same time and on the same day of the week throughout the term. Usually, when students asked the instructor what happened during a teleconference they had missed, the instructor provided them with a written summary. However, since the sessions were recorded for the purposes of this study, the instructor could provide them with access to the recording. This suggests a further recommendation: Instructors should record and make sessions available to the students after the fact.

Instructors often use humour in the form of anecdotes or comments, usually related to the educational message (Gorham and Christophel, 1990). Gorham and Christophel (1990) suggest use of appropriate humour should have a positive impact on interpersonal relations and group cohesion, since it can reduce conflict and decrease social distance. During this course the use of humour created a warmer, more inviting atmosphere for an otherwise sterile online setting, making the instructor seem approachable, and allowing him to provide feedback in a pleasant way. Thus, humour was used to facilitate social interaction in online learning. However, there is a danger that students may misinterpret humour in the absence of nonverbal cues such as facial

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expression, tone and gestures. Thus, online instructors should use humour judiciously. Table 8 summarizes the guidelines for online instructors based on this research.

Table 8. Initial guidelines for online instructors and course designers

Guideline Number	**Online Learning Instructor Guideline**
1	Focus on email and audio interactions rather than discussion forum technology
2	Use a wiki, simple webpage or email newsletter to provide information updates or make announcements to students
3	Adjust level of assignment feedback according to class size
4	Provide a Frequently Asked Questions (FAQ) for logistical issues on course website
5	Schedule teleconferences or other live sessions consistently at the same time and on the same day of the week throughout the term
6	If conducting audio conferences, instructors should record the sessions and make the recordings available to students.
7	Use humour judiciously
8	Remind students they can contact the instructor for any assistance

Guidelines for Online Learning Students

Online learning provides flexibility and convenience; participation without the potential barriers of race, gender and appearance; and time for reflection (Swan and Richardson, 2003). However, students should be aware of the differences between online learning and conventional classrooms when considering taking an online course. This section provides some initial guidelines for such students.

First, the students must have access to the equipment necessary for a given course, such as a computer and Internet connection. Second, they must be familiar with the relevant technologies. Third, students should feel comfortable expressing themselves in writing, as much of online communication is asynchronous and written. Fourth, without commitment, perseverance, self-discipline, ability to work independently and

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willingness to devote the necessary study time, students may not succeed in an online course. Table 9 lists initial guidelines for online learning students based on this research.

Table 9. Initial guidelines for students considering online learning

Guideline number	**Online learning Student Guideline**
1	Ensure you have access to the necessary technology e.g. computer and Internet
2	Possess basic Internet and computer skills
3	Feel comfortable expressing yourself in writing
4	Be motivated, self-disciplined and able to work independently
5	Be willing and able to devote a sufficient number of hours to online learning each week
6	Let the instructor know if you are experiencing problems
7	Participate actively in the course
8	Keep in mind that online learning can be isolating

Theoretical Implications

This research confirmed that immediacy behaviours originating in face-to-face classrooms occurred in an online setting using low level technology. To the best of our knowledge, this is the first study to examine actual behaviours of an instructor throughout an online course, rather than merely examining student perceptions of instructor behaviour after the course has ended. In addition, this research extended existing literature by proposing two new verbal immediacy behaviours for instructors to use regardless of whether the course setting is online or in a physical classroom.

Results also imply that immediacy behaviours may help to increase the student retention rate for online courses. As suggested by Swan (2001), O'Connor et al, (2003) and Sims (1999), engagement and interaction are critical to increasing the retention rate of online learning. Immediacy behaviours not only increase student interaction with the instructor, but also help students become more engaged with the course, as the instructor encourages them to participate in course activities. Immediacy behaviours such as

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providing constructive feedback and sharing personal examples directly prevented two students from dropping out of this course.

Moreover, findings from this research are consistent with the positive relationship between instructional immediacy and student participation claimed by Hackman and Walker (1990) and Arbaugh (2001). Students who are satisfied with the instructor may also be motivated to participate more and work harder than students who are dissatisfied with their instructor. Indeed, those students who participated the most (across all four interaction modes) also received the greatest amounts of immediacy behaviours, and tended to give the course the most positive evaluations. Results (please refer to p 86) also support Fredericksen et al.'s (2000) assertion of a link between participation and perceived learning. Students giving the highest affective learning scores for the course were also most satisfied, suggesting that these two concepts are related. Thus, instructor immediacy behaviours can affect both student satisfaction and perceived affective learning. Further evidence for this link lies in the observation that, while the course evaluation (satisfaction) scores could be inflated because they were given to the instructor, the affective learning scores were not: both sets of scores supported a consistent story. Finally, there seemed to be a positive relationship between affective learning and motivation as claimed by Christophel (1990) and Rodriquez, et al. (1996), for some, but not all, students in the graphic design course.

Findings related to the impact of instructional immediacy on perceived student learning were mixed. The student who perceived the highest level of immediacy behaviours in this course had the lowest level of affective learning and the second lowest level of perceived cognitive learning. However, her learning could have been influenced

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by many different factors, including her motivation, learning goals, preferences and the degree of effort she put into the course. Another student with very low levels of perceived affective and cognitive learning actually obtained the highest final grade in the class, but she received a minimal level of instructor immediacy behaviours. The student's prior knowledge may explain the discrepancy between her low perceptions of learning and high final grade, in line with the assertions of McCroskey, Sallinen et al. (1996). Thus, while all students perceived instructional immediacy, the relationship with their levels of affective and cognitive learning was not as clear cut as suggested in the literature. These results also provide reminders of the limitations of the learning scales and suggest that we cannot rely exclusively on student perceptions, further discussed in the next section.

Limitations of the Study and Future Research

There were several issues with the data collection (described previously on p 63). Ideally, this study would have included a larger sample of students and a complete dataset of all instructor-student interactions in order to glean a more detailed picture of the course. The findings should thus be interpreted with caution due to the small sample size, the incomplete data, and the exploratory nature of the study. In addition, focusing on a single online course in a specific subject, graphic design, limits the fields for which some results (for example, the instructor's ability to "teach" through assignment feedback) are applicable. To overcome these limitations future studies should use different online courses of varying sizes, preferably examining several courses over time.

Other suggestions for improving the sources and types of data include (1) examining online learning which uses richer technology (such as video) which would allow investigation of nonverbal immediacy behaviours (2) collecting data on interactions

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within and between students for enriching the overall understanding of student behaviours in the course, and (3) involving the students as well as the instructor in the data collection to increase the likelihood of obtaining a complete data set.

Comments on the scales

The immediacy scale did not measure the level of immediacy behaviours directed towards a student, but rather the amount of immediacy behaviours that the student observed. Students may be aware of immediacy behaviours, but may not necessarily benefit from them if they do not experience them directly.

While the two learning scales used in this study are the most popular in the literature, they had obvious limitations and were inadequate measures of student learning. One student's negative learning loss rating was highly unusual and two other students had misleading cognitive learning scores (p 83). One way to overcome this would be to measure cognitive learning with a single item asking students how much they had learned in the course (with this instructor), rather than comparing learning from the course's instructor with learning from a hypothetical "ideal" instructor. The students' affective learning scores were also misleading (p 82). The value of measuring affective learning is unclear, since students will not necessarily fulfil the intentions they specify in their ratings. In order to assess the affective learning scores meaningfully, it is necessary to know the students' learning goals, the objectives of the instructor and of the course. Furthermore, there could be two affective learning scores: one assessing student attitudes towards course content and the other towards the instructor. It is also worthwhile to obtain students' opinions and perceptions of their learning by directly asking them, for

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example, in post-course interviews, and if possible to observe student behaviour after the course ends.

Despite the weaknesses of these scales, assessing how much and what students have learned continues to be a major challenge in the field of education itself (please see p 35). Thus, in addition to student perceptions, objective observations of student performance, for example, on assignments, should also be obtained to provide a more balanced impression of student learning. Examining student preferences for and attitudes towards learning and coursework may be a fruitful area for future research too. Finally, it would be instructive to compare the learning experiences and levels of perceived affective and cognitive learning for students exposed to immediacy behaviours and those who did not experience any immediacy behaviours. While it was not feasible to have two such groups in this study with its limited sample size, it should be explored in further studies.

Conclusion

This research investigated the use of traditional immediacy behaviours in online learning, and the effects of these behaviours on student learning experience. It demonstrated that immediacy behaviours based on physical classrooms can be used in online courses; that student preferences and participation may directly influence the number of immediacy behaviour instances received by students, and that immediacy behaviours may be linked directly to improvements in student performance. Key contributions arising from this research include a set of revised and extended verbal instructional immediacy behaviours for online learning based on Gorham's (1988) work as well as a series of initial guidelines for both online instructors and online students. As

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the use of online learning increases (Sloan, 2005; EduSpecs, 2001) it is important to increase our understanding of instructor communication behaviours and other factors to improve the effectiveness of online learning.

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Appendix A

Notice of Recruitment

(To be posted on walls in campus buildings)

$239USD/359CAD Student Experience in an Online Course on Graphic Design

Hi, my name is Shamima Khan from the Human Oriented Technology lab at Carleton University. I will be conducting research to investigate student experience in an online course on graphic design. The research will lead to recommendations on how to improve online courses.

The study will take 6 weeks in total, and involve approximately 4-6 hours per week. No formal training in graphic design is required.

You will be taking a course that is normally valued at $239USD/359CAD free of charge!

You will be asked to complete three assignments and participate in three teleconference sessions and then rate your experiences of the course.

For more information, please contact me at

schoolandwork@gmail.com

Thanks for your interest!

Shamima Khan

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Appendix B

Study Prerequisites (Course requirements from Online-Learning.com)

- A working knowledge of English
- Familiarity with browsers, email and computer file system functions
- Familiarity with Microsoft PowerPoint or other graphics application
- Familiarity with other commonly used office software (e.g. zip files)
- Sufficient time (approximately 6 hours per week) to complete the assignments and participate in teleconference sessions
- Access to a computer with the following capabilities:
  - Pentium-compatible processor (500 MHz or faster)
  - 64 MB of available RAM
  - Super VGA display, 800 x 600 resolution
  - 15 MB of disk space (if you download materials)
  - Internet browser and access (IE5 or NS6 recommended)
  - Email account and program
  - Windows XP/2000/ME/NT/98
  - Microsoft PowerPoint or other graphics application

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Appendix C
Informed Consent Form

Online-Learning.com and Carleton University are conducting a study on online courses in the January Graphic Design class and we are asking for your consent to participate in this investigation. The study focuses on student experience in an online education environment.

The class will be taught exactly as it has always been taught except that you will be asked to complete a brief participant information form at the beginning of the course and three short questionnaires at the end of the course. The study also involves two short interviews via telephone or email, at your convenience. As part of this study, we need you to read and sign this form to ensure that you understand the purpose of the study and the nature of your involvement.

Study Title: Student Experiences in an Online Course

Purpose: The purpose of this study is to investigate student experiences in an online course

Task Requirements: You will be taking an online course in graphic design over a six-week period. The course involves participating in the online discussion forum and audio chat (three one-hour teleconferences) and completing three assignments. We would also like you to complete a brief participant information form and three short rating scales. The study also involves two interviews via telephone or email, at your convenience.

Data Collection: The researcher would like to review the interactions between you and the course instructor. This includes inspecting copies of emails sent to and received from the instructor, your assignments and feedback from the instructor, your participation in the teleconference sessions for the course, and your discussion group posts. Please be assured that your interactions and responses will be treated anonymously and confidentially. No information will be presented that could identify you individually.

Duration and Locale: The course requires approximately 6 hours per week over six weeks and is self-paced. It will take place online, so you need access to a computer with Internet capabilities, but can participate at any physical location (e.g. home) that is convenient for you.

Potential risk/discomfort: There are no potential physical or psychological risks in this study. If you feel in any way uncomfortable you may withdraw from the study at any time without penalty.

Anonymity/Confidentiality: The data collected in this study will be kept strictly confidential. We take special precautions to make sure that no one else will be able to identify you and what your responses were. All data will be coded so your name is not associated with your work. Your responses will be used for research purposes and only

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the researchers will have access to data. The researcher will destroy all these data once the data analysis has been completed.

Payment: You will be taking a course that is normally valued at $239USD/359CAD free of charge.*
**The payment section will only be on the informed consent form of the non-paying participants.*

Right to Withdraw: Your participation in this study is entirely voluntary. You have the right to withdraw from this study at any time

Study Personnel:
Principal investigator: Shamima Khan
Psychology Department, Carleton University,
214d Social Science Research Building
Phone: 613-520-2600 ext 6628
Fax: 613-520-3667
Email: schoolandwork@gmail.com

Supervisor: Dr. Gitte Lindgaard
Psychology Department, Carleton University
214b Social Science Research Building
Phone: 613-520-2600 ext 2255
Email: Gitte_Lindgaard@carleton.ca

Should you have any ethical or other concerns about this study, please contact Dr. J. Mantler, (Chair, Carleton University Ethics Committee for Psychological Research, 520-2600, ext. 4173) or Dr. M. Gick (Chair, Dept. of Psychology, 520-2600, ext. 2648).

Participant's Signature:

I have read the above description of the study entitled Student Experiences in an Online Course. I understand the conditions of my participation. My signature indicates that I agree to participate in the experiment.

Name (please print): _____

Signature: _____

Experimenter's name: Shamima Khan

Experimenter's Signature: _____

Date: (dd/mm/yy): __/___/___

(Distribution: 1 copy to participant, 1 copy for files)

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Appendix D

Instructions for Formal Study

Thank you for agreeing to participate in this study!

You will be taking an online course in graphic design over a six-week period. The course involves participating in the online discussion forum and audio chat (three one-hour teleconferences) and completing three assignments. The instructor will also provide you with an online course evaluation questionnaire at the end of the course. You will receive additional instructions from the instructor.

We would also like you to complete a brief participant information form for the study. At the end of the course, the researcher will send you three short rating scales to complete. The researcher will also contact you for two interviews: one at the beginning of the course, and one at the end. The interviews will be conducted by phone or email at your convenience.

You can now log into your personalized webpage for the course at:

http://www.online-learning.com/cmt/student/mylocker.php

Your instructor will provide you with a username and password after your registration is complete.

If you have any questions about the course, please contact your instructor through the course website.

If you have any questions about the study, please contact the researcher at

schoolandwork@gmail.com

Your help and participation in this study is greatly appreciated.

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Appendix E
Demographic Questionnaire

Participant Information
Please fill in the following information. All information you provide will be kept strictly confidential.

Name: _____

Sex: F / M

Age: _____

First Language: _____

Second Language: _____

Years of Education: _____

Current Occupation: _____

If you are working, is it (Circle one):
a) Full time
b) Part time

Background/Experience with graphic design (Circle one):
a) No Prior Experience
b) 1 – 5 years
c) 5 – 10 years
d) 10+

Formal Education in graphic design (Circle one):
a) No Prior Education
b) 1 – 5 years
c) 5 – 10 years
d) 10+

Background/Experience with Human-Computer Interaction (HCI) (Circle one):
a) No Prior Experience
b) 1 – 5 years
c) 5 – 10 years
d) 10+

Formal Education in Human-Computer Interaction (HCI) (Circle one):
a) No Prior Education
b) 1 – 5 years

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c) 5 – 10 years
d) 10+

Why are you taking this course?

_____
_____
_____
_____
_____
_____

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Appendix F

The Online Graphic Design Course Website

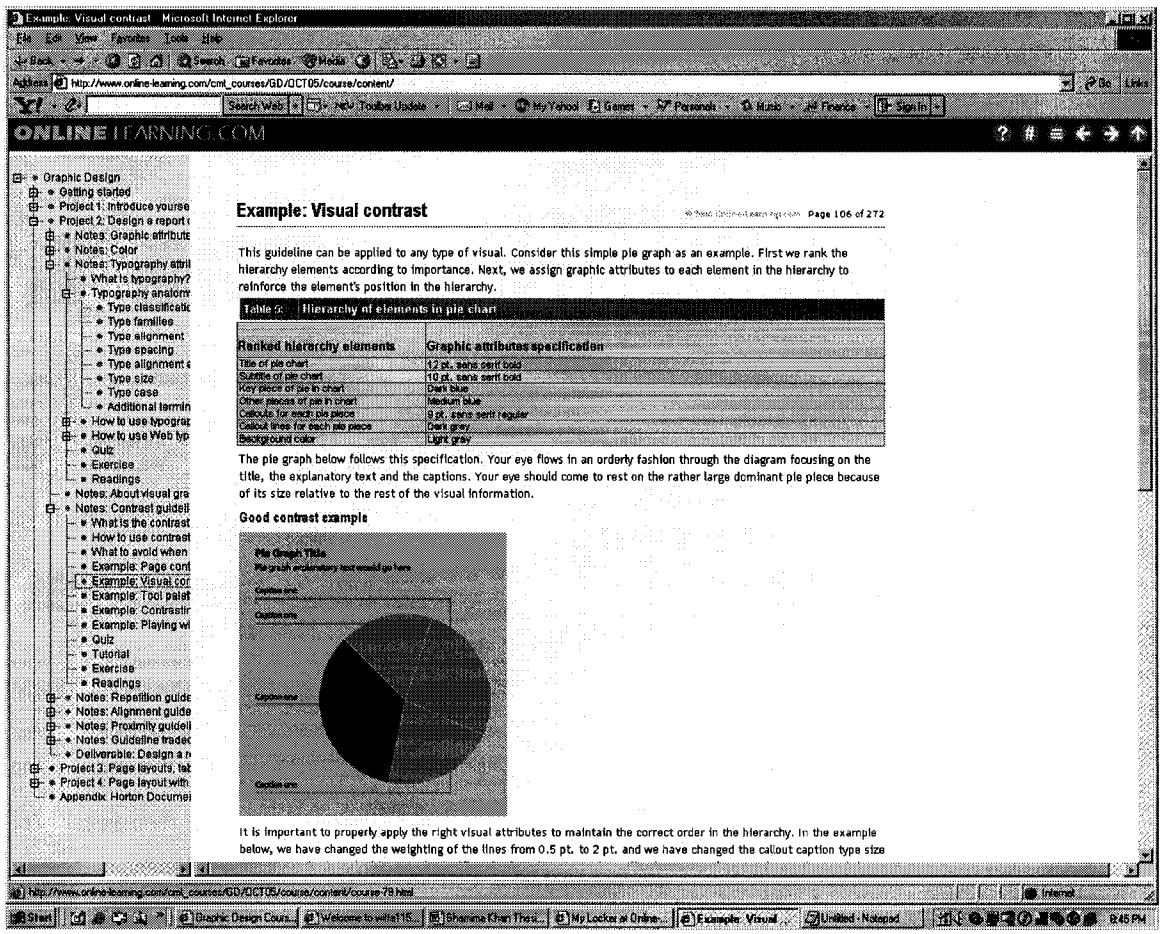

Figure 10. Screenshot of online course material from the course website

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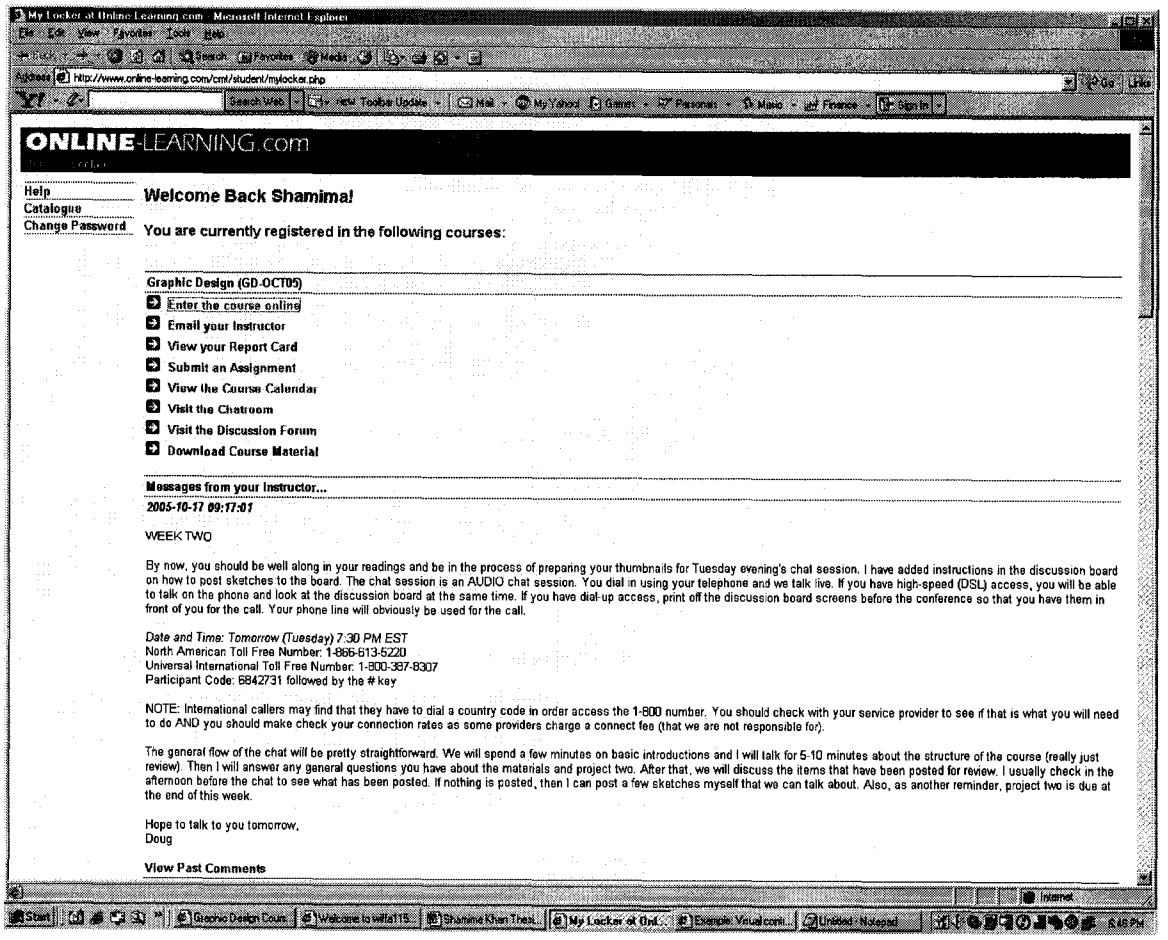

Figure 11. Screenshot of the main student page on the course website

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Appendix G

A Sample Assignment

This sample assignment is taken directly from the Graphic Design course website at Online-Learning.com

Design a report cover © 2004 Online-Learning.com

Purpose

The purpose of this project is to get you to apply the rules of contrast, repetition, alignment and proximity to the visual elements in a real-life scenario, without having to worry about the details of multi-page document design. You will create two visuals. Each visual will allow you to use color and typography and practice making tradeoffs between the contrast, repetition, alignment and proximity rules.

Scenario

Bob Green, VP Marketing, wants you to design the cover of their annual report. Don't worry. While this may sound like a high-profile project, Sally knows that Bob designs the annual report cover about three times each year. Sally figures this will be a good opportunity for you to flex your "design" muscles.

Task

In this PowerPoint file, you will find the annual report information. Your job is to create both a conservative cover and a contemporary cover. You will find more information on how to do this in the PowerPoint file.

Submission instructions

Once you have completed your deliverable, you will have to submit the deliverable to your instructor for marking. Follow the steps below to submit your deliverable:
1. Save the project in a PowerPoint file. Please note that you can either do the project in the PowerPoint file provided or you can produce a file using any graphics application. If you use an alternative application, you should save the image as a gif and import it into PowerPoint.
2. Make a zip file of the PowerPoint presentation.
3. Rename the file with your name followed by "_annual.zip" For example, if your name is Fred Jones, the file would be called "FredJones_annual.zip"
4. Log in to the course locker page.
5. Click on the Submit an Assignment link.
6. Select the deliverable you are submitting
7. Browse and select the zip file on your hard drive
8. Click Upload.

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Marks and assessment

This project is worth 30% of your final mark. Each of the following criteria will be rated on a four-point scale (Low, Developing, Acceptable and Exceptional) in terms of the degree to which you are successfully able to:

- Select colors and typography that emote the appropriate characteristics desired in the instructions in the PowerPoint presentation.
- Make tradeoffs between the different rules, so that the overall composition communicates that it is an annual report and emotes the appropriate aesthetic characteristics described in the PowerPoint presentation instructions.
- Demonstrate the use of alignment (e.g. do elements have a relationship to each other and is the relationship appropriate?).
- Demonstrate the use of proximity (e.g. are elements positioned to draw attention to the appropriate elements in a suitable order without causing the eye to roam or float? Is margin spacing appropriate? Is there no edge tension between elements?).
- Demonstrate the use of repetition to direct the eye.
- Demonstrate the use of contrast to direct the eye.

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Appendix H

Immediacy Behaviour Scale

Adapted from: Gorham, J. (1988).

This scale requires you to indicate the frequency with which your instructor used each of the following behaviours. Please intersect the line at the point that best expresses the extent to which you agree or disagree with the following statements:

This instructor uses personal examples or talks about experiences she/he has had outside of class.

Never _____ Very Often

This instructor asks questions or encourages students to talk.

Never _____ Very Often

This instructor gets into discussions based on something a student brings up even when this doesn't seem to be part of his/her lecture plan.

Never _____ Very Often

This instructor uses humour in class.

Never _____ Very Often

This instructor addresses students by name.

Never _____ Very Often

This instructor addresses me by name.

Never _____ Very Often

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This instructor gets into conversations with individual students before or after class.

Never _____ Very Often

This instructor has initiated conversations with me before, after or outside of class.

Never _____ Very Often

This instructor refers to the class as "my" class or what "I" am doing.

Never _____ Very Often

This instructor refers to the class as "our" class or what "we" are doing.

Never _____ Very Often

This instructor provides feedback on my individual work through comments on papers, oral discussions, etc.

Never _____ Very Often

This instructor calls on students to answer questions even if they have not indicated that they want to talk.

Never _____ Very Often

This instructor asks how students feel about an assignment, due date or discussion topic.

Never _____ Very Often

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This instructor invites students to telephone or meet with him/her outside of class if they have questions or want to discuss something.

Never _____ Very Often

This instructor asks questions that have specific, correct answers.

Never _____ Very Often

This instructor asks questions that solicit viewpoints or opinions.

Never _____ Very Often

This instructor praises students' work, actions or comments.

Never _____ Very Often

This instructor criticizes or points out faults in students' work, actions or comments.

Never _____ Very Often

This instructor will have discussions about things unrelated to class with individual students or with the class as a whole.

Never _____ Very Often

This instructor is addressed by his/her first name by the students.

Never _____ Very Often

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Appendix I

Affective Learning Scale

Adapted from: McCroskey, J. C., Richmond, V. P, Plax, T. G., & Kearney, P (1985).

Please intersect the line at the point that best expresses the extent to which you agree or disagree with the following statements:

My attitude toward the *content* of the course is:

Good _____ Bad

Worthless _____ Valuable

Fair _____ Unfair

Positive _____ Negative

My attitude toward the *practices recommended* in the course is:

Good _____ Bad

Worthless _____ Valuable

Fair _____ Unfair

Positive _____ Negative

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My attitude toward the *instructor* for the course is:

Good _____ Bad

Worthless _____ Valuable

Fair _____ Unfair

Positive _____ Negative

My likelihood of actually enrolling in another *course of related content,* if I had the choice and my schedule permits is:

Likely _____ Unlikely

Impossible _____ Possible

Probable _____ Improbable

Would _____ Would not

My likelihood of actually enrolling in another *course with the same instructor,* if I had the choice and my schedule permits is:

Likely _____ Unlikely

Impossible _____ Possible

Probable _____ Improbable

Would _____ Would not

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In real-life situations; my likelihood of actually attempting to engage in *the practices recommended in the course* is:

Likely _____ Unlikely

Impossible _____ Possible

Probable _____ Improbable

Would _____ Would not

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Appendix J

Cognitive Learning (Learning Loss) Scale

Adapted from: Richmond, V. P, Gorham, J. S., & McCroskey, J. C. (1987).

Please intersect the line at the point that best expresses the extent to which you agree or disagree with the following statements:

How much did you learn in this class?

Nothing ——————————————————— More than in any other class I've had

How much do you think you could have learned in the class if you had the ideal instructor?

Nothing ——————————————————— More than in any other class I've had

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Appendix K

Course Evaluation (Satisfaction) Questionnaire

This questionnaire is completed online at the end of the course. It is provided and administered by the course instructor. It is taken directly from © Online-Learning.com

Final Course Evaluation

Please enter your name: ----------

Please enter your Email Address:

---

1. Which month did you start the course? (Please circle one)
January February March April May June July August September October November December

2. Did you learn what you expected to learn? (Please circle one)
a) Did not meet expectation
b) Somewhat as expected
c) As expected
d) More than expected
e) Exceeded expectation

3. What was missing?

_____

_____

_____

4. Was the depth of the material covered sufficient? (Please circle one)
a) Not enough depth
b) Satisfactory depth
c) Just right
d) More than enough depth
e) Too much depth

5. What needed more depth?

_____

_____

_____

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6. What needed less depth?

_____

_____

_____

7. How did you like the course format? (Please circle one)
a) Poor
b) Satisfactory
c) Good
d) Very good
e) Excellent

8. What was the most effective?

_____

_____

_____

9. What was the least effective?

_____

_____

_____

10. Was the pace of the course acceptable? (Please circle one)
a) Too slow
b) A little too slow
c) Just right
d) A little too fast
e) Too fast

11. How would you rate your instructor's knowledge? (Please circle one)
a) Poorly informed
b) Somewhat informed
c) Adequately informed
d) Well informed
e) Very well informed

12. Was your instructor accessible? (Please circle one)
a) Rarely
b) Somewhat
c) When needed
d) More than expected
e) Always

13. How would you rate your instructor's response? (Please circle one)
a) Too slow
b) Slow

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c) Acceptable
d) Prompt
e) Incredibly prompt

14. How would you rate your instructor's help? (Please circle one)
a) Not very useful
b) Somewhat useful
c) Useful
d) Very useful
e) Always useful

15. Do you have any suggestions for the instructor?

_____
_____
_____
_____
_____
_____

16. How would you rate the topics covered in the assignments? (Please circle one)
a) Not very useful
b) Somewhat useful
c) Useful
d) Very useful
e) Always useful

17. How would you rate the marking of the assignments? (Please circle one)
a) Not very useful
b) Somewhat useful
c) Useful
d) Very useful
e) Always useful

18. How would you rate the timeliness of the assignments? (Please circle one)
a) Too slow
b) Slow
c) Just right
d) Prompt
e) Very prompt

19. Please rate the interaction between the instructor and fellow students. (Circle one)
a) Poor
b) Satisfactory
c) Good
d) Very good
e) Excellent

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20. Suggestions?

21. What did you enjoy the most about this course?

22. What did you enjoy the least about this course?

23. What new topics would you like addressed by an OLL course?

24. Would you recommend this course to a friend? (Yes or No? - Why or why not?)

25. How important was it to you to have the course materials on a CD versus only receiving password to access the course materials via the internet? (Please circle one)
a) Definitely not important
b) Not really important
c) Just right
d) Somewhat important
e) Very important

26. Overall comments or suggestions?

You have now finished the survey

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Appendix L

Interview Questions

This interview was conducted before participants began the course.

Pre-course Interview

Any information you provide would be very helpful and will be kept strictly confidential

1. Name: _____

2. How many hours per week are you expecting to spend on this course?

_____

3. Who is paying for this course?

_____

_____

4. What are you hoping to get out of this course?

_____

_____

_____

_____

_____

_____

5. Is this course related to your work?

_____

_____

_____

_____

_____

_____

6. Have you taken an online course before? (Circle one)
a) Yes
b) No
If yes, how many online courses have you taken?

_____

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7. How much did you learn in these previous online courses? Please describe your experience with the course(s) and with the course instructor(s)

_____
_____
_____
_____
_____

8. Is there anything else you would like to add?

_____
_____
_____
_____
_____
_____

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This semi structured interview was conducted after participants completed the course.

Post-course Interview

Any information you provide would be very helpful and will be kept strictly confidential

1. What did you think of email interactions with the instructor?

2. What did you think of teleconference session interactions with the instructor?

3. What did you think of discussion board forum interactions with the instructor?

4. Which type of interaction did you think worked better? Why?

5. Do you have any other comments regarding this online course, especially in terms of the communications between you and the instructor?

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6. Did you get what you were hoping out of this course?

7. How many hours per week did you spend on this course?

8. What did you think of the course?

9. Is there anything else you would like to add?

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Appendix M

Debriefing

Thank you for participating in this study. The purpose of the study is to determine the effectiveness of instructor immediacy behaviours in online courses. Immediacy behaviours increase psychological closeness between people. Examples of immediacy behaviours in teaching include the use of humour, frequent use of student name, encouragement of discussion and following up on student-initiated comments, and sharing of personal examples while teaching.

Previous surveys suggest that immediacy behaviours improve student learning. This observational study is exploring the relationships between instructor immediacy behaviours and student perceptions of learning as well as student participation in an online course.

By participating in this study, you are helping us to understand how immediacy behaviours affect student learning. The results of this study will help us to better understand how online courses should be run, especially in terms of the instructor's behaviour. Please be assured that your responses will be treated anonymously and confidentially. In any public presentation of our data, either in print or in speech, we will not present any information that could identify you.

Your time and efforts are greatly appreciated! If you would like to learn the results from this study, or have any further questions or comments about this study, or what it means, you may contact:

Shamima Khan (principal investigator) at: schoolandwork@gmail.com
Phone 520 2600 ext 6628.
or
Professor Gitte Lindgaard at Gitte_Lindgaard@carleton.ca
Phone 520 2600 ext 2255

If you have any concerns regarding how this study was conducted please contact:
Janet Mantler, Chair of the Carleton University Ethics Committee for Psychological Research (520-2600, ext. 4173, and Mary Gick, Chair of the Department (520-2600, ext. 2648).

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Appendix N

Traditional Immediacy Behaviours Observed in the Study

Table 10 below lists all the original verbal immediacy behaviour types based on physical classrooms. The table identifies the traditional verbal immediacy behaviours that were considered easily adaptable for online courses when the study was proposed as well as those behaviours that were not expected to be observed online but the instructor still used.

Table 10. Traditional Immediacy Behaviours Observed in the Study

Original List of Immediacy Behaviours for Traditional Classrooms (Gorham, 1988)	**Expected to be Observed in an Online Environment**	**Actually Observed in this Online Course**
Uses personal examples or talks about experiences she/he has had outside of class		X
Asks questions or encourages students to talk	X	X
Gets into discussions based on something a student brings up even when this doesn't seem to be part of his/her lecture plan	X	X
Uses humour in class	X	X
Addresses students by name	X	X
Addresses me by name	X	X
Gets into conversations with individual students before or after class		
Has initiated conversations with me before, after, or outside of class		
Refers to class as "my" class or what "I" am doing *		
Refers to class as "our" class or what "we" are doing		X
Provides feedback on my individual work through comments on papers, oral discussions, etc.	X	X
Calls on students to answer questions even if they have not indicated that they want to talk *		
Asks how students feel about an assignment, due date or discussion topic	X	X
Invites students to telephone or meet with him/her outside of class if they have questions or want to discuss something		X
Asks questions that have specific, correct answers *		
Asks questions that solicit viewpoints or opinions	X	X

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Praises students' work, actions or comments	X	X
Criticizes or points out faults in students' work, actions or comments*		
Will have discussions about things unrelated to class with individual students or with the class as a whole		X
Is addressed by his/her first name by the students	X	X

* Presumed to be *non*immediate. Item scoring reflected for analyses.

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Appendix O

Student Rating Scale Scores

This appendix provides the scores of the each student on the immediacy behaviour, the affective learning and the cognitive learning scales as well as their final grades (given by the course instructor).

Student	TN	HA	KC	SD	TW	TH
Instructional Immediacy Score	149.6	154.2	137.8*	146.3	151.7	127

*KC did not complete one of the items on the verbal instructional immediacy scale. Her total score was obtained without this item.

The higher the score on the immediacy scale, with 200 being the maximum possible, the greater the perceived instructional immediacy.

Student	TN	HA	KC	SD	TW	TH
Affective Learning Score	54.6	80.8	1.2	16.3	39.5	24

The lower the affective learning score, with a possible minimum of 0, the greater the students' perceived affective learning.

Student	TN	HA	KC	SD	TW	TH
Cognitive Learning Loss Score	4.2	2.2	0	-0.2	0.4	0.1

The lower the learning loss score, the greater the students' perceived cognitive learning.

Student	TN	HA	KC	SD	TW	TH
Final Grades	85	82.5	82.5	85	IC**	IC

**IC denotes incomplete. The student did not submit all the assignments and thus did not receive a final grade.

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Appendix P

Detailed Results of Post-Course Interviews

While it was not possible to compare the post-course interviews with the initial interviews to determine changes in student expectations and attitudes over time, they still yielded valuable insight into student perceptions of the course on various issues as follows:

Email interactions

TN used email frequently to discuss administrative and logistic issues such as deadlines with the instructor. TW also mentioned that he used email to ask "questions about the course [format], not about graphic design". KC found email interactions with the instructor "prompt, friendly and clear". Surprisingly, despite praising email interactions HA did not actually have any email correspondence with the instructor. It seems she was misremembering the copies of the discussion board posts that are sent to student email inboxes as email conversations.

While four of the students described the email interactions as "fine", SD enthusiastically proclaimed that her email exchanges with the instructor were "fabulous. They made all the difference." Like the other students, she praised the fact that the instructor replied so promptly to emails. However, she also thought they were the primary means of "human connectedness" in the course. According to SD, reading the instructor's emails "I felt that I mattered. He took the time to show he cared. He was hearing what I said. He came across as a person like when he shared aspects of his personal life." SD really felt the instructor's concern for her welfare as a student through his messages. They transformed her experience of the course and her perception of the instructor.

Teleconference session interactions

TH praised the teleconference session interactions the most. He found them very useful, not just to discuss examples and projects, but because they gave him the opportunity to ask and answer questions directly with the instructor and obtain immediate instructor feedback on his learning. They focused on the assignments and allowed him to explore ideas at the same time. He felt that the teleconferences allowed him to verify his understandings of the readings and enabled students to apply the principles. He considered the "conference calls" as the "driving force" for the online course because they were so engaging they drove his effort and participation and he felt like he was part of a "community during the calls". According to TH, the lone disadvantage of the teleconference sessions was that it was difficult to associate voices to people.

TN also praised the sessions as the best instructor-student interactions, describing them as interesting and suggesting it was possible to "learn more in a discussion setting", especially since she found it difficult to get through the "redundant, repetitive readings" which sometimes made her "want to pound [her] head against the wall because they were so boring". She found the tutorial approach during the teleconference sessions very

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helpful because she "learned concepts more directly". TN really appreciated how much less time it took for the instructor to relay information through the sessions, making them an effective use of student time, versus other interaction modes which she found "tedious and time consuming" since they forced people to type rather than speak. In addition, "being able to hear voices was something like real life. There was an element of intimacy" which was particularly beneficial since "online courses are devoid of human interaction."

KC also considered the teleconference sessions critical to the success of the course. She found them very useful in terms of synthesizing the readings and they "motivated [her] when she got bogged down." During the teleconference sessions, she sat in front of the computer with the relevant documents as she would have in a classroom. She thought the teleconference sessions were particularly helpful for assignments. In fact, she believed that she did not do well on the third assignment because she had skipped the third teleconference session. In addition, like her fellow students, KC found the "phone meetings friendly, like a virtual community, and quite positive."

SD thought the teleconference sessions were an excellent way to supplement online learning. They "felt like lectures online, and it was helpful to get a real time look at something [an example] together with the instructor and other students." She appreciated how the instructor "put structure by posting stimulus material on the discussion board, critiquing it was a useful way to learning, seeing the positive and the negative of the sample." SD also liked that they were voluntary because "people are busy, work at their own pace" but it was a good idea to attend them because "you get insight into other students, get introduced to each other, hear their intonation, confidence, enthusiasm" and thus SD preferred it to "text-based conversations." However, SD found it "hard to connect with other people during the audio conferences" because she couldn't see them in person.

HA and TW were the only students who disliked the teleconferences. HA said it was because of a personal dislike of telephones in general, and she acknowledged this as a personal bias. She felt like the teleconference sessions were like "a room full of people, except you can't see their faces, so it is awkward. And you don't know when someone will talk so you interrupt or you talk at the same time as another person". However, she said the instructor was "good at leading teleconferences, and helped us learn". She would prefer web conferences online rather than the offline teleconferences because she generally avoided using phones. She would also have liked using webcams so that she could see the people she was interacting with. Similarly, TW found the teleconferences difficult because "people were talking at the same time". He thought the first teleconference session was interesting since it was the first time he had experienced something like it and he liked the group setting. However, he would have preferred the hour long teleconferences to be half as long as the scheduled time since "they weren't that useful. People were discussing the obvious" and thus he only participated in one session during the whole course.

Discussion forum interactions

Students illuminated the reasons why the discussion board was poorly used. HA realized that the instructor was always quick to respond on the discussion board after

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viewing his posts in the first introductory thread, so she thought it was good to post problems or difficulties she were having at the beginning of the course. However, since no "discussion was started" in terms of course content she did not use the board for the rest of the course. The other students were more negative towards the board.

Like HA, TH stated that he did not really use the discussion board because there was "no dialogue established" although he checked it occasionally for new posts. TH did not submit any sketches to the board because he thought it was too much extra work and that it was not specified exactly what the sketches involved. He felt that the conference calls compensated for the limitations of the discussion board. TN was more blunt, stating the discussion forum was "not effective, nobody posted, it was unnecessary and email could have replaced it."

KC did not use the discussion board because she was too busy, did not have enough time and did not have her sketches ready. It did not even occur to her to use the discussion board to discuss the course material and she pointed out that the instructor did not specifically ask students to do this. This suggests how critical instructor guidance can be in facilitating student participation in an online course. TW echoed KC's comments regarding lack of time. He also thought that since it was a basic introductory course, there was no benefit to posting on the discussion board. Students could simply read the material and work on their own because he believed there was no need to discuss ideas and concepts. It is interesting to note that TW received the lowest assignment marks in the class. Discussions with the instructor and fellow students could have helped to clarify the concepts and enhance his understanding. However, TW felt the course was too simplistic to require this type of discussion.

SD had a different opinion than TW as to why the discussion board was not used by the students. She felt that the discussion board was "highly underutilized. I mean, the technology existed but it was not used. We didn't coalesce together into a group with a common goal versus in a traditional classroom where proximity and frequency of contact naturally forms bonds." SD felt disappointed that students could have "put our concerns and questions on the board but the rapport was not established." When asked why she had not posted any of her own sketches on the discussion board since she seemed to think this forum had such potential, she replied, like the other students, that she was too busy. She thought rather than posting their sketches, they could have discussed the course material on the board. However, she felt that "exchanging ideas, other students had ideas I had never thought of, and discussions with the instructor present" during the teleconference sessions compensated for the limitations of the discussion board interactions.

Assignment feedback

HA thought the assignment feedback was good but questioned the validity of her assignment marks. She felt that the instructor was "over nice in the marking scheme" and gave her a better grade than she deserved considering the flaws in her assignments. Consistent with this perception, HA was the only student who ranked the instructor as unfair on the affective learning scale. TN also really liked the instructor feedback and found it very useful and thorough. She especially liked that "the instructor didn't just point out what was wrong but offered solutions too."

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While TH and TN thought the teleconference session interactions worked best, TW considered the assignment feedback the most powerful interaction he had with the instructor. It gave him "the most education and was the most useful." The feedback "was perfect, substantial, the best [he] had ever had. It was so amazing" that he was prompted to email the instructor to thank him when he received the first assignment back, an example of the link between instructor immediacy behaviour and an instance of student participation behaviour.

KC also thought the assignment feedback was extremely important to the success of her learning. Perhaps more importantly, this instructor immediacy behaviour prevented her from dropping out of the course. Although she had completed the first assignment, KC was getting ready to quit the course because of several reasons. She was having trouble with the graphic design software (which she mentioned in email exchanges with the instructor), she was unsure of the quality of her work, she was overwhelmed by the readings and she had never done a course in this subject before and was thus feeling anxious. However, after receiving the feedback on her first assignment she was so encouraged she decided to stay. It "gave [her] a huge boost". The assignment feedback "had a nice balance of praise and nicely worded corrections. [She] knew what was right and what was wrong." According to KC, the instructor gave prompt, clear feedback which made reference to teaching points from the course materials. He was "friendly, not cranky. He showed [her] what to do through redesigns as well as suggestions." KC learned not just graphic design from the feedback but also how to give feedback to her own students. She said the instructor "provided a model of good feedback. It gave [her] food for thought in terms of [she herself] giving feedback to her own students."

For SD, the assignment feedback demonstrated the credibility and expertise of the instructor. The quality of the feedback made it obvious to her that the instructor "spent serious time marking assignments" which in turn made her feel valued because it meant "he appreciated my time and cared about me."

Instructor communications

According to HA, since this was a long course, she felt like she "knew the instructor, at least on a superficial level", and thus was "more likely to communicate with him" and work through the course content. TH felt the instructor made an effort to be positive and encouraged students to make comments (namely IB1, encouraging students to talk). He indicated student errors in a positive way. TH was unsure if he himself really made "a good contribution" towards communicating with the instructor, which is interesting to note since he did not submit any assignments. TN was especially pleased with the promptness of the instructor's communications.

KC could not choose a favourite type of interaction with the instructor because "each served different purposes." While she found both the assignment feedback and the teleconference sessions instructive, the teleconference session interactions had an additional "soft purpose" in terms of social bonding and keeping students "connected, motivated and encouraged." She thought the emails, especially the weekly reminders from the instructor "helpful in maintaining a relationship to the course and feeling connected."

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SD was extremely grateful for the one-to-one interactions with the instructor and thus favoured email interactions over the other communication channels. According to SD, the instructor "disclosed information about himself which showed he's human, I'm human. When he talked about his son, he showed vulnerability. He had a good sense of humour and loves life and loves the course." SD repeatedly mentioned "the human side showed" in his communications with her. According to SD, this made her feel she could "be natural, be myself" when talking to him. Note that SD directly references the instructor immediacy behaviour of humour and describes a psychologically close relationship with the instructor as a result of her interactions and communications with him. For example, she considered the instructor as "personable", and said that he "made [her] feel [she] mattered, like the instructor had a vested interested and he wanted [her] to do well." SD's comments illustrate the depth of the impact the instructor's behaviour (or her perceptions of that behaviour) had on her motivation and her performance. She believed the instructor wanted her to succeed, which helped her as she worked on the assignments and tackled the readings. She directly stated that her email exchanges with the instructor showed her that "he valued me as a student. He cared about me and wanted me to have a good time with the course" and that this "coupled with rich feedback of the assignments was key in maintaining my interest in the course." It also helped her to get engaged with the course materials and focus on the challenges of the exercises.

Meeting student expectations

HA "definitely got what [she] was expecting to out of the course." She "picked up the design vocabulary, rules, theoretical background" and "found the exercises helpful, practical and useful". In fact, these were her stated learning goals in the pre-course interview as well. TW also said he had achieved his learning objectives and retained the knowledge, stating that it was "good to now know the formal techniques and principles of graphic design" which is what he had aimed for before the course started.

As suggested by TN's low levels of perceived affective and cognitive learning, during the post-course interview she stated that she didn't achieve her learning goals for the course. TN thought the instructor was "available, open, approachable and easy to talk to. He gave relevant assignments and very good feedback." While TN really liked the instructor, she did not learn as much as she had hoped to learn. The course "content and teaching method were fine and as [she] had expected". However, she had already known the concepts taught in this course since she was an industrial design school student at university and had learned this material "back in first year". In fact, the most beneficial aspect of the course for TN was being able to view other student's assignments. She initially reviewed them out of curiosity but found that she was learning from them. They gave her perspective and helped her self-critique her own work. KC also found that looking at the other students' assignments was encouraging, gave her ideas and helped her to learn.

HA considered the instructor "smart, he knew his topic and he was nice. In fact, he was too nice, he over graded the assignments." This course was such a positive experience for HA that she was planning to "check out Online-Learning.com's course catalogue and taking another course". However, this was inconsistent with her low levels of affective learning (but consistent with her relatively high levels of perceived cognitive

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learning). While HA did not complete the satisfaction questionnaire, she was clearly satisfied with the course. KC was also planning "to go back to this company and take another course," like HA, because she considered this course "outstanding." KC was delighted with the course and stated that it was a "positive and compelling first experience of online learning as a student." KC provided almost perfect scores on the affective learning and cognitive learning scales and had the highest satisfaction score in the class. Thus, it is not surprising that KC not only enthusiastically endorsed the course but also stated that she "actually got more than she expected to out of the course." It exceeded her expectations for two reasons. First, unlike TN, KC did not know anything about the field at all and thus everything in the course was new to her and added to her knowledge. Secondly, she learned so much more than "the aesthetics of the subject." She learned about graphic design as a communication strategy and thus she could "now communicate more clearly" in general.

While TH "mostly got what [he] wanted" from the course, he wished it had applied more directly to his field of study and future career. Nevertheless, he had learned "a fair bit" and expanded his knowledge. He found reading the course "material was key" and made sure "to catch up on the readings before the conference calls". He thought the instructor was excellent and extremely knowledgeable. These comments were consistent with his extremely low learning loss score (high level of cognitive learning) and relatively high affective learning score.

KC was the only student to mention the online technology used to run the course. She was so pleased that submitting assignments, obtaining the report card, posting on the discussion board and participating in the teleconference worked the first time she tried each task and everything worked so smoothly. She thought "this spoke to the overall quality of the course, and how respectful the instructor was of students' time".

SD, who directly stated that "previously I was really intimidated by graphic design" (which was clearly evidenced in her email, teleconference and discussion board interactions with the instructor, as described above), really appreciated the course. She was grateful at the end of the course because it has "given [her] confidence in visual materials and [she is] no longer stumbling in the dark." According to SD, she "came out of the course with tangible knowledge and techniques and hands-on experience, as well as the course materials." This is clearly consistent with a high level of cognitive learning. In her course evaluation SD had stated that she had gained "very useful knowledge and skills but perhaps just as importantly [she had] overcome significant trepidation." This is particularly remarkable considering her initial anxiety and fears of both making mistakes and being unable to do graphic design when she started the course.

Suggestions for the course

HA suggested that the instructor provide flash video tutorials on the subject matter of the course as well as information data banks and access to design journals to improve the online format. All of HA's suggestions were in terms of material...she felt there was no need to change the communication channels or interaction formats of the course, most likely because she did not give the social aspects of the course high priority. TN found the "pages and pages of text" the biggest weakness of the course and suggested that they should be more visual. SD wanted the instructor to make the optional exercises

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into mandatory assignments which counted for a percentage of the final mark. She believed that since they were optional even "the more diligent of students [were] not likely to attempt them, never mind complete them" due to lack of time and other priorities, despite the fact that she realized their value, stating that they provided "opportunities to build our skills ... and allowed incremental learning." However, if they were graded, she would have submitted them, further illustrating how she was motivated by marks.

Online courses versus traditional courses

The post-course interview was the only data source to provide information on the students' perceptions regarding the online nature of the course and learning. HA preferred the online learning format to traditional courses because she said she was "mildly introverted and the social aspect is so far removed in an online course it is great for me. I was not distracted by other students or what they thought of me." She preferred independent study and thought she learned as much through the online format as she would have if the class had been in a traditional classroom. TH, on the other hand, found it difficult to stay involved in the course and fell behind on the assignments as a result. He would have preferred more audio interactions with the instructor, perhaps through weekly (rather than biweekly) teleconferences. He believed he would have been "forced to put in a lot more effort if it was a physical course with consistent, regular classes" suggesting that he would have submitted the assignments if the graphic design course had been a traditional rather than an online course.

TN believed the course was "as effective as it could be given the fact that it was an online course. It was straightforward, the materials were there. Students can do the assignments, skip the optional exercises which were not useful, and get feedback." However, she thought the online course was not necessarily as effective as a traditional course which can be more "thorough in imparting the material". She believed whether a course could be taught online or not depended on the subject. Students must apply the concepts in a hands-on fashion for graphics design, so it might be less successful in an online format. However, TN liked the fact that she could do the course on her own terms and fit it into her schedule easily despite time constraints.

TW, an undergraduate student, liked the online format so much that he wanted to take another online course, but one with more in depth course material. He was "surprised that [he] liked the layout and being able to walk through concepts online." According to TW, he did not experience any problems with online learning and "it was pretty cool to be able to go to school from 1am to 3am. School's open whenever I want it" echoing TN's praise. As a university Dean, KC had observed online courses but had not actually participated in one before. She used to think "faculty was indispensable in person" and was surprised to find that "online learning is extremely effective and there are ways to replace the soft side of interpersonal interactions" even in an online environment.

SD admitted that she is "not fond of distance learning in general because it requires lot of self motivation" and she prefers class meetings. She finds it "comforting to be present in a physical classroom, to be a member of a group and to feel a relationship with the professor and the commitment to each other." In addition, SD stated that

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"personally, [she gets] a lot out of [traditional] lectures." Thus, prior to starting this online graphic design course, SD believed she "would have learned more if she had been taking this course in a [physical] classroom." However, at the end of the course she concluded that she had not necessarily learned less with the online format of the course, but her "experience was different, and that counts for something." SD also had a preconceived notion that online courses would focus on theory and principles and lack "practical, hands-on activity." She was surprised that in fact this online course offered "multiple opportunities for scenario-based learning. The assignments let [her] apply and demonstrate what [she] learned" and there were tutorials which helped to synthesize the course readings and materials. SD also expected the online course to feel "anonymous, remote, no-one knows you, no-one cares about you." Without feeling a sense of community, SD was losing interest in the first few weeks of the course. The online environment "felt bizarre, weird, foreign, [she] didn't even think to say hi to anyone. Even with the discussion board, [she] couldn't put a face to a name." However, she thought the teleconference sessions were particularly helpful in providing a social outlet.

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