

INSTRUCTOR IMMEDIACY AND PRESENCE IN THE ONLINE LEARNING  
ENVIRONMENT: AN INVESTIGATION OF RELATIONSHIPS  
WITH STUDENT AFFECTIVE LEARNING,  
COGNITION, AND MOTIVATION  
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Bivariate correlation was used to examine possible relationships between instructor immediacy and instructor presence, and a statistically significant correlation was found. Multiple linear regression analysis was used to determine whether the linear combination of instructor immediacy and presence caused significant variance in student affective learning, cognition, and motivation. For all three of the latter dependent variables, the linear combination of instructor immediacy and presence was found to cause statistically significant variance. However, although the overall regression models were significant in all three tests, instructor immediacy was not found to be a significant individual predictor for causing variance in affective learning, cognition, or motivation, whereas instructor presence was found to be a significant individual predictor of all three. Finally, factorial ANOVA revealed that, for perceptions of instructor immediacy, only classification and course type were found to explain significant variance, with undergraduate students in asynchronous courses reporting significantly lower instructor immediacy. For perceptions of instructor presence, graduate students tended to rate their instructors as having higher presence than did undergraduate students, and students in synchronous courses tended to rate their instructors as having higher presence than did students in asynchronous courses.

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# CHAPTER 1

## INTRODUCTION

This chapter establishes a rationale for examining instructor immediacy and presence in an online learning environment in relation to student affective learning, cognition, and motivation. It discusses the need for the study and explains the theoretical framework and foundation from which the specific purpose and research hypotheses emerged.

### Need for the Study

The prevalence of the Internet has profoundly affected many aspects of society, including higher education, where the demand for online learning is growing exponentially. From fall 2006 to fall 2007, the 9.7% increase for online enrollment far exceeded the 1.5% growth of the overall higher education student population in the U.S. (Sloan, 2007). This growth provides a fertile ground for empirical research on how and why this relatively well-established yet still evolving medium can be used to continually improve the learning experience.

With a plethora of “no significant difference” studies (e.g., Hiltz, Zhang, & Turoff, 2002; Johnson, Aragon, Shaik, & Palma-Rivas, 2000; McLaren, 2004; Vroeginday, 2005), researchers are beginning to move beyond the question of whether the online approach to education is as effective as traditional learning and are now delving into the realm of identifying which instructional strategies are most effective for an online learning environment. Swan (2003) argued that the epistemological problem with the “no significant difference” concept is that it glosses over real differences in the online medium that might be uniquely supportive of particular ways of knowing and learning.

Thus, researchers should be less concerned with the comparative value of offering Web-based courses and more concerned with specific learner characteristics, learning models, and curriculum restructuring. Grandzol and Grandzol (2006) asserted that extending the research base beyond “no significant difference” with studies dedicated to empirically validating best practices are the most useful and powerful because they can provide clear guidance for structuring and developing more effective online courses. This shift in the research focus towards effective learning in online instruction is the impetus for this study, which sought to explore the impact of instructor immediacy and presence as a form of andragogy in the online environment.

There is a need to extend the existing research of instructor immediacy in traditional face-to-face learning environments to online learning environments. In a meta-analysis of 81 studies that examined teacher immediacy in relation to learning outcomes in traditional face-to-face classrooms, Witt, Wheelless, and Allen (2004) reported a positive and substantial relationship between overall teacher immediacy and overall student learning ( $r = .50$ ,  $var. = .04$ ,  $k = 81$ ,  $N = 24,474$ ). The 2 decades of research on immediacy in face-to-face classrooms provide a foundation of findings from which to begin investigations of implications in online learning environments.

A relatively young and emerging area of research regarding online learning environments is teaching presence. The conceptual underpinnings of teaching presence in e-learning environments were derived from Garrison, Anderson, and Archer's (2000) community of inquiry model. Of the three types of presence in the model (i.e., cognitive, social, and teaching presence), the least researched is teaching presence (Arbaugh & Hwang, 2006). While teaching presence is conceptualized as being just as important as

social presence and cognitive presence, motivation to examine its nature had not been high until the adoption of the Internet as a mainstream instructional medium (Garrison et al., 2000). Researchers in the field of online instruction have called for much needed empirical support for the construct of teaching presence. The call for further research regarding teaching presence is a catalyst for this study.

The prevalence of online instruction in higher education, coupled with a need for empirical research on andragogy in online learning environments, is the base from which this study was launched. The study sought to contribute to the growing body of knowledge on effective teaching practices in online learning environments.

## Theoretical Framework

### *Instructor Immediacy*

Interaction is at the heart of the learning experience and is widely cited as a defining characteristic of successful learning in both traditional and online learning environments (Picciano, 2002; Swan, 2002; Wanstreet, 2006). Moreover, it is credited as a catalyst for influencing student motivation, active learning and participation among students, and the achievement of learning outcomes (Du, Havard, & Li, 2005; Lam, Cheng, & McNaught, 2005; Sargeant, Curran, Allen, Jarvis-Selinger, & Ho, 2006; Tu, 2005). Two research areas in the field of communications provide a theoretical framework for instructor immediacy as a form of interaction: Moore's transactional distance theory (Moore, 1973; Moore & Kearsley, 1996) and Mehrabian's (1971) concept of communication immediacy.

Moore's transactional distance theory (Moore, 1973; Moore & Kearsley, 1996) provides an explanation for why the use of electronic communication tools may

encourage interactions among learners and the instructor in an online environment. The theory stated that the quality of teaching and interactions among students and the instructor relates less to geographical separation and more to the structure of a course and the interactions that take place within it (Garrison & Cleveland-Innes, 2005; Lemak, Shin, Reed, & Montgomery, 2005; Moore & Kearsley, 1996). Moore (1973) saw distance education as a transaction and asserted that the physical separation in distance education leads to a psychological space of potential misunderstandings and a communication gap (i.e., transactional distance) between the instructor and the learner. According to the theory, increased dialogue between the instructor and student results in a lesser degree of transactional distance, and advances in communications technology have made synchronous and asynchronous interaction more readily available, thus increasing dialogue and decreasing transactional distance. Transactional distance theory is important conceptually because it provides an explanation for why the use of electronic communication tools may bridge the distance between learners and the instructor in an online environment. The electronic communication tools found in most course management systems (e.g., discussion, e-mail, chat, and messaging) increase the level of interaction, thus allowing learners and instructors to reduce the psychological and physical distance between them and achieve levels of social interaction similar to those in face-to-face classrooms (Lemak et al., 2005).

Although Moore's theory seems straightforward, some instructors seem to foster interactions more successfully than others do. A construct from the communications field provides instructors with a framework for fostering psychological closeness through interactions. Communication immediacy, a concept proposed by Mehrabian (1971),

refers to physical and verbal behaviors that reduce the psychological and physical distance between individuals. The verbal aspect of communication immediacy is important because verbally immediate behaviors are easily translated to the online learning environment (Jensen, 1999). Verbally immediate behaviors include initiating discussions, asking questions, using self-disclosure, addressing students by name, using inclusive personal pronouns (we, us), repeating contacts with students over time, responding frequently to students, offering praise, and communicating attentiveness (O'Sullivan, Hunt, & Lippert, 2004). The researchers also noted that visual cues (e.g., color, graphics, or an instructor's picture) signal expressiveness, accessibility, engagement, and politeness. The online learning environment allows instructors to incorporate verbally immediate behaviors easily with careful design of the course content and written interactions with students.

Although the literature has stated that interaction is important, more studies are needed to examine whether specific interaction strategies such as instructor immediacy can have positive implications for student affective learning, cognition, and motivation in an online learning environment.

### *Instructor Presence*

An emerging research area for the field of online learning is instructor presence, or the virtual "visibility" of the instructor as perceived by the learner. Social presence theory (Short, Williams, & Christie, 1976) is most closely related to instructor presence research in an online environment. Social presence is described as the feeling that group members communicate with people instead of impersonal objects. As communication channels are restricted, social presence decreases within a group.

When social presence is low within a group, group members often feel disconnected and cohesion levels are low. When social presence is high, however, each group member has the feeling of joint involvement.

Picciano (2002) noted that it is generally accepted that instructors must be “seen” to be perceived as present in online learning communities. In the online world, presence requires action (Blignaut & Trollip, 2003). In order to establish online presence, instructors can develop consistent patterns of interaction, communicate accessibility, provide consistent and substantive feedback, moderate discussions effectively, and provide content expertise through discussion posts to restart stalled discussions (Arbaugh & Hwang, 2006). According to Anderson, Rourke, Garrison and Archer (2001), teacher presence begins before the course commences as the teacher, acting as instructional designer, plans and prepares the course of studies, and it continues during the course as the instructor facilitates discourse and provides direct instruction when required. The researchers asserted that, through adequate teaching presence, formal learning that facilitates personally relevant and educationally defined outcomes are achieved. Swan (2003) called for extended research on differences in the quality and quantity of instructor presence projected by online instructors and how such variations might relate to learning.

#### Purpose of the Study

This study sought to explore instructor immediacy and presence in an online learning environment. It employed empirical and quantitative methods to determine how these two variables are related to three criterion variables in an online learning environment: student affective learning, cognition, and motivation. Furthermore, it also

sought to discover whether there is any evidence that the reported instructor immediacy and presence differ by student gender, classification (undergraduate or graduate), or course type (synchronous or asynchronous).

### Research Hypotheses

The hypotheses formulated for the study include the following:

- Ho1: There is no statistically significant correlation between perceived instructor immediacy and perceived instructor presence in online classes.
- Ho2: There is no statistically significant variation between instructor immediacy and presence and student affective learning in online classes.
- Ho3: There is no statistically significant variation between instructor immediacy and presence and student cognition in online classes.
- Ho4: There is no statistically significant variation between instructor immediacy and presence and student motivation in online classes.
- Ho5: There is no statistically significant variation between perceived instructor immediacy and student gender, classification (undergraduate or graduate), or course type (synchronous or asynchronous communication) in online classes.
- Ho6: There is no statistically significant variation between perceived instructor presence and student gender, classification (undergraduate or graduate), or course type (synchronous or asynchronous communication) in online classes.

## Limitations

1. The self-reporting nature of the measurement instrument hinders the ability to control errors and bias in the participants' responses.
2. Participants in this study are expected to vary in age, gender, race, academic ability, and socioeconomic status.
3. Random selection and assignment were not used in this study, thus limiting external validity.
4. Student response rate cannot be controlled.

## Delimitations

1. The study did not consider any courses other than those delivered online.
2. The study did not consider the subject matter of the course taught.
3. The study did not consider student support services or technical support services available for online learners.

## Definition of Terms

For the purpose of the this study, the following terms are defined as described below:

*Communication Immediacy*: Physical behaviors (e.g., smiling, nodding, leaning closer) and verbal behaviors (e.g., addressing students by name, repeating contacts over time, offering praise, using inclusive personal pronouns) that reduce the psychological and physical distance between individuals (Mehrabian, 1971).

*Instructor Immediacy:* Verbal and visual behaviors of instructors that reduce the psychological distance between themselves and students (Gorham, 1988).

*Instructor Presence:* The design, facilitation, and direction of cognitive social processes that foster students' realization of personally meaningful and educationally worthwhile learning outcomes (Garrison et al., 2000). An instructor who establishes patterns of interaction with his/her students establishes instructor presence (Picciano, 2002).

*Learning Loss:* The difference between students' ideal and actual learning. Learning loss is measured by a two-item scale created by Richmond, Gorham, and McCroskey (1987). Subjects are asked, on a scale of 0-9, how much they learned and how much they could have learned with an ideal instructor.

*Social Presence:* A sense of being in and belonging in a course and the ability to interact although physical contact is not available (Picciano, 2002).

*Online Classes:* For the purposes of this study, an online class is defined as one that is delivered 100% via the Internet in a course management system.

*Transactional Distance:* A psychological space of potential misunderstandings between the behaviors of instructors and those of the learners (Moore, 1973).

*Verbal Immediacy:* Communication behaviors that foster psychological closeness (Mehrabian, 1971). Examples include initiating discussions, asking questions, using humor, addressing students by name, and using self-disclosure. Verbal

immediacy also includes visual cues such as the use of color, graphics, pictures, and emoticons to signal expressiveness, accessibility, and engagement.

### Summary

This chapter provided a rationale for examining instructor immediacy and presence in an online learning environment in relation to student affective learning, cognition, and motivation. It discussed the need for the study including the need to move beyond comparative research studies towards examining the components of effective learning in online instruction, the need to extend the existing research of instructor immediacy conducted for traditional face-to-face learning environments to online learning environments, and finally the need to provide empirical support for the relatively new construct of teaching presence in online courses. Finally, it provided the theoretical framework and foundation from which the specific purpose and research hypotheses emerged. Chapter 2 will review existing literature related to the study.

## CHAPTER 2

### LITERATURE REVIEW

The review of literature establishes a foundation regarding the importance of instructor-student interaction in online learning environments. Next, the two predictor variables of the study, instructor immediacy and instructor presence, are examined. Finally, affective learning, cognition, and motivation are discussed in the context of online instruction.

#### *Instructor-Student Interaction in the Online Learning Environment*

Interaction is widely cited as a defining characteristic of successful learning in both traditional and online learning environments (Picciano, 2002; Swan, 2002; Wanstreet, 2006). Further, it is inherent to working together and exchanging ideas, two activities that are associated with effective adult instruction (Brown, 2002). Researchers concerned with online instruction have identified three kinds of interaction that affect learning: interaction with content, interaction with instructors, and interaction among peers (Swan, 2003). Instructor-student interaction is inherent to this study, and recent empirical research on effective online teaching establishes it as a key component for a successful online teaching and learning experience (Tu, 2005). Moreover, instructor-student interaction is widely credited as a catalyst for increasing student motivation, active learning and participation among students, and the achievement of learning outcomes (Du et al., 2005; Lam et al., 2005; Roberts & Nason, 2004; Sargeant et al., 2006). Oblinger (2003) reported positive effects of interactivity in online learning environments, asserting that threaded discussion, e-mail, chat, and instant messaging

allows instructors to present content, direct attention to a concept, provide background information, answer questions, and encourage the exchange and discussion of new ideas and applications of the course content in online courses. Furthermore, Tello (2002) reported the frequency with which an instructor used threaded discussion and e-mail related positively to students' attitudes and persistence to complete the course. Jiang and Ting's (2000) study of instructor interaction revealed that the quantity and quality of instructor interactions with students related positively to student learning when instructors provided frequent opportunities for both public and private interactions and established clear expectations for instructor-student interactions. Rust (2006) examined instructor interaction in online courses in relation to student performance and course retention and reported significant positive relationships between students' perceptions of interaction and their final grade. Finally, Stein, Wanstreet, Calvin, Overtoom, and Wheaton (2005) noted the importance of interaction for learner satisfaction and perceived knowledge gained in an online learning environment. Therefore, interaction in an online course can affect students and their outcomes in a number of ways. Although the literature has established interaction as an important aspect of online learning, further studies are needed to examine which types of interaction and what levels of contact are most effective for influencing affection, cognition, and motivation.

### *Instructor Immediacy*

The construct of immediacy has been studied in the field of communications as a method of effective instructor communication since the 1970s, when Mehrabian (1971) first defined it as communication behaviors that reduce the social and psychological

distance between people. Two categories of immediacy were identified: verbal and nonverbal. Nonverbal immediacy behaviors include physical behaviors (e.g., leaning forward, touching another, looking at another's eyes), while verbal immediate behaviors are nonphysical behaviors (e.g., giving praise, soliciting viewpoints, humor, self-disclosure). While verbal and nonverbal immediacy were sometimes treated as one construct in early research, Robinson and Richmond (1995) asserted that they actually represent two distinct constructs with separate measures. Jensen (1999) noted that verbal immediacy behaviors are especially relevant for online instruction because they are easily controlled and not bound by physical proximity as with nonverbal immediacy behaviors. Thus, much of the immediacy research in Web-based courses has centered on the instructor's use of verbally immediate behaviors.

In a three-phase series of research studies, O'Sullivan et al. (2004) sought to examine the forms of mediated immediacy and test the degree to which the use of immediacy cues predicted desired educational outcomes and positive perceptions of the sender. In the first study, O'Sullivan et al. (2001) reported that conventional immediacy cues were able to be conveyed via mediated channels and that all of the cues functioned the same as the traditional, face-to-face immediacy behaviors in that they can shape a receiver's sense of closeness with the source. The purpose of the second study (Whyte, O'Sullivan, & Hunt, 2003) was to apply the findings from the first study and test a possible relationship between mediated immediacy and anxiety, uncertainty, and attitude toward the message source at initial mediated contact. Identified immediacy cues were manipulated, and students exposed to them reported lower uncertainty and more positive attitudes toward the course and the instructor. In the third

study, O'Sullivan et al. (2004) contributed more evidence that immediacy can be conveyed in mediated forms.

Arbaugh (2001), McAlister (2001), and Baker (2004) reported statistically significant positive relationships between instructor immediacy in the online learning environment and affective and cognitive learning. Arbaugh surveyed 390 students in 25 online graduate courses to investigate instructor immediacy's influence on learning and course satisfaction using Gorham's (1988) original immediacy scale and reported that verbal immediacy behavior was a significant predictor of student's perceived learning and course satisfaction. The researcher noted that immediacy behaviors in the online environment merit additional attention and research. Thus, McAlister adapted the Gorham scale for online environments by modifying the language in each item to reflect an online environment rather than a face-to-face environment. He studied 150 online graduate students and reported significant correlations for immediacy and both affective and cognitive learning, with a Cronhach's alpha for the modified scale of .95. Baker provided empirical support of the effectiveness of immediacy cues in the online learning environment on affective and cognitive learning. The researcher surveyed 145 online graduate students to evaluate instructor immediacy, affective, and cognitive learning using the Gorham Verbal Immediacy Cscale, the McCroskey, Richmond, Plax, and Kearney (1985) Affective Learning Scale, and the Richmond, Gorham, and McCroskey (1987) Cognitive Learning Scale. His findings revealed that students in online classes who perceived their instructors as more verbally immediate expressed greater affective learning ( $r = .73, P < .01$ ) and increased cognitive learning ( $r = .54, P < .01$ ) than students taught by less verbally immediate instructors.

Ni (2004) noted that, although some research has shown the positive correlations among teacher verbal immediacy, cognitive learning, and affective learning, there is not as much evidence (as in the traditional classroom research) to make conclusions on the effect of immediacy in an online learning environment. Specific investigations of online instructor immediacy's impact on variables such as those in this study (affective learning, cognition, and motivation) can add much needed insight for this growing body of research.

Few studies have shown that course content has a bearing on perceptions of instructor immediacy (Ni, 2004), but studies regarding the influence of mode of communication (i.e., asynchronous or synchronous) on perceptions of instructor immediacy have shown promising results. Haefner (2000) argued that synchronous online sessions afford more immediacy than asynchronous communication alone. Pelowski, Frissell, Cabral, and Yu (2005) found that immediacy in synchronous courses was not related to examination performance, but was positively correlated with changes in pre- to post-course test scores. Schweier and Balbar (2002) found that synchronous communication contributed to the continuity and convenience of a course and promoted a strong sense of community, but that a combination of synchronous and asynchronous experiences is necessary to promote the kind of engagement and depth required for learning. While preliminary investigations regarding asynchronous or synchronous modes of communication are promising, more studies are needed to examine variations in instructor immediacy in both synchronous and asynchronous courses.

### *Instructor Presence*

The “virtual visibility” or presence of an instructor is an emerging topic of research in online learning environments. The importance of instructor roles in Web-based courses has been reiterated in many studies of online learning effectiveness. Social presence encompasses the instructor-student relationship and has been defined in the literature as users’ sense of being in a place and belonging to a group (Picciano, 2002). Social presence permeates all elements of a Web-based course and includes the specific interactions that take place within the medium (Walther, 1992) as well as users’ subjective perceptions of those interactions (Wise, Chang, Duffy, & del Valle, 2004). The conceptual underpinnings of teaching presence in e-learning environments were derived from the community of inquiry model (Garrison et al., 2000). The model represents three core elements in an online community, including cognitive, social, and teaching presence. According to Garrison (2004), cognitive presence concerns the construction of meaning and confirmation of understanding. Social presence encompasses the ability of participants to coalesce for a common purpose. Teaching presence must manage and monitor the cognitive and social dynamic to create a purposeful community of inquiry.

In an experimental study to examine performance in an online course in relation to student interaction and sense of presence in the course, Picciano (2002) reported that student perception of social presence had a positive, statistically significant relationship to performance on predetermined learning objectives within an online course.

Through regression analysis, Richardson and Swan (2003) sought to determine the relationship between perceived social presence of the instructor and perceived learning. The data collected from 17 online courses showed that 46% of the variability in perceived learning could be predicted by student perceptions of the social presence of the instructor. Additionally, a strong relationship ( $R^2 = .36$ ) was found between students' perceptions of social presence and satisfaction with the instructor.

In specific research of instructor presence in the online learning environment, Wise et al. (2004) reported considerable correlational evidence to suggest that the social presence of the instructor in an online course was an important factor in affecting student satisfaction. However, they reported that instructor presence had no effect on student learning goals or perceived learning. Conversely, Russo and Benson (2005) reported that perceptions of the instructor's presence were significantly correlated with both affective learning and with student learning satisfaction and that greater opportunities for students to connect with the instructor via discussion boards, through synchronous chat, and shared context were statistically significantly related to positive feelings about the course. The researchers asserted that increased instructor presence is a vital component of establishing learning communities within online classes.

Shea, Li, and Pickett (2006) investigated teaching presence in relation to students' sense of learning community in online courses. They developed and validated an instrument to measure students' perceptions of teaching presence levels in an online course (with reported reliability coefficients of .98, .97, and .93). The researchers randomly sampled 2,253 students enrolled in online courses at 32 colleges, yielding a response rate of 47% with 1,067 participants. While the researchers acknowledged that

the 47% response rate indicates that the results might not be representative of the overall population of students, they argued that their sample was large, broad, and similar enough (in terms of using the same learning management system, having access to the same basic student services, and instructors with the same training background) to allow them to avoid many of the potential confounds encountered in cross-institutional research in technology-mediated teaching and learning. Results indicated a significant link between instructor presence and students' sense of classroom community.

Nippard and Murphy (2007) investigated the manifestation of teaching presence in a Web-based synchronous course using structured and unstructured observations of 12 online course sessions. The researchers found that manifestations of teaching presence occurred primarily through the use of synchronous two-way audio and occurred most often in a context of digressions that drew attention away from the delivery of content.

Although initial investigations of instructor presence have shown promise, further research is needed to substantiate its importance in online learning environments. This study sought to add to the growing body of knowledge regarding teaching presence in online learning environments.

### *Affective Learning, Cognition, and Motivation in Online Learning Environments*

Research in the field of communications has suggested that instructor communication behavior may have its strongest impact on affective learning (McCroskey, 2006). Bloom (1956) stated that students' emotional response to the instructor, content, and learning environment could influence the quantity and quality of

the information learned in the course. Thus, researchers studying online environments have sought to determine instructional impacts on the affective domain. Cleveland-Innes and Ally (2007) sought to determine what communication mechanisms foster affective outcomes in education that occurs in online courses and found that under the conditions of asynchronous interaction, students realized greater affective learning gains than those engaged in synchronous interaction. Sidelinger and McCroskey (1997) found a statistically significant relationship between the clarity of an instructor's communication in an online course and student affective learning. Numerous studies have asserted a positive relationship between instructor immediacy and student affective learning in face-to-face environments (e.g., Christensen & Menzel, 1998; Christophel, 1990; Gorham, 1988; Kearney, Plax, & Wendt-Wasco, 1985; McCroskey, Sallinen, Fayer, Richmond, & Barraclough, 1996); however, only a few were found in the literature that investigated this in an online learning environment (e.g., McAlister, 2001; Baker, 2004; Ni, 2004). Further, few studies were found in the literature for investigations of instructor presence in relation to student affective learning (Russo & Benson, 2005).

Investigations of instructional influences on the cognitive domain are also prominent in educational research. Bloom (1956) outlined a taxonomy used to describe the increasing complexity of cognitive skills as students move from novice to expert in their knowledge of content. The hierarchical order consists of knowledge, comprehension, application, analysis, synthesis, and evaluation. Benson (2003) asserted that the technologies that underpin the online learning environment provide capabilities beyond those provided in the traditional classroom; thus, there exists a wide

research path for cognitive implications in the online learning environments. Cognitive learning is difficult to measure because it cannot be directly accessed (Hess & Smythe, 2001). Diagnostic, formative, or summative assessments are used to assess cognitive learning based on recall, recognition, test grades, or course grades. However, Richmond et al. (1987) stated that college students are in a position to accurately comment on their cognitive learning, independent of any affect for the course. Furthermore, they argued that student perceptions of cognitive learning were at least as valid as the subjective grades provided by instructors or course examinations that lack clear behavioral objectives. Thus, researchers investigating instructional communication have polarized towards the Learning Loss Scale (Richmond et al., 1987), which is predicated upon the assumption that a subjective measure of cognitive learning is as valid as an objective measure (Baker, 2001). Numerous researchers have reported a positive relationship between instructor immediacy and student cognitive learning in face-to-face environments (e.g., Christensen & Menzel, 1998; Christophel, 1990; Frymier, 1994; Rodriguez, Plax, & Kearney, 1996), but research investigating this in an online learning environment is still lacking, and extended studies are needed to establish a relationship between immediacy and student learning (Baker, 2004). Cognition has been examined with regard to instructor presence in an online environment, but with mixed results. Richardson and Swan (2003) reported that significant variance in learning could be predicted by student perceptions of the social presence of the instructor. Conversely, Wise et al. (2004) reported that instructor presence had no effect on student learning. Further studies are needed to clarify the impact of instructor presence on student cognition in an online environment.

Motivation is another important area examined by researchers interested in effective instructional strategies. Knowledge of student motivation is fundamental to understanding why some learners thrive and some learners struggle in any education environment (Miltiadou & Savenye, 2003). Understanding learner motivation is particularly vital in online education because research has shown that online learners need to be more motivated than their traditional face-to-face counterparts (Beffa-Negrini, Cohen, & Miller, 2002; Palloff & Pratt, 2003; Roblyer, 1999). The importance of motivation has become more apparent in the research literature as learning theories have changed. The evolution from behaviorism to cognitive psychology revealed new motivational factors. Behaviorism reduced motivation to external stimulation, and cognitive psychology introduced a shift towards viewing motivation as a state/ trait to a functional/ process view. Then, the evolution from cognitive psychology to social constructivism brought equilibrium between the latter described views and further explained how people learn with regard to external stimuli and internalize information differently depending on the internal cognitive structure. Researchers investigating instructional implications in online environments have looked at motivation as a variable that is important in the learning process. In a meta-analysis of 14 studies of motivation in online learning environments, Styer (2007) reported the following lines of inquiry: what motivates learners, how motivation affects learning, strategies for increasing motivation, motivation to persist, online motivation versus face-to-face motivation, and instructor interaction's impact on motivation. In the latter research area, the meta-analysis showed overall positive relationships between increased instructor interaction and motivation in online courses (Farahani, 2003; Hamrick, 2004; Schlegel, 2003).

However, specific research on instructor immediacy as an influence for motivation has not yet been conducted, nor have any studies surfaced in the literature that investigate instructor presence in relation to student motivation in an online learning environment.

The study of instructional impacts for affective learning, cognition, and motivation in online learning environments is still in an early stage compared to research in face-to-face learning environments. Further studies are needed to distinguish relationships between variables such as instructor immediacy and presence and student affection, cognition, and motivation in an online course.

### Summary

This chapter included an overview of research literature concerning the importance of instructor-student interaction in online learning environments. It also described prior research that examined the two predictor variables of the study, instructor immediacy and instructor presence. Finally, it discussed the literature surrounding affective learning, cognition, and motivation in the context of online instruction. Chapter 3 will discuss the methodology used to execute this study.

## CHAPTER 3

### METHODOLOGY

This study sought to examine instructor immediacy and presence in an online learning environment in relation to student affective learning, cognition, and motivation. This chapter provides details regarding the population, instrumentation, data collection procedures, and treatment of data.

#### Population

The population for the study consisted of undergraduate and graduate students enrolled in online courses at Tarleton State University. Tarleton is comprised of five campuses in Texas: Stephenville, Killeen, Waco, Fort Worth, and Weatherford, with a total enrollment of 9,630 students in the fall of 2008. According to the Texas Higher Education Coordinating Board, Tarleton is similar in composition, enrollment, and cost to other schools in Texas, including Midwestern State University, University of Houston-Clear Lake, and University of Texas-Tyler. Table 1 provides a comparison of the institutions with regard to enrollment and ethnic composition.

Table 1

*University Composition Comparison*

School	Tarleton State University	Midwestern State University	University of Houston – Clear Lake	University of Texas – Tyler
Headcount	9,630	6,157	7,753	4,254
% African American	8.20%	8.60%	8.40%	8.60%
% White	82.50%	73.90%	62.90%	82.90%
% Hispanic	6.80%	8.40%	12.50%	3.90%

The Carnegie Foundation (<http://www.carnegiefoundation.org/classifications/>) also provides institutional comparisons that are widely used in the study of higher education, both as a way to represent and control for institutional differences and also in the design of research studies to ensure adequate representation of sampled institutions, students, or faculty. The foundation’s comparison report lists the latter mentioned institutions in the same categories with regard to types of undergraduate professional programs offered (e.g., arts and sciences, some graduate coexistence), enrollment profile (e.g., high to very high undergraduate), graduate instructional programs (post-baccalaureate comprehensive), and size and setting (medium 4-year, primarily nonresidential).

The university currently offers five online graduate programs and over 150 online courses. The researcher had direct access to students and instructors of all online courses at the university. During the data collection period, 699 individual students were enrolled in at least one long-semester online course at Tarleton. The group was

made up of 443 females and 256 males and included 416 undergraduate and 283 graduate students. The ethnic profile of the group included 536 Anglo/non-Hispanic students, 81 African American students, 45 Hispanic students, 13 Asian students, 7 American Indian students, and 17 students who did not disclose their ethnicity.

### Instrumentation

The study employed questions from five instruments to measure student perceptions of instructor immediacy, instructor presence, student affective learning, cognition, and motivation. Biographical data were collected on the instrument, including questions soliciting age, gender, and foreign exchange status. Additionally, student classification, online course experience, and course type information was requested.

#### *Measurement of Predictor Variables*

*Instructor immediacy – The Verbal Immediacy Scale.* Gorham's (1988) Verbal Immediacy Scale is a commonly used immediacy instrument in the research literature. The study utilized the 17-item Likert-type scale to measure student perceptions of instructor immediacy. The split-half reliability from Gorham's initial use of the scale was .94. Subsequent studies have reported high reliability coefficients ranging from .77 to .94 (Christensen & Menzel, 1998; Christophel, 1990; Gorham, 1988; Moore & Kearsley, 1996). The scale has been used to study verbal immediacy in online learning environments with  $\alpha$  ranges from .84 to .90 (Baker, 2004; Ni, 2004).

*Instructor presence – Teaching Presence Scale.* The Teaching Presence Scale (Shea et al., 2006) was used in the present study to measure instructor presence. The measure is designed for the three teaching presence constructs of course design and organization (6 items), facilitating discourse (8 items), and direct instruction (6 items)

anchored on a 7-point scale ranging from *Strongly Agree* to *Strongly Disagree*. The initial reliability coefficients of the Teaching Presence Scale and its components, instructional design and organization, and directed facilitation were .98, .97 and .93, respectively (Shea et al., 2006). Arbaugh and Hwang (2006) conducted a study to establish construct validity for the components of teaching presence using the Teaching Presence Scale, reporting reliability coefficients of .90, .94 and .89, respectively. In a follow-up study utilizing the Teaching Presence Scale, Arbaugh (2007) reported a cronbach alpha of .97.

#### *Measurement of Criterion Variables*

*Affective learning - Six-Scale Measure of Affective Learning.* The most prevalent measure of affective learning in the existing communication immediacy research is the six-scale measure of affective learning first created by McCroskey et al. (1985). The scale was later modified by Gorham (1988) to delineate between the affective and behavioral learning components. Gorham's use of the scale resulted in a split-half reliability of .98. Successive research studies (Baker, 2001; Christensen & Menzel, 1998; Christophel, 1990; McCroskey et al., 1996; Teven & McCroskey, 1996) employing the scale to measure affective learning have resulted in reliability scores ranging between .82 and .98.

*Cognition - Learning Loss Scale.* Perceived cognition is measured via the Learning Loss Scale (Richmond et al., 1987). The scale is predicated upon the assumption that a subjective measure of cognitive learning is as valid as an objective measure (Baker, 2001). According to Richmond et al. (1987), college students are in a position to accurately comment on their cognitive learning, independent of any affect for

the course. Furthermore, they argued that student perceptions of cognitive learning were at least as valid as the subjective grades provided by instructors or course examinations that lack clear behavioral objectives. Since it was first used in 1987, the Learning Loss Scale has been used in numerous studies related to instructor immediacy (e.g., Baker, 2001; Christensen & Menzel, 1998; Christophel, 1990; Frymier, 1994; Rodriguez et al., 1996; Sanders & Wiseman, 1990) and almost exclusively in instructional communication research to measure cognitive learning with moderately strong ( $r = -.50$ ,  $p < .001$ ) indications of concurrent validity (Chesebro & McCroskey, 2000).

*Motivation - Motivation Scale.* Motivation is measured via the Student (end-of-course) Motivation Measure (Christophel, 1990). The measure consists of 12 bipolar adjectives. The scale has a 7-point range with bipolar adjectives at either end of the scale (1=motivated, 7 = unmotivated), with five numbered choices between the two opposites. Christophel (1990) observed reliability coefficients ranging from .95 to .96. Rubin, Sypher, and Palmgreen (2004) noted that Christophel's 12-item scale resulted in higher reliability estimates than did prior versions, which contained only three, four, or five items. McCroskey, Richmond, and Bennett (2006) reported a Cronbach alpha of .95 for the scale.

#### Data Collection Procedures

Data were collected from a single-administered online instrument, using the secure survey collection software tool Enterprise Feedback Management (EFM). During the 1<sup>st</sup> week of the summer 2008 semester, instructors who were delivering long-summer (10-week) semester online courses were asked for permission to have their

students participate in the study. There were 65 long-semester online courses identified with a total of 699 individual students enrolled. Of the online instructors, 100% agreed to have their students participate. During the 7<sup>th</sup> week of the summer semester, an e-mail was sent to students inviting them to participate in the study (see Appendix B). Waiting until the 7<sup>th</sup> week of the long-semester ensured that students had enough time in the course to observe their instructor in the course and to evaluate their own learning experiences. Students were asked to complete the survey one time and not to evaluate the immediacy and presence of an instructor in more than one course. In order to safeguard against multiple submissions from a student, the EFM survey tool capability to allow students to complete the survey only once based on their IP address and Internet cookies was used. Additionally, students were asked to affirm that they had not previously completed the survey in another course. Students were provided with a statement in accordance with IRB standards and practices that informed them that the instrument was for research and that they could choose not to participate or to discontinue participation at any time (see Appendix A). The survey instrument was available for students to complete for a 2-week period. At the middle of the 2<sup>nd</sup> week of availability, and again 2 days prior to the submission deadline, a reminder announcement and e-mail identifying the deadline for completion was sent to students in each course.

### Treatment of Data

Data analysis focused on the six hypotheses discussed in chapter 1. The predictor variables in the study are instructor immediacy and instructor presence in an online course. The criterion variables are students' affective learning, cognition, and

motivation. Bivariate correlation analysis, multiple linear regression analysis, and factorial analysis of variance procedures were used to analyze the data in order to test the six hypotheses.

Bivariate correlation analysis was employed for testing Hypothesis 1 to rule out the possibility of any positive or negative relationships between instructor immediacy and instructor presence and to measure the magnitude of any possible connections.

Multiple regression analysis was conducted for testing of Hypotheses 2, 3, and 4. For Hypothesis 2, multiple regression analysis was used to determine the degree to which the two predictor variables (instructor immediacy and presence) might explain variance in student affective learning. For Hypothesis 3, multiple regression analysis was conducted to determine the degree to which the two predictor variables might explain variance in student cognition. Finally, for Hypothesis 4, multiple regression analysis was utilized to determine the degree to which the two predictor variables might explain variance in student motivation.

Analysis of variance procedures was used to test Hypotheses 5 and 6. For Hypothesis 5, factorial ANOVA was conducted to evaluate whether there is any evidence that the means of reported instructor immediacy differ by student gender, classification (undergraduate or graduate) or course type (asynchronous or synchronous). Similarly, for Hypothesis 6, factorial ANOVA was employed to evaluate whether there is any evidence that the means of reported instructor presence differ by student gender, classification (undergraduate or graduate), or course type (asynchronous or synchronous).

## Summary

This chapter discussed the study's research design, population, instrumentation, data collection procedures and treatment of data. Chapter 4 contains the research findings.

## CHAPTER 4

### RESULTS

The purpose of this study was to explore instructor immediacy and presence in an online learning environment and to employ empirical and quantitative methods to determine how these two variables are related to three criterion variables: student affective learning, cognition, and motivation. The study also sought to learn whether there is any evidence that the reported instructor immediacy and presence differ by student gender, classification (undergraduate or graduate), or course type (synchronous or asynchronous). This chapter provides information on study participants, instrumentation, and results of hypothesis testing.

#### Study Participants

The data collected for this study included 377 (n=377) uniquely completed surveys submitted online. Of the 377 respondents, 112 were males and 265 were females. A total of 71 students (18.8 %) indicated that this was their first online course, and 306 students (81.2%) indicated that they had had previous online course experiences. One hundred forty-one (141) respondents (37.5%) reported being graduate students, whereas 236 respondents (62.5%) reported being undergraduate students. Finally, 10 respondents (2.7%) indicated that they were foreign exchange students, whereas 367 (97.3%) indicated that they were not.

#### Instrumentation

Data were gathered using the instruments specified in chapter 3, including surveys of demographic information (5 questions), perception of instructor immediacy (17 questions), perception of instructor presence (16 questions), cognition (2 questions),

motivation (12 questions), and affective learning (24 questions). Table 2 presents the reliability coefficients for the subscales, including the means and standard deviations for each. SPSS 14.0 statistical analysis software was used for all analyses. Data were imported into SPSS from the electronic results generated from the online data survey tool Electronic Feedback Manager (EFM).

Table 2

*Reliability Coefficients for Subscales*

	Instructor Immediacy	Instructor Presence	Student Affective Learning	Student Cognitive Learning	Student Motivation
Cronbach's alpha	.90	.97	.97	.69	.94

*The Verbal Immediacy Scale*

The Verbal Immediacy Scale (Gorham, 1988) consists of 17 statements about the behavior of the instructor using a 5-point Likert-type scale, with scores ranging from 1 to 5. One of the items (Item 11) was reverse coded. The composite immediacy score was calculated by summing the scores of the 17 items (accounting for the reverse coded scores on Item 11). The resulting immediacy scores in this study ranged from 21 to 82, with a mean score of 57.68 across all of the submissions. Higher scores indicated higher perceived instructor immediacy. Cronbach's alpha for the Verbal Immediacy Scale was found to be .90 in this study. This is an acceptable level of reliability and reflects prior uses of the instrument, with alpha ranges from .86 to .94 (Christensen & Menzel, 1998; Christophel, 1990; Gorham, 1988; Moore et al., 1996).

### *The Teaching Presence Scale*

The Teaching Presence Scale (Shea et al., 2003) includes 16 statements about the behavior of the instructor using a 5-point Likert-type scale with scores ranging from 1 to 5. Scores from the 16 items were summed to calculate the composite teaching presence score. In this study, the resulting teaching presence scores ranged from 16 to 80, with a mean score of 62.56 across all of the submissions. Higher scores indicated higher perceived teaching presence. Cronbach's alpha for the Teaching Presence Scale was found to be .97, which is an acceptable level of reliability and reflects prior uses of the instrument with alpha ranges from .89 to .98 (Arbaugh, 2007; Arbaugh & Hwang, 2006; Shea et al., 2006).

### *Six-Scale Measure of Affective Learning*

The Six-Scale Measure of Affective Learning (McCroskey et al., 1985) includes six statements with four semantic differential pairs for each statement, one of which is reverse coded. There are seven selections along each continuum. A composite affective learning score was computed by assigning a score of 1 through 7 to each of the paired selections and summing the 24 items (with reverse coded scores for Items 2, 6, 10, 14, 18, and 22 considered accordingly) to produce a single affective learning score. In this study, the resulting affective learning scores ranged from 24 to 168, with a mean score of 135.48 for all of the submissions. Higher scores indicated higher affective learning. Cronbach's alpha for the Six-Scale Measure of Affective Learning was found to be .97, which is an acceptable level of reliability and reflects prior uses of the instrument, with alpha ranges from .82 to .98 (Baker, 2001; Christensen & Menzel,

1998; Christophel, 1990; Gorham, 1988; McCroskey et al., 1996; Teven & McCroskey, 1996).

### *The Learning Loss Scale*

The Learning Loss Scale (Richmond et al., 1987) consists of two questions designed to produce a measure of learning loss (i.e., the difference between what a student believes that she or he learned in the course and how much the same student could learn in the same course with the ideal instructor). The smaller the learning loss (from the possible range of 0 through 9), the closer the student is to the ideal learning experience and therefore the higher the perceived cognitive learning. To avoid confusion with the analysis of this study, the learning loss score was reverse coded so that higher scores reflected higher perceived cognitive learning. The resulting cognitive learning scores in this study ranged from 0 to 9, with a mean score of 7.85 across all of the submissions. Higher scores indicated higher perceived cognitive learning.

Cronbach's alpha for the Learning Loss Scale was found to be .69 in this study.

Because Cronbach's alpha increases with the number of items on a scale, the lower  $\alpha$  of .69 is not surprising for a scale with only two items. Nunnally (1975) asserted that a range of .70 and higher is an acceptable level of instrument reliability for educational research studies and that the easiest way to improve the reliability of an instrument is to lengthen it. Kaplan and Saccuzzo (2005) noted that the Spearman-Brown prophecy formula is commonly used to predict the number of item replications required to achieve a desired degree of reliability. Subsidiary analysis using the formula for improving Cronbach's alpha showed that adding 4.8 items to the scale would improve the

instruments' Cronbach's alpha to the .70 level; however, the original scale was considered for the purposes of hypothesis testing in this study.

### *The Motivation Scale*

The Student Motivation Measure (Christophel, 1990) consists of 12 bipolar adjectives. The scale has a 7-point range with bipolar adjectives at either end of the scale (i.e., 1=motivated, 7 = unmotivated) with five numbered choices between the two opposites. Six of the items (4, 5, 7, 8, 9, and 12) were reverse coded. The composite motivation score was calculated by summing the scores of the 12 items (accounting for the reverse coded scores on Items 4, 5, 7, 8, 9, and 12). The resulting motivation scores in this study ranged from 14 to 84, with a mean score of 58.84 across all of the submissions. Higher scores indicated higher student motivation. Cronbach's alpha for the Student Motivation Measure was found to be .94 in this study. This is an acceptable level of reliability and reflects prior uses of the instrument, with alpha ranges from .95 to .96 (Christophel, 1990; McCroskey, Richmond & Bennett, 2006; Rubin et al., 2004).

### Results of Hypothesis Testing

The six hypotheses under consideration in this study relate to the relationships between instructor immediacy, instructor presence, student affective learning, cognition, and motivation in online classes. Bivariate correlation, multiple linear regression, and factorial ANOVA analysis were applied to the data in consideration of the study's hypotheses, with an alpha level of .05 set throughout the data analysis. A total of 14 outlying cases were deleted prior to hypothesis testing. Graham, Cumsille, and Elek-Fisk (2003) noted that outliers lead to both Type I and Type II errors. They asserted that cases with standardized scores in excess of 3.29 are considered potential outliers.

Furthermore, the authors noted that once outliers have been identified, deletion is a good alternative to reduce their influence to meet statistical assumptions and also to improve the normality of the data. All of the variables in this study were found to be significantly positively correlated. Table 3 presents the results of an initial Pearson correlation analysis of the five variables.

Table 3

*Initial Pearson Correlations*

		Instructor immediacy	Instructor presence	Student affective learning	Student cognition	Student motivation
Instructor Immediacy (II-SCORE)	Pearson Correlation	1				
Instructor Presence (IP-SCORE)	Pearson Correlation	.75	1			
Student Affective Learning (AL-SCORE)	Pearson Correlation	.56	.72	1		
Student Cognition (COG-REVCODE)	Pearson Correlation	.53	.68	.62	1	
Student Motivation (MOT-SCORE)	Pearson Correlation	.47	.60	.79	.53	1

All correlations are significant at the 0.01 level (2-tailed).

**Ho1: There is no statistically significant correlation between perceived instructor immediacy and perceived instructor presence in online classes.**

In this study, Hypothesis 1 was rejected based on the analysis of data. The bivariate Pearson product-moment correlation coefficient of instructor immediacy scores and instructor presence scores revealed a significant positive correlation between the two variables ( $r = .75, p < .01$ ). Table 4 presents the results of the correlational analysis.

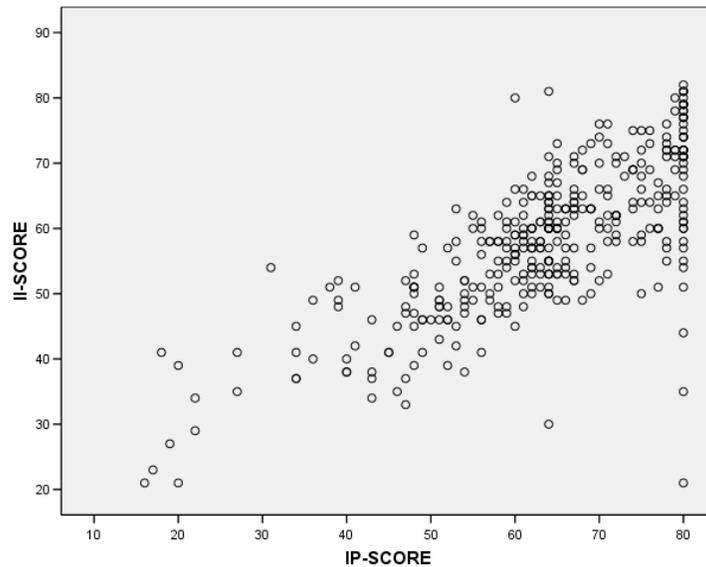
Table 4

*Pearson Correlations of Instructor Immediacy and Instructor Presence*

		II-Score	IP-Score
II-Score	Pearson Correlation	1	.75*
	Sig. (2-tailed)		.00
	N	363	363
IP-Score	Pearson Correlation	.75*	1
	Sig. (2-tailed)	.00	
	N	363	363

\* Correlation is significant at the 0.01 level (2-tailed).

Figure 1 shows a visual depiction of the relationship between perceived instructor immediacy and presence.



*Figure 1.* Scatterplot of relationship between instructor immediacy and presence.

**Ho2: There is no statistically significant variation between instructor immediacy and presence and student affective learning in online classes.**

In this study, Hypothesis 2 was rejected based on the analysis of data. Multiple linear regression analysis was used to explore the relationship between instructor immediacy and presence to student affective learning. In order to investigate the

possibility of multicollinearity of the variables, variance inflation factors (VIF) and condition indexes were examined. In this study, the VIF score was 2.34 for both instructor immediacy and presence, and condition indexes ranged from 1.0 to 16.97. Therefore, multicollinearity was not identified. The findings of the multiple linear regression analysis revealed that the linear combination of instructor immediacy and presence was significantly related to students' level of reported affective learning,  $F(2, 372) = 221.77, p < .001$ . The sample multiple correlation coefficient was  $R = .74$  with an  $R^2$  of .54, indicating that approximately 54% of the variance of student affective learning scores can be accounted for by the linear combination of instructor immediacy (beta = .03) and presence (beta = .72). Although the overall regression model was significant, instructor immediacy was not found to be a significant individual predictor,  $t = .46, p = .64$ . Instructor presence was found to be a significant individual predictor,  $t = 13.4, p = .00$ , and was shown to significantly increase the level of student affective learning. Results of the regression analysis are shown in Table 5.

Table 5  
*Regression Results for Explaining Affective Learning From Instructor Immediacy and Presence*

	Unstandardized coefficients		Standardized coefficients	t	Sig.	Collinearity statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	36.55	5.29		6.91	.00		
II-SCORE	.06	.13	.03	.46	.64	.43	2.39
IP-SCORE	1.53	.11	.72	13.42	.00	.43	2.39

*Note.* Dependent variable: AL-SCORE.

**Ho3: There is no statistically significant variation between instructor immediacy and presence and student cognition in online classes.**

In this study, Hypothesis 3 was rejected based on the analysis of data. Multiple linear regression analysis was used to explore the relationship between instructor immediacy and presence to student cognition. In order to assess the possibility of multicollinearity of the variables, variance inflation factors (VIF) and condition indexes were examined. In this model, the VIF score was 2.26 for both instructor immediacy and presence, and condition indexes ranged from 1.0 to 17.16. Therefore, multicollinearity was not identified. The results revealed that the linear combination of instructor immediacy and presence was significantly related to students' level of reported cognition,  $F(2, 360) = 152.60, p < .001$ . The sample multiple correlation coefficient was  $R = .68$  with an  $R^2$  of .46, indicating that approximately 46% of the variance of student cognitive scores can be accounted for by the linear combination of instructor immediacy (beta = .06) and presence (beta = .63). Although the overall regression model was significant, instructor immediacy was not found to be a significant individual predictor,  $t = 1.02, p = .31$ . Instructor presence was found to be a significant individual predictor,  $t = 10.84, p = .00$ , and was shown to significantly increase the level of student cognition. Results of the regression analysis are shown in Table 6.

Table 6

*Regression Results for Explaining Student Cognition From Instructor Immediacy and Presence*

	Unstandardized coefficients		Standardized coefficients	t	Sig.	Collinearity statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	3.75	.27		14.04	.00		
II-SCORE	.01	.01	.06	1.02	.31	.44	2.26
IP-SCORE	.06	.01	.63	10.84	.00	.44	2.26

*Note.* Dependent variable: COG-REVCODE.

**Ho4: There is no statistically significant variation between instructor immediacy and presence and student motivation in online classes.**

In this study, Hypothesis 4 was rejected based on the analysis of data. Multiple linear regression analysis was used to explore the relationship between instructor immediacy and presence to student motivation. In order to assess the possibility of multicollinearity of the variables, variance inflation factors (VIF) and condition indexes were examined. In this model, the VIF score was 2.34 for both instructor immediacy and presence, and condition indexes ranged from 1.0 to 16.95. Therefore, multicollinearity was not identified. Findings indicated that the linear combination of instructor immediacy and presence was significantly related to students' level of reported motivation,  $F(2, 371) = 114.79, p < .001$ . The sample multiple correlation coefficient was  $R = .62$  with an  $R^2$  of .38, indicating that approximately 38% of the variance of student motivation scores can be accounted for by the linear combination of instructor immediacy (beta = .06) and presence (beta = .57). Although the overall regression model was significant, instructor immediacy was not found to be a significant individual predictor,  $t = .932, p = .35$ . Instructor presence was found to be a significant individual

predictor,  $t = 9.19$ ,  $p = .00$ , and was shown to significantly increase the level of student motivation. Results of the regression analysis are shown in Table 7.

Table 7

*Regression Results for Explaining Student Motivation From Instructor Immediacy and Presence*

	Unstandardized coefficients		Standardized coefficients	t	Sig.	Collinearity statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	16.33	3.11		5.25	.00		
II-SCORE	.07	.08	.06	.93	.35	.43	2.34
IP-SCORE	.62	.07	.57	9.19	.00	.43	2.34

Note. Dependent variable: MOT-SCORE.

**Ho5: There is no statistically significant variation between perceived instructor immediacy and student gender, classification (undergraduate or graduate), or course type (synchronous or asynchronous communication) in online classes.**

This study failed to reject Hypothesis 5. Factorial ANOVA was used to investigate variance in instructor immediacy based on a student's gender, classification (undergraduate or graduate), and the student's type of online course (synchronous or asynchronous). Levene's Test for Equality of Variance was not significant,  $F(7, 355) = .26$ ,  $p = .12$ , providing evidence that the ANOVA assumption of homogeneity of variance across all groups was tenable. No significant interaction was found between gender, classification, and course type,  $F(4, 355) = 1.86$ ,  $p = .12$ , partial  $\eta^2 = .02$ . The analysis did show a significant small main effect for course type,  $F(1, 355) = 19.92$ ,  $p = .000$ , partial  $\eta^2 = .05$ , but no significant main effect for gender,  $F(1, 355) = .66$ ,  $p = .42$ ,  $\eta^2 = .00$ , or classification,  $F(1, 355) = .15$ ,  $p = .70$ ,  $\eta^2 = .00$ . Post hoc tests were performed

to look separately at gender, classification, and course type with perceived instructor immediacy scores.

One-way ANOVA (see Table 8) was performed to look at immediacy scores and gender. Levene’s Test for Equality of Variance was not significant,  $F(1, 361) = .08, p = .41$ , providing evidence that the ANOVA assumption of homogeneity of variance across all groups was tenable. However, gender was not found to cause significant variance in student’s perceived instructor immediacy score ( $p = .77$ ).

Table 8

*One-Way Analysis of Variance of Gender and Instructor Immediacy*

II-SCORE

	Sum of squares	df	Mean square	F	Sig.
Between Groups	10.96	1	10.96	.08	.77
Within Groups	47766.50	361	132.32		
Total	47777.46	362			

One-way ANOVA (see Table 9) was performed to look at immediacy scores and classification (graduate or undergraduate). Levene’s Test for Equality of Variance was not significant,  $F(1, 361) = 4.363, p = .69$ , providing evidence that the ANOVA assumption of homogeneity of variance across all groups was tenable. Classification was found to cause significant variance in student’s instructor immediacy score ( $p = .04$ ).

Table 9

*One-Way Analysis of Variance of Classification and Instructor Immediacy*

II-SCORE

	Sum of squares	df	Mean Square	F	Sig.
Between Groups	570.49	1	570.49	4.36	.04
Within Groups	47206.97	361	130.77		
Total	47777.46	362			

Further analysis of classification revealed that graduate students tended to rate their instructors as more immediate than did undergraduate students (see Table 10).

Table 10

*Descriptive Statistics for Classification and Instructor Immediacy*

II-SCORE

	Mean	SD
Graduates	59.70	11.11
Undergraduates	57.09	11.62
Total	58.04	11.49

One-way ANOVA (see Table 11) was performed to examine immediacy scores and course type (asynchronous or synchronous). Levene's Test for Equality of Variance was not significant,  $F(1, 361) = 22.90, p = .31$ , providing evidence that the ANOVA assumption of homogeneity of variance across all groups was tenable. Course type was found to cause significant variance in students' perceived instructor immediacy score ( $p = .00$ ).

Table 11

*One-Way Analysis of Variance of Course Type and Instructor Immediacy*

II-SCORE					
	Sum of squares	df	Mean square	F	Sig.
Between Groups	2849.53	1	2849.53	22.90	.00
Within Groups	44927.93	361	124.45		
Total	47777.46	362			

Further analysis of course type revealed that students in synchronous courses tended to rate their instructors as more immediate than did students in asynchronous courses (see Table 12).

Table 12

*Descriptive Statistics for Course Type and Instructor Immediacy*

II-SCORE		
	Mean	SD
Synchronous	64.74	9.818
Asynchronous	56.87	11.370
Total	58.04	11.488

Two-way ANOVA was performed to examine the relationship of immediacy scores with course type and classification. The Levene's Test for Equality of Variance was not significant,  $F(3, 359) = 3.48, p = .28$ , providing evidence that the ANOVA assumption of homogeneity of variance across all groups was tenable. A significant interaction effect was found between course type and classification,  $F(3, 359) = 3.48, p = .03, \eta^2 = .02$ . For the sake of parsimony, the two variables were split into cell codes to determine which combination might contribute to the variance in immediacy scores. Cell code 1 indicated graduate students enrolled in a synchronous online course, cell code 2 indicated undergraduate students enrolled in a synchronous online course, cell code 3

indicated graduate students enrolled in an asynchronous online course, and cell code 4 indicated undergraduate students enrolled in an asynchronous online course. Table 13 shows the initial descriptive statistics for the four cell codes.

Table 13

*Descriptive Statistics for Post Hoc Cell Codes*

II-SCORE		
	Mean	SD
Graduate Students –Synchronous	63.74	11.46
Undergraduate Students –Synchronous	65.29	8.93
Graduate Student – Asynchronous	59.02	10.96
Undergraduate Students – Asynchronous	55.63	11.45
Total	58.04	11.49

One-way ANOVA was performed to examine immediacy scores and cell codes 1 through 4. Levene’s Test for Equality of Variance was not significant,  $F(3, 359) = 10.05$ ,  $p = .28$ , providing evidence that the ANOVA assumption of homogeneity of variance across all groups was tenable. Cell code 4 (undergraduates in an asynchronous online course) was identified as causing more significant variance in the immediacy score than the other cell codes, 1 ( $p = .01$ ), 2 ( $p = .00$ ), 3 ( $p = .05$ ). In other words, undergraduate students enrolled in asynchronous online courses had significantly lower immediacy scores than any other group type. Additionally, students in cell code 3 (graduates enrolled in an asynchronous online course) had significantly higher immediacy scores than students in cell code 2 (undergraduates enrolled in a synchronous online course). Table 14 presents the multiple comparisons of the four cell codes.

Table 14

*Post Hoc Test (Tukey HSD) for Classification and Course Type Cell Codes*

Dependent Variable: II-SCORE

(I) cellcode	(J) cellcode	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	-1.55	3.16	.96	-9.70	6.60
	3	4.72	2.75	.32	-2.37	11.81
	4	8.11*	2.66	.01	1.24	14.98
2	1	1.55	3.16	.96	-6.60	9.70
	3	6.27*	2.14	.02	.74	11.80
	4	9.66*	2.03	.00	4.41	14.91
3	1	-4.72	2.75	.32	-11.81	2.37
	2	-6.27*	2.14	.02	-11.80	-.74
	4	3.40*	1.31	.05	.01	6.77
4	1	-8.11*	2.66	.01	-14.98	-1.24
	2	-9.66*	2.03	.00	-14.91	-4.41
	3	-3.39*	1.31	.05	-6.77	-.01

\* The mean difference is significant at the .05 level.

- 1 = Graduate Students Enrolled in Synchronous Online Courses
- 2 = Undergraduate Students Enrolled in Synchronous Online Courses
- 3 = Graduate Students Enrolled in Asynchronous Online Courses
- 4 = Undergraduate Students Enrolled in Asynchronous Online Courses

**Ho6: There is no statistically significant variation between perceived instructor presence and student gender, classification (undergraduate or graduate), or course type (synchronous or asynchronous communication) in online classes.**

This study failed to reject Hypothesis 6. Factorial ANOVA was used to investigate variance in instructor presence based on a student's gender, classification

(undergraduate or graduate), and the type of online course (synchronous or asynchronous). Levene's Test for Equality of Variance was not significant,  $F(7, 355) = 1.49, p = .07$ , providing evidence that the ANOVA assumption of homogeneity of variance across all groups was tenable. No significant interaction was found between gender, classification, and course type,  $F(1, 355) = 1.49, p = .22, \text{partial } \eta^2 = .00$ . The analysis did show a significant small main effect for course type,  $F(1, 355) = 17.01, p = .00, \text{partial } \eta^2 = .05$ , but no significant main effect for gender,  $F(1, 355) = .19, p = .66, \text{partial } \eta^2 = .00$ , or classification,  $F(1, 355) = 2.02, p = .16, \eta^2 = .01$ . Post hoc tests were performed to look separately at gender, classification, and course type with perceived instructor presence scores.

One-way ANOVA (Table 15) was performed to look at instructor presence scores and gender. Levene's Test for Equality of Variance was not significant,  $F(1, 361) = 1.65, p = .20$ , providing evidence that the ANOVA assumption of homogeneity of variance across all groups was tenable. However, gender was not found to cause significant variance in student's perceived instructor presence score ( $p = .20$ ).

Table 15

*One-Way Analysis of Variance of Gender and Instructor Presence*

IP-SCORE

	Sum of squares	df	Mean square	F	Sig.
Between Groups	295.00	1	295.00	1.65	.20
Within Groups	64369.81	361	178.31		
Total	64664.81	362			

One-way ANOVA was performed to examine instructor presence scores and classification (graduate or undergraduate). Levene's Test for Equality of Variance was not significant,  $F(1, 361) = 5.20, p = .09$ , providing evidence that the ANOVA assumption of homogeneity of variance across all groups was tenable. Classification was found to cause significant variance in student's reported instructor immediacy score ( $p = .02$ ). Table 16 shows the results of the one-way ANOVA.

Table 16

*One-Way Analysis of Variance of Classification and Instructor Presence*

IP-SCORE

	Sum of squares	df	Mean square	F	Sig.
Between Groups	918.85	1	918.85	5.20	.02
Within Groups	63745.97	361	176.58		
Total	64664.81	362			

Further analysis of classification revealed that graduate students tended to rate their instructors as having more presence than did undergraduate students did (see Table 17).

Table 17

*Descriptive Statistics for Classification and Instructor Presence*

IP-SCORE

	Mean	SD
Graduates	65.21	11.623
Undergraduates	61.90	14.149
Total	63.11	13.365

One-way ANOVA was performed to examine instructor presence scores and course type (asynchronous or synchronous). Levene's Test for Equality of Variance was

not significant,  $F(1, 361) = 15.72, p = .06$ , providing evidence that the ANOVA assumption of homogeneity of variance across all groups was tenable. Course type was found to cause significant variance in students' reported instructor immediacy score ( $p = .00$ ). Table 18 shows the results of the one-way ANOVA.

Table 18

*One-Way Analysis of Variance of Course Type and Instructor Presence*

IP-SCORE

	Sum of squares	df	Mean square	F	Sig.
Between Groups	2698.54	1	2698.54	15.72	.00
Within Groups	61966.27	361	171.65		
Total	64664.81	362			

Further analysis of course type revealed that students in synchronous online courses tended to rate their instructors as having higher presence than did students in asynchronous courses did (see Table 19).

Table 19

*Descriptive Statistics for Course Type and Instructor Presence*

IP-SCORE

	Mean	SD
Synchronous	69.63	9.118
Asynchronous	61.97	13.670
Total	63.11	13.365

A post hoc attempt to perform a two-way ANOVA to provide insights into the relationship of instructor presence scores with course type and classification was halted after the assumption of equal variances was not met. Levene's Test for Equality of Variance was significant,  $F(3, 359) = 2.83, p = .02$ ; thus, the two variances were

significantly different. Further analysis of course type and classification was discontinued.

*Additional Observations*

Information regarding student online course experience and residency status was also solicited from respondents during data collection. The cases indicating a foreign exchange student status were too few in this study (n = 12). Thus, the benchmark of 20 to 30 cases for balanced design was not met, and no analysis was conducted for the foreign exchange variable.

In this study, 295 students (81.3%) reported previous experiences with online learning, whereas 68 students (18.7%) reported no previous online course experience. One-way ANOVA was used to examine student’s online course experience in relation to their reported instructor immediacy (see Table 20). Levene’s Test for Equality of Variance was not significant,  $F(1, 361) = .53, p = .54$ , providing evidence that the ANOVA assumption of homogeneity of variance across all groups was tenable. However, course experience was not found to cause significant variance in student’s reported instructor immediacy score ( $p = .47$ ).

Table 20

*One-way Analysis of Variance of Course Experience and Instructor Immediacy*

II-SCORE					
	Sum of squares	df	Mean square	F	Sig.
Between Groups	70.41	1	70.41	.53	.47
Within Groups	47707.05	361	132.15		
Total	47777.46	362			

One-way ANOVA was used to examine students' online course experience in relation to their reported instructor presence. Levene's Test for Equality of Variance was significant,  $F(1, 361) = .87, p = .05$ ; thus, the two variances were significantly different and the assumption of equal variances was not met for the two-way ANOVA. Further analysis of course experience and instructor presence was discontinued.

### Summary

This chapter addressed the data collected and the statistical tests performed, including bivariate analysis, multiple linear regression, and factorial analysis of variance. Hypotheses 1, 2, 3, and 4 were rejected based on the analysis of data, while the study failed to reject hypotheses 5 and 6. Chapter 5 provides a summary of the study, a discussion of the significance of the findings, and recommendations for future research.

## CHAPTER 5

### FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

As evidenced by the results in chapter 4, a number of factors emerged that contribute to the theoretical and applied understanding of online learning effectiveness. Chapter 5 includes three sections to analyze these factors: Summary of Findings, Conclusions, and Recommendations for Future Research. In the Summary of Findings, an overview of the study methodology and results is provided. The Conclusions section is a discussion of the findings for each of the six hypotheses and the implications of these results. Finally, the Recommendations section provides suggestions for future research in the field.

#### Summary of Findings

The overarching purpose of this study was to provide insights into the dynamics involved in an effective online learning environment. Specifically, the study sought to examine instructor immediacy and presence in an online learning environment in relation to student affective learning, cognition, and motivation.

The method chosen for this study was survey research, with an online questionnaire used to elicit data regarding student's affective learning, cognition, and motivation in relation to their perceived instructor's immediacy and presence. The study used bivariate analysis, multiple-linear regression, and factorial ANOVA to analyze the data gathered, with an alpha level of .05 set for the analysis. Undergraduate and graduate students enrolled in online classes offered by Tarleton State University were the target population for this study. A total of 377 individual online students participated.

Bivariate correlation was used to examine possible relationships between instructor immediacy and instructor presence, and a statistically significant correlation was found. Multiple linear regression analysis was used to determine whether the linear combination of instructor immediacy and presence caused significant variance in student affective learning, cognition, and motivation. For all three of the aforementioned dependent variables, the linear combination of instructor immediacy and presence was found to cause statistically significant variance. However, although the overall regression models were significant in all three tests, instructor immediacy was not found to be a significant individual predictor for causing variance in affective learning, cognition, or motivation, whereas instructor presence was found to be a significant individual predictor of all three. Finally, factorial ANOVA was used to examine whether gender, classification, or course type explained significant variance in students' perceptions of instructor immediacy and presence. For perceptions of instructor immediacy, only classification and course type were found to explain significant variance, with undergraduate students in asynchronous courses reporting significantly lower instructor immediacy. For perceptions of instructor presence, graduate students tended to rate their instructors as having higher presence than did undergraduate students, and students in synchronous courses tended to rate their instructors as having higher presence than did students in asynchronous courses.

### Conclusions

The analysis of the data for this study fits in well with prior immediacy and presence study findings in terms of simple correlations between variables. Previous research on instructor immediacy in online learning environments has shown positive

relationships with student affective learning and cognition (Arbaugh, 2001; Baker, 2004; McAlister, 2001; Ni, 2004), and this study supports those findings, with a positive correlation between instructor immediacy and student affective learning, and between instructor immediacy and student cognition. Student motivation was an outcome variable that had not been previously examined in relation to instructor immediacy in the online learning environment. The data analysis adds a positive correlation between instructor immediacy and motivation to the growing body of research. Similarly, instructor presence has been shown in previous studies to be positively related to cognition and affective learning (Richardson & Swan, 2003; Russo & Benson, 2005; Wise et al., 2004), but few studies have examined the construct in relation to student motivation. The data analyzed in this study revealed a significant positive relationship between instructor presence and student motivation and reiterated previous studies' reports of positive relationships with student affective learning and cognition. The positive relationships lend credence to the assertion that further investigations into the nature of these relationships and how they might impact the online learning environment is needed.

**Ho1: There is no statistically significant correlation between perceived instructor immediacy and perceived instructor presence in online classes.**

In this study, a statistically significant correlation was found between instructor immediacy and presence, and Hypothesis 1 was rejected. This is not surprising given the nature of the two constructs. Garrison et al. (2000) described three components of instructor presence in an online course; instructional design and organization, facilitating discourse, and direct instruction. Among the three components that make up instructor presence, verbal immediacy behaviors support the component of facilitating discourse.

As Arbaugh and Hwang (2003) noted, instructors who have well-established presence in online courses have developed consistent patterns of interaction, communicated accessibility, provided consistent and substantive feedback, moderated discussions effectively, and provided content expertise through discussion posts to restart stalled discussions. Immediacy fits well into this construct and includes specific behaviors that decrease the psychological distance between instructor and learner and also correlate positively with instructor presence. This study adds a new correlational finding to the existing literature on both immediacy and presence and how the two constructs are related.

**Ho2: There is no statistically significant variation between instructor immediacy and presence and student affective learning in online classes.**

The analysis in this study delved further into the positive correlations reported in this and other studies using multiple linear regression to determine how well instructor immediacy and presence might explain variance in student's affective learning. While the overall regression model did show that the linear combination of instructor immediacy and presence caused significant variance in the dependent variable of affective learning, instructor immediacy was not shown to be a significant individual predictor, and instructor presence was shown to be a significant individual predictor. This finding supports the one existing study regarding instructor presence and its predictive influence on affective learning (Wise et al., 2004), however further studies are needed to substantiate its predictive validity. While positive correlations were found in this study that support previous immediacy research (Arbaugh, 2001; Baker, 2004; McAlister, 2001; Whyte et al., 2003), instructor immediacy was not found to be a

significant individual predictor of student affective learning. This adds a new finding to this growing body of literature regarding the predictive value of instructor immediacy in online courses on student affect. Despite research that has suggested that verbal and nonverbal behaviors are two separate constructs for face-to-face environments (Robinson & Richmond, 1995) and that immediacy can be conveyed in mediated forms (O'Sullivan et al., 2004), the online environment may skew a student's perception of this. In other words, it may be harder (without the enhancement of nonverbal cues such as smiling, nodding, leaning in, etc.) for an instructor to convey verbally immediate behaviors or for students to interpret the behaviors as well as they could in a face-to-face learning environment. Another plausible explanation for this finding is that instructor presence encompasses a larger group of instructor behaviors than immediacy and even includes immediate behaviors in the realm of facilitating discourse. The characteristic of facilitating discourse is associated with sharing meaning, identifying areas of agreement and disagreement, and seeking to reach consensus and understanding. Therefore, within the construct of instructor presence, facilitating discourse requires more from an instructor than using verbally immediate cues alone. Moreover, Anderson et al. (2001) noted that it requires the instructor to review and comment upon student comments, raise questions and make observations to move discussions in a desired direction, revive a stalled discussion, and draw in non-participative students. Thus, instructor presence is a broader construct with more ways of influencing student affective learning than instructor immediacy.

**Ho3: There is no statistically significant variation between instructor immediacy and presence and student cognition in online classes.**

The analysis in this study also used multiple linear regression to determine how well instructor immediacy and presence might explain variance in student's cognition. While the overall regression model showed that the linear combination of instructor immediacy and presence caused significant variance in student cognition, it did not show instructor immediacy to be a significant individual predictor. However, it did show instructor presence to be a significant individual predictor of student cognition. The literature regarding instructor presence and its predictive influence on student learning has shown mixed results. This study supports Richardson and Swan's (2003) finding that significant variance in learning could be predicted by student perceptions of the presence of the instructor, but refutes a similar study from Wise et al. (2004) that reported that instructor presence had no effect on student learning.

A possible explanation for this study's finding that instructor presence is a significant predictor of student cognition whereas instructor immediacy is not is that instructor presence includes more instructional facets than immediacy. As noted in the previous section, instructor presence includes three components: instructional design, facilitating discourse and providing direct instruction. Of the three components of instructor presence, instructional design may have the strongest impact on student cognition. In the realm of instructional design, the instructor plans and prepares a formal path of study designed to foster learning. This supports Anderson's et al. (2001) assertion that, through adequate teaching presence, formal learning that facilitates personally relevant and educationally defined outcomes are achieved.

While almost all of the studies regarding instructor immediacy in online learning environments have reported positive correlations with student cognition (Arbaugh, 2001;

Baker, 2004; McAlister, 2001; Ni, 2004), it has yet to be shown as a statistical significant predictor of cognition. This study supports the correlational findings, but calls into question the predictive validity of instructor immediacy on student cognition.

**Ho4: There is no statistically significant variation between instructor immediacy and presence and student motivation in online classes.**

Multiple linear regression was the statistical test used to determine how well instructor immediacy and presence might explain variance in student's motivation. The overall regression model showed that the linear combination of instructor immediacy and presence caused significant variance in student motivation. However, it did not show instructor immediacy to be a significant individual predictor, whereas it did show instructor presence to be a significant individual predictor. Prior to this study, specific research on instructor immediacy as a predictor for motivation in an online environment had not been conducted, nor had any studies surfaced in the literature that investigated instructor presence in relation to student motivation in an online learning environment. Thus, the findings in this study add new knowledge in this area of research. While much of the research regarding instructor immediacy has reported positive correlations with student motivation like the one demonstrated in this study (Arbaugh, 2001; Baker, 2001; Christophel, 1990), the data analyzed for this research did not show that instructor immediacy was a statistically significant predictor of student motivation in an online course. However, it did find instructor presence to be a statistically significant predictor of student motivation. As with the other dependent variables in this study, motivation seems to be significantly impacted by the multiple dimensions of instructor presence, whereas verbal immediate cues have not shown to be a significant predictor.

**Ho5: There is no statistically significant variation between perceived instructor immediacy and student gender, classification (undergraduate or graduate), or course type (synchronous or asynchronous communication) in online classes.**

Factorial ANOVA was used to examine whether gender, classification, or course type explained significant variance in perceptions of instructor immediacy. Only classification and course type were found to explain significant variance, with undergraduate students in asynchronous courses reporting significantly lower instructor immediacy. The data collected in this study show that the perception of instructor immediacy is enhanced in synchronous courses. The importance of course type (synchronous and asynchronous) on a student's perceptions of immediacy and presence, coupled with the positive correlations between immediacy, presence, student affective learning, cognition, and motivation, illuminate the necessity of incorporating synchronous activities into the online learning environment. A new finding generated in this study was that classification explained variance in student's perceptions of instructor immediacy, with undergraduate students perceiving a lower level of immediacy than did graduate students. This may be attributed to the size of undergraduate classes being larger than that of graduate courses. Undergraduate courses at the studied institution averaged 20 to 21 students per online course, while graduate online courses averaged 13 to 14 students during the data collection period. In a smaller class, the instructor has more opportunities to converse and provide feedback than with a larger class.

**Ho6: There is no statistically significant variation between perceived instructor presence and student gender, classification (undergraduate or graduate), or course type (synchronous or asynchronous communication) in online classes.**

Similar to hypothesis 5, the data analysis for hypothesis 6 revealed that students in synchronous courses tended to rate their instructors as having higher presence than did students in asynchronous courses. This directly supports research by Nippard and Murphy (2007), who found that manifestations of instructor presence occurred primarily through the use of synchronous activities. Likewise, graduate students tended to rate their instructors as having higher presence than undergraduate students did. Like the findings for immediacy, this may be attributed to class size. Undergraduate courses at the studied institution averaged 20 to 21 students per online course, while graduate online courses averaged 13 to 14 students during the data collection period. In a smaller class, the instructor has more opportunities to demonstrate adequate instructor presence than with a larger class. Both of these findings further substantiate the importance of synchronous activities in an online course, and demonstrate that classification does play a role in how instructor presence is perceived.

#### *Additional Observations*

Several researchers (Arbaugh, 2001; Baker, 2004; Ni, 2004) called for more research on how online course experience and culture might impact perceptions of instructor immediacy. In this study, not enough participants indicated a foreign exchange status ( $n = 12$ ) to conduct an appropriate analysis. However, online course experience was analyzed and was not found to cause significant variance in a student's reported instructor immediacy score. Investigations into the influence of the variable on perceived instructor presence yielded similar results. Online course experience was not found to cause significant variance in student's reported instructor presence scores.

## Recommendations for Future Research

As with many research paths, the findings from this study introduce many more divergent areas of inquiry that other researchers can follow. This section describes some of the relevant issues that might be pursued in future research regarding online learning and the impact of instructor immediacy and presence.

### *Instructor Immediacy*

A major finding of this study was that, while instructor immediacy was shown to be positively related to student affective learning, cognition, and motivation, it was not shown to be a significant predictor. Follow-up studies at different institutions and/or with larger student populations are necessary to continue investigations into the nature of the relationships previously reported. Because of the findings in this study, it would be useful for future online immediacy research to examine how well immediate behaviors are actually conveyed in an online course. The researcher might examine the importance of the different verbal cues and how various online media or live video Web conferences might better convey them. The opportunity for experimental research to determine the most effective mix of immediate behaviors on student learning outcomes is another obvious direction for future research. It is also important to examine variables not investigated in this study (e.g., sense of learning community, generational differences, types and frequency of interaction) and how they might be influenced by instructor immediacy. Another obvious area of research involves examining immediacy within a blended learning environment. Blended courses combine traditional face-to-face instruction with online components, allowing an instructor to utilize both verbal and nonverbal cues in the immediacy construct. Since this study found that verbal cues

alone may not be enough to predict student affective learning, cognition, and motivation, an investigation into instructor immediacy in the blended learning environment is fertile research territory to explore.

### *Instructor Presence*

The major finding in this study with regard to instructor presence was that it is a significant predictor of student affective learning, cognition, and motivation. The regression analysis in this study should be replicated to substantiate these findings, and further research should be conducted to extend the regression testing by using different covariates in the models. The analysis in this study showed that the linear combination of instructor immediacy and presence significantly increased student's level of reported affective learning, cognition, and motivation. The results showed that 54% ( $R^2 = .56$ ) of the variance in student affective learning scores, 46% ( $R^2 = .46$ ) of the variance in student cognition scores, and 38% ( $R^2 = .38$ ) of the variance in student motivation scores could be accounted for by the linear combination of instructor immediacy and presence, with presence being the single significant predictor. Future research should focus on other indicators that can explain possible variance in the dependent variables in this study. Possible variables not examined in this research (e.g., the student's sense of learning community, student commitment to the class, perceived instructor credibility) and how they are influenced by instructor presence should be examined. Studies that examine different institutions and larger populations of students to investigate the nature of the impact of instructor presence on the student experience in online courses are necessary. Experimental studies that manipulate the three components of instructor presence in relation to the variables in this study will be a vital contribution as well.

Another finding of this study was that students enrolled in synchronous courses found their instructors to have higher presence than did students enrolled in asynchronous courses. Similarly, graduate students tended to perceive their instructors as more present in their online course. An investigation into other specific learner characteristics (e.g., culture, technology proficiency, computer anxiety, etc.) and how this influences perceptions of instructor presence would be of value in this field of research. The findings from this study regarding instructor presence can serve as a springboard from which to launch further investigations into how it might influence online learning.

#### *Instrument Refinement*

In this study, instructor immediacy was measured via Gorham's (1988) original Verbal Immediacy Scale. The weaker effect of instructor immediacy demonstrated in this analysis could be attributed in part to the scale being more applicable for a face-to-face learning environment. More research is needed to examine whether all of the verbally immediate cues identified by Gorham for face-to-face environments actually translate into the online learning environment. Future researchers may try to refine Gorham's scale to include more narrowly defined verbally immediate behaviors.

Another instrument that will need future refinement is the Richmond et al. (1987) Learning Loss Scale to measure student's perceive cognition. Cronbach's alpha for the Learning Loss Scale was found to be .69 in this study. Because Cronbach's alpha increases with the number of items on a scale, the lower  $\alpha$  of .69 is not surprising for a scale with only two items. Nunnally (1975) asserted that the easiest way to improve the reliability of an instrument is to lengthen it. Subsidiary analysis using the Spearman-Brown prophecy formula for improving Cronbach's alpha showed that adding 4.8 items

to the scale would improve the instruments' reliability level to the .70 level. Thus, future researchers may want to extend the scale to include additional validated questions that allow students to give a better estimate of their learning through closer self-reflection.

### Summary

This study sought to examine instructor immediacy and presence in an online learning environment in relation to student affective learning, cognition, and motivation. It found a statistically significant positive relationship between instructor immediacy and presence. It also found that the linear combination of instructor immediacy and presence is a statistically significant predictor of student affective learning, cognition, and motivation. However, it did not find instructor immediacy to be a significant individual predictor of the aforementioned variables, whereas it did find instructor presence to be a significant individual predictor. The study did not show the combination of gender, course type and classification to explain significant variance in perceived instructor immediacy or presence. However, students in synchronous online courses reported significantly higher immediacy and presence. Furthermore, graduate students in online courses reported significantly higher immediacy and presence.

This study has contributed to the growing body of research designed to understand the dynamics involved with effective online instruction. Researchers and practitioners interested in studying immediacy and presence in online learning environments should examine varying populations and dependent variables in relation to immediacy and presence. The opportunity for experimental research to determine the most effective instructional strategies for improving student learning outcomes is another obvious direction for future research. Finally, a divergent area of research

recommended in this study involves examining instructional strategies like instructor immediacy and presence in the blended learning environment. The field of research surrounding effective online instruction is growing; however, further empirical research studies are needed to provide practitioners with practical strategies tied to proven results.

APPENDIX A  
ONLINE STUDENT SURVEY

# Online Student Survey

## Informed Consent Statement

The purpose of this research study is to examine relationships between an instructor's immediacy and presence in an online course with student motivation, affective learning, and cognition. You may refuse to participate in this study. If you agree to participate, you are free to withdraw at any time.

To participate in the study, you are asked to complete and submit an anonymous online survey. Completion of the survey will take approximately 10-15 minutes. There are no known risks for participating in the study, and all submissions will be kept anonymous by the researcher. The results of this study could potentially provide online instructors with a better understanding of best practices and teaching strategies in online learning environments that can benefit their students.

This research study has been reviewed and approved by both the TSU and UNT Institutional Review Boards. Contact the UNT Institutional Review Board (940-565-3940) with any questions regarding your rights as a research subject. For questions about this study, you may contact the Principle Investigator (254-968-1843).

By selecting 'I Affirm' below, you affirm that you have read the statement of informed consent and that you have not previously completed this survey.

I Affirm

---

## What is your classification?

- Undergraduate
- Graduate

## Is this the first online course you've taken?

- Yes
- No

## What is your gender?

- Male
- Female

## Are you a foreign exchange student visiting Tarleton?

- Yes
- No

## Has your instructor ever used the Chat Room or Who's Online tool to hold some class sessions?

- Yes
- No

Consider the behavior of your instructor in your online course when responding to the following statements. Please note that some survey items refer to traditional class settings (i.e. they mention doing things "in class" or "after class") but you should answer them within the context of your online course.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The instructor uses personal examples or talks about experiences she/he had outside of class	<input type="radio"/>				
The instructor asks questions or encourages students to respond	<input type="radio"/>				
The instructor gets into discussions based on something a student brings up even when this doesn't seem to be part of his/her plan	<input type="radio"/>				
The instructor uses humor in the course	<input type="radio"/>				
The instructor addresses students by name	<input type="radio"/>				
The instructor addresses me by name	<input type="radio"/>				

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The instructor gets into conversations with individual students before or after class	<input type="radio"/>				
The instructor has initiated conversations with me before, after or outside of class	<input type="radio"/>				
The instructor refers to class as "our" class or what "we" are doing	<input type="radio"/>				
The instructor provides feedback on my individual work through comments on papers, discussions etc.	<input type="radio"/>				

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The instructor calls on students to answer questions even if they have not indicated that they want to talk	<input type="radio"/>				
The instructor asks how students feel about an assignment, due dates, or discussion topics	<input type="radio"/>				
The instructor invites students to telephone or chat sessions outside of class if they have questions or want to discuss something	<input type="radio"/>				
The instructor asks questions that solicit viewpoints or opinions	<input type="radio"/>				

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The instructor praises students' work, actions or comments	<input type="radio"/>				
The instructor will have discussions about things unrelated to class with individual students or with the class as a whole	<input type="radio"/>				
The instructor is addressed by his/her first name by the students	<input type="radio"/>				

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	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
<b>Please answer the following questions about your instructor.</b>					
Overall, the instructor clearly communicated important course goals (for ex., provided documentation on course goals)	<input type="radio"/>				

Overall, the instructor clearly communicated important course topics (for ex., provided a clear and accurate course overview)	<input type="radio"/>				
Overall, the instructor provided clear instructions on how to participate in course learning activities (for ex., provided clear instructions on how to complete course assignments successfully)	<input type="radio"/>				
Overall, the instructor clearly communicated important due dates/time frames for learning activities that helped me keep pace with this course (for ex., provided a clear and accurate course schedule, due dates etc.)	<input type="radio"/>				
Overall, the instructor helped me take advantage of the online environment to assist my learning (for ex., provided clear instructions on how to participate in online discussion forums)	<input type="radio"/>				

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall, the instructor for this course was helpful in identifying areas of agreement and disagreement on course topics that assisted me to learn	<input type="radio"/>				
Overall, the instructor was helpful in guiding the class towards understanding course topics in a way that assisted me to learn	<input type="radio"/>				
Overall, the instructor acknowledged student participation in the course (for example, replied in a positive, encouraging manner to student submissions)	<input type="radio"/>				
Overall, the instructor encouraged students to explore new concepts in this course (for example, encouraged the exploration of new ideas)	<input type="radio"/>				
Overall, the instructor helped to keep students engaged and participating in productive dialog	<input type="radio"/>				

Overall, the instructor helped keep the participants on task in a way that assisted me to learn	<input type="radio"/>				
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	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Overall, the instructor presented content or questions that helped me to learn	<input type="radio"/>				
Overall, the instructor helped me to focus discussion on relevant issues in a way that assisted me to learn	<input type="radio"/>				
Overall, the instructor provided explanatory feedback that assisted me to learn (for example, responded helpfully to discussion comments or course assignments)	<input type="radio"/>				
Overall, the instructor helped me to revise my thinking (for example, correct misunderstandings) in a way that helped me to learn	<input type="radio"/>				
Overall, the instructor provided useful information from a variety of sources that assisted me to learn (for example, references to articles, textbooks, personal experiences or links to relevant external websites)	<input type="radio"/>				

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**On a scale of 0-9, how much have you learned in the online class you are in now, with 0 meaning you learned nothing, and 9 meaning you learned more than in any other class you've ever had.**

0    1    2    3    4    5    6    7    8    9

**On a scale of 0-9, how much do you think you could have learned in this class had you had the ideal instructor, with 0 meaning you could have learned nothing, and 9 meaning you could have learned more than in any other class you've ever had?**

0    1    2    3    4    5    6    7    8    9

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Please indicate the number which best describes your feelings, in general, about this online course.

- Motivated     1    2    3    4    5    6    7    Unmotivated
- Interested     1    2    3    4    5    6    7    Not Interested
- Involved     1    2    3    4    5    6    7    Not Involved
- Not Stimulated     1    2    3    4    5    6    7    Stimulated
- Don't Want to Study     1    2    3    4    5    6    7    Want to Study
- Inspired     1    2    3    4    5    6    7    Not Inspired
- Unchallenged     1    2    3    4    5    6    7    Challenged
- Uninvigorated     1    2    3    4    5    6    7    Invigorated
- Unenthused     1    2    3    4    5    6    7    Enthused
- Excited     1    2    3    4    5    6    7    Not Excited
- Aroused     1    2    3    4    5    6    7    Not Aroused
- Not Fascinated     1    2    3    4    5    6    7    Fascinated
- 

My attitude about the content of this course:

- Good     1    2    3    4    5    6    7    Bad
- Worthless     1    2    3    4    5    6    7    Valuable
- Fair     1    2    3    4    5    6    7    Unfair
- Positive     1    2    3    4    5    6    7    Negative

**My attitude about the behaviors recommended in this course:**

- Good**    1    2    3    4    5    6    7   **Bad**
- Worthless**    1    2    3    4    5    6    7   **Valuable**
- Fair**    1    2    3    4    5    6    7   **Unfair**
- Positive**    1    2    3    4    5    6    7   **Negative**

**My attitude about the instructor of this course:**

- Good**    1    2    3    4    5    6    7   **Bad**
- Worthless**    1    2    3    4    5    6    7   **Valuable**
- Fair**    1    2    3    4    5    6    7   **Unfair**
- Positive**    1    2    3    4    5    6    7   **Negative**

**My likelihood of attempting to engage in the behaviors recommended in this course:**

- Likely**    1    2    3    4    5    6    7   **Unlikely**
- Impossible**    1    2    3    4    5    6    7   **Possible**
- Probable**    1    2    3    4    5    6    7   **Improbable**
- Would**    1    2    3    4    5    6    7   **Would Not**

**My likelihood of enrolling in another course of related content, if I had the choice and my schedule permits: (If you are graduating, assume you would still be here)**

- Likely**    1    2    3    4    5    6    7   **Unlikely**
- Impossible**    1    2    3    4    5    6    7   **Possible**
- Probable**    1    2    3    4    5    6    7   **Improbable**
- Would**    1    2    3    4    5    6    7   **Would Not**

**My likelihood of taking another course with the instructor in this course, if I have a choice,**

is: (If you are graduating, assume you would still be here)

- Likely    1    2    3    4    5    6    7   Unlikely
- Impossible    1    2    3    4    5    6    7   Possible
- Probable    1    2    3    4    5    6    7   Improbable
- Would    1    2    3    4    5    6    7   Would Not

APPENDIX B

REQUEST FOR PARTICIPATION E-MAIL

Greetings, 'MGMT 301-040' Online Students:

## Take a Quick Survey - Enter to Win a Cool Prize!



Your instructor has granted me permission to invite you to take an online survey that will be part of a dissertation study regarding online learning. The survey is completely anonymous, and will take you approximately 10-15 minutes to complete.

The survey will ask you questions about your experiences in this online course. Please only take the survey ONE TIME. The survey will be open for a two-week period until August 4<sup>th</sup> at 11:59pm.

After you complete the survey, you will be re-directed to a separate, secure form to enter yourself in a drawing for one of three prizes: a \$25 Gas card, a \$50 Gas card, or an iPod Shuffle with a \$15 iTunes Gift Card. Winners will be notified via e-mail on August 4<sup>th</sup>.

Please click the link below to proceed to the survey:

<http://survey01.tarleton.edu/efm/wsb.dll/s/4eg104>

APPENDIX C

IRB APPROVAL LETTER - TARLETON STATE UNIVERSITY



Department of Social Work, Sociology, and Criminal Justice  
Box T-0665, Stephenville, Texas 76402  
254/968-9024 Fax 254/968-9288

6/27/08

Dr. Kenneth Sewell  
University of North Texas  
Denton, Texas

Dear Dr. Sewell:

The Internal Review Board for Human Subjects of Tarleton State University reviewed the application submitted by Ms. Credence Baker and Dr. George Mollick entitled *Instructor Immediacy and Presence in the Online Learning Environment: An Investigation of Relationships with Student Motivation, Affective Learning, and Cognition* on June 5, 2008 and determined it to be exempt based on federal guidelines and Texas A&M System and Tarleton State University policy. The application was assigned number 2008-060508-8055 and filed as approved/exempt.

Please contact me if I may be of further assistance.

Sincerely yours,

A handwritten signature in blue ink, appearing to read "M. George Eichenberg".

M. George Eichenberg, Ph.D.  
Chair, IRB-Human Subjects

APPENDIX D

IRB APPROVAL LETTER – UNIVERSITY OF NORTH TEXAS



OFFICE OF THE VICE PRESIDENT FOR RESEARCH  
Office of Research Services

June 27, 2008

Credence Baker  
Department of Learning Technologies  
University of North Texas

RE: Human Subjects Application No. 08198

Dear Ms. Baker:

In accordance with 45 CFR Part 46 Section 46.101, your study titled "Instructor Immediacy and Presence in the Online Learning Environment: An Investigation of Relationships with Student Affective Learning, Cognition, and Motivation" has been determined to qualify for an exemption from further review by the UNT Institutional Review Board (IRB).

No changes may be made to your study's procedures or forms without prior written approval from the UNT IRB. Please contact Shelia Bourns, Research Compliance Administrator, ext. 3940, if you wish to make any such changes.

Sincerely,

Kenneth W. Sewell, Ph.D.  
Chair  
Institutional Review Board

KS:sb

CC: Dr. Jeff Allen

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