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The Effects of Nonverbal and Verbal Immediacy on Recall and Multiple Student Learning Indicators

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ABSTRACT

A 2 x 2 experiment was conducted in which instructor nonverbal immediacy and verbal immediacy were manipulated in a college classroom to examine causal links with cognitive and affective learning outcomes. Previous criticisms concerning immediacy and learning research were considered and multiple operationalizations of cognitive learning (i.e., recall, learning loss, learning indicators) and affective outcomes (i.e., affective learning, state motivation, student satisfaction) were investigated in light of these criticisms. Students in the high nonverbal/high verbal immediacy condition performed significantly better on a recall test, accounting for 8% of the variance. However, no differences in perceived learning outcomes (i.e., learning loss, learning indicators, affective learning, state motivation, student satisfaction) were observed as a result of nonverbal or verbal immediacy manipulation. Additionally, all perceived learning outcomes were correlated with one another while recall scores were uncorrelated.

INTRODUCTION

Among many effective teaching behaviors (Nussbaum, 1992), instructor immediacy has been considered one of the most well-researched and influential behaviors in the history of instructional communication research (Richmond, Lane, & McCroskey, 2006). However, as Witt, Wheeless, and Allen (2004, p. 184) noted, "in the research area of instructional communication, no other construct has received more attention, or sparked more controversy during recent years." The foremost controversy concerning immediacy research has revolved around the litigious results between immediacy and learning outcomes. Specifically, some debate has arisen regarding the specific link between instructor immediacy and cognitive learning (Chesebro, 2003; Comstock, Rowell, & Bowers, 1995; Kelley & Gorham, 1988; Titsworth, 2004; Witt & Wheeless, 2001) as well as operationalizations of both variables (Frymier & Thompson, 1995; Hess, Smythe, & Communication 451; Smythe & Hess, 2005). Several criticisms regarding previous immediacy research in instruction have surfaced (e.g., Hess et al., 2001). Given these criticisms and the inconsistencies in previous studies, the purpose of this study was to examine the effects of instructor verbal and nonverbal immediacy on student learning outcomes (i.e., cognitive and affective outcomes) while taking into consideration the extant criticisms.

Immediacy in Instruction

According to Mehrabian (1971, p. 1), immediacy is when people are drawn toward persons and things they like, evaluate highly, and prefer; and they avoid or move away from things they dislike, evaluate negatively, or do not prefer. Immediacy behaviors reduce physical or psychological distance between people (Andersen, 1979). Verbal immediacy includes the way one uses words and language to convey interest (Gorham, 1988) whereas nonverbal immediacy includes behaviors such as vocal expressiveness, eye contact, smiling, and gesturing which imply a reaching out (Andersen, 1979). Generally, nonverbal immediacy is considered to be more important than verbal immediacy for student learning (Christophel, 1990; Witt et al., 2004). A bulk of the research examining immediacy in the instructional context has focused on three outcomes: affective learning, motivation, and cognitive learning.

Affective Learning

Affective learning involves student feelings, emotions, and degrees of acceptance toward the subject matter (Krathwohl, Bloom, & Masia, 1964). Researchers have consistently reported positive linear relationships between teacher immediacy and affect toward the teacher and/or course (Allen, Witt, & Wheeless, 2006; Andersen, 1979; Christophel, 1990; Frymier & Houser, 2000; Gorham, 1988; Kearney, Plax, & Wendt-Wasco, 1985; Mottet, Parker-Raley, Beebe, & Cunningham, 2007; Plax, Kearney, McCroskey, & Richmond, 1986; Pogue & AhYun, 2006; Richmond, Gorham, & McCroskey, 1987; Rodriguez, Plax, & Kearney, 1996). However within this domain, there are inconsistent results on the levels of teacher immediacy that are associated with optimal levels of student affective learning. In an experimental design, Witt and Wheeless (2001) reported that teachers who use high levels of immediacy, either verbal or nonverbal, caused more increases in affective learning compared to teachers who use low levels of immediacy. In contrast, Comstock et al. (1995) suggested a curvilinear relationship (inverted U) between nonverbal immediacy and affective learning in which moderate levels of teacher immediacy are the most effective for student affective learning. Despite the employed levels of teacher immediacy, it is viable to conclude that teacher immediacy and student affective learning are related positively. Rodriguez et al. (1996) and Allen et al. (2006) have revealed that affective learning is so salient, that it is the central causal mediator between teacher immediacy and student cognitive learning.

Motivation

State motivation to learn refers to student attempts to obtain academic knowledge or skills from classroom activities by finding these activities meaningful (Brophy, 1987).

Immediacy is correlated positively with student motivation, a factor which was found to have an impact on students' cognitive learning. Both Christophel (1990) and Christophel and Gorham (1995) discovered a positive relationship between student perceptions of instructor verbal and nonverbal immediacy with self-reports of student motivation. Student state motivation was also related positively to perceptions of cognitive learning. Other researchers agree that motivation is the link between teacher immediacy and student learning (Chesebro & McCroskey, 2001; Christensen & Menzel, 1998; Richmond, 1990). More attention however, has been given to cognitive learning.

Cognitive Learning

Cognitive learning ranges from the simple retention of information to complex synthesis of material (Bloom, Hastings, & Madaus, 1971). In an effort to improve student retention and achievement, research has examined the relationship between teacher immediacy and student cognitive learning. First, there is mixed evidence to support the short-term effects of immediacy on cognitive learning. Although Kelly and Gorham (1988) revealed that short-term recall was correlated positively with immediacy, Titsworth (2001) discovered that students who perceived their instructors as immediate performed worse on short-term recall assessments.

Several studies using self-reports of perceived cognitive learning have been linked to instructor immediacy (e.g., Christensen & Menzel, 1998; Christophel, 1990; Sanders & Wiseman, 1990). However, experimental studies (e.g., Chesebro, 2003; Titsworth, 2004) suggest that instructor immediacy does not necessarily cause increases in student learning. Certainly, immediate teachers are well-liked and make class enjoyable (Hackman & Walker, 1990; Moore, Masterson, Christophel, & Shea, 1996), but the evidence of a direct relationship between immediacy and cognitive learning is questionable. In studies by Andersen (1979) and Andersen and Withrow (1981), immediacy had no effect on students' cognitive learning.

Statement of the Problem

A review of the literature assessing instructor immediacy and learning outcomes yields some inconsistent results. However, researchers have ascertained several reasons as to why incompatible findings have surfaced, especially findings concerning cognitive learning. The inconsistency of these findings is arguably due to (a) lack of experimental design, (b) reliance on student perceptions of instructor immediacy, and (c) cognitive learning measurement problems. The current study attempts to take these three considerations into account from a methodological standpoint.

Lack of Experimental Design

As elucidated by Smythe and Hess (2005, p. 171), the first problem with immediacy research in the instructional context is that "with the exception of a few studies that experimentally manipulated teacher immediacy, virtually every study shares a common methodological foundation: teacher immediacy is measured by retrospective student report." Given the lack of experimental studies, it is unfortunate that many researchers have made causal claims or inferred causality between immediacy and learning when their data is inappropriate to do so. Most immediacy studies have not used experimental designs, but rather have relied on correlational analyses. It is inappropriate to make causal claims with correlations considering that correlations provide the strength and direction of linear relationships but do not imply that one variable causes another variable. A plethora of studies have directly made causal claims or has inferred causality

with survey data. As Hess et al. (2001, p. 203) explained "a substantial portion of the claims of causality in the immediacy-cognitive learning relationship are based on data that are ill-suited to support claims of causality." Other researchers have cautioned against interpreting cognitive learning findings from survey research (Comstock et al., 1995; Witt & Wheeless, 2001). In fact, instructor immediacy has failed to cause substantial, if any, increases in cognitive learning in several experimental studies (e.g., Chesebro, 2003; Titsworth, 2004; Witt & Wheeless, 2001). Therefore, the current study employed an experimental design in light of Hess et al.'s (2001) recommendation.

Student Perceptions of Instructor Immediacy

The second problem with immediacy research in the instructional context is that student perceptions of instructor immediacy have been suspect. Hess et al. (2001, p. 201) argued that "too many studies rely on student reports of teacher immediacy...these perceptions may be biased by student judgments on other factors." Essentially, Hess et al. (2001) suggested that the relationship between student perceptions of instructor immediacy and self-reports of learning may be due to halo effects. That is, students who form favorable impressions of an instructor are likely to rate that instructor as immediate, and subsequently believe they have learned more in that class. Additional evidence has been provided that suggests student perceptions of immediacy may be flawed. Smythe and Hess (2005) discovered that student perceptions of instructor immediacy were not correlated with observer reports, bringing into question the validity of student reports. Therefore, the current study did not rely on student perceptions of instructor immediacy but rather the manipulation of observable instructor behavior which was validated by a manipulation check.

Operationalizing Cognitive Learning

A third problem with immediacy research in the instructional context is that a majority of immediacy studies use one or two item self-report cognitive learning measures. These measures are problematic because they do not represent the complexities of the learning process, students are not qualified to accurately report on how much they learned, and students tend to base their perceived levels of learning around their attitude toward the instructor and the course (Hess et al., 2001). The most common self-report measure of perceived cognitive learning is the cognitive learning loss measure (Richmond, McCroskey, Kearney, & Plax, 1987), in which students report on how much they think they learned along with how much they would have learned with an ideal instructor. As Witt et al. (2004, p. 189) noted, "this practice, though widespread during the 1990s, was by no means universally accepted by communication and education scholars." Indeed, Richmond et al. (1987, p. 581) recognized that this "subjective measure would almost certainly be confounded to an unknown extent with affect." That being said, Witt and Wheeless discovered that the relationship between perceived learning (i.e., learning loss) and short term recall accounted for only 4% of the variance. Richmond et al. (2006) noted that a trend in immediacy research has been to investigate complex conceptions of learning. Considering the aforementioned criticisms forwarded by instructional communication scholars, the current study sought to operationalize cognitive learning in several ways (i.e., recall, learning loss, learning indicators) to (a) examine actual learning/recall due to experimental manipulation, (b) compare perceived learning to actual learning outcomes, and (c) examine learning indicators, which have yet to be studied as an outcome resulting from the experimental manipulation of instructor immediacy. Additionally, the current study examined affective learning outcomes (i.e., affective learning, motivation, satisfaction) resulting from instructor immediacy.

Empirical Rationale

Given the inconsistencies of findings between immediacy and learning in experimental versus survey designs (Witt, Wheeless, & Allen, 2006), the quandary involving student perceptions of instructor immediacy (Smythe & Hess, 2005), and the criticism of current oprerationalizations of cognitive learning (Hess et al., 2001), the current study involved a concerted effort to combat the aforementioned criticisms in three ways. First, given the plethora of extant survey research linking immediacy and learning and the relatively few number of experimental designs, this study provides additional experimental data in an attempt to shed more light on the inconsistent findings between methodologies. Second, this experiment used four conditions to manipulate observable behavior with an unknown lecturer instead of relying on student perceptions of immediacy which are formed throughout a semester. This methodology avoids potential halo effects that confound learning outcomes. Third, the current study used multiple operationalizations of cognitive learning including student recall, cognitive learning loss, and learning indictors in an attempt to triangulate findings from competing operationalizations. Consequently, a 2 x 2 experimental design was conducted to answer one controversial research question:

RQ: Does instructor nonverbal (low x high) and verbal (low x high) immediacy cause increases in learning outcomes (i.e., recall, perceived cognitive learning, affective learning, motivation, satisfaction)?

METHOD

Participants/Procedures

Participants were 202 students (96 men, 106 women) enrolled in one of four sections of a communication theory or research methods course at a Mid-Atlantic University. These courses were prerequisites for admission into the communication studies major. Four videotaped guest lectures were created. The lecture material was derived from a previously validated live lecture script[1] focusing on four topics on computer-mediated communication (CMC): new media literacy, organizational CMC, interpersonal CMC, and CMC in distance education. These topics were selected because students in our sample would not have been exposed to this material in other communication classes. Although the lecture material in each lecture remained constant, instructor verbal and nonverbal immediacy was manipulated in each of the videotaped lectures (i.e., low NVI, low VI; high NVI, high VI; low NVI/high VI; high NVI, low VI), with each course receiving one lecture. The videotapes were filmed in a new large lecture classroom with appropriate lighting and professional recording equipment. The lecturer in the videos was a male public speaking professor (29 years old) who was dressed professionally and lectured in an extemporaneous manner. The videotapes were created to be realistic and to be perceived as a possible tape submitted by a job applicant at the university where the data were collected. Therefore, some immediacy cues were exhibited in the even in the low conditions because the absence of any and all immediacy cues would be unrealistic and participants would likely perceive the instructor as incompetent and/or socially awkward. On the contrary, the immediacy cues in the high conditions were not manipulated particularly strongly either. Witt and Wheeless (2001) recommended that immediacy behaviors in experimental conditions should not be too drastic because participants might perceive such behaviors as insincere.

Videotape one (i.e., low NVI, low VI) contained the lecture material with lowered levels of nonverbal and verbal immediacy cues. Videotape two (i.e., high NVI, high VI) contained the same lecture material, but included increased nonverbal (i.e., eye contact, gesturing, vocal variety, smiling) and verbal immediacy cues (i.e., personal examples, inclusive language) during the lecture. Videotape three (i.e., low NVI/high VI) contained an increase in verbal immediacy cues only (i.e., personal examples, inclusive language) without an increase in nonverbal immediacy behaviors. Videotape four (i.e., high NVI/low VI) again contained the same lecture material with an increase in nonverbal immediacy cues (i.e., eye contact, gesturing, vocal variety, smiling) without an increase in verbal immediacy behavior.

Students in one of four classes were informed by the course instructor that they were to watch a videotape of a job applicant and their feedback would be solicited. After viewing a videotaped lecture, students were asked to complete a feedback survey about the guest lecturer. Participants completed a post-test consisting of the Nonverbal Immediacy Scale-Observer Report (Richmond, McCroskey, & Johnson, 2003) and the Perceived Verbal Immediacy Instrument (Jordan, 1989) as a manipulation check for each condition. They also completed the Cognitive Learning Loss Measure (Richmond et al., 1987), the Revised Cognitive Learning Indicators Scale (Frymier & Houser, 1999), the Affective Learning Scale (McCroskey, Richmond, Plax, & Kearney, 1985), the Student Motivation Scale (Richmond, 1990), and the Student Satisfaction Scale (Frymier & Houser, 1998) in addition to demographic questions. Furthermore, participants completed a multiple choice quiz consisting of five questions related to the videotaped lecture to measure student recall. Participants did not know the guest lecturer in videotapes.

Instrumentation

The *Nonverbal Immediacy Scale-Observer Report* is a 26-item measure that asks participants to report on observed nonverbal immediacy and nonimmediacy behaviors. Only 16 items were used from the scale because not all items reflected immediacy behaviors that were manipulated in the lecture (e.g., the instructor did not use touch). It uses a 5-point Likert-type response format ranging from (1) *never* to (5) *very often.* Richmond et al. (2003) reported reliability coefficients of .90 or above. In this study, the obtained Cronbach alpha was .90 (M = 63.10, SD = 9.10) for the summed 16 items.

The *Perceived Verbal Immediacy Instrument* is 21 items and asks participants to report on observed behaviors which communicate verbal immediacy. Only 11 items were used from the scale which reflected verbal immediacy cues manipulated in this study. Responses were solicited using a 7-point Likert-type scale ranging from (1) *strongly agree* to (7) *strongly disagree.* In this study, the obtained Cronbach alpha was .66 (M = 36.78, SD = 7.63) for the summed 11 items.

Cognitive Learning

Recall was measured using five multiple choice questions taken from the videotaped guest lecture. Four response options were provided (A, B, C, D) with only one objectively correct answer. Students quiz scores ranged from 1 to 5 (M = 3.75, SD = 1.16).

Perceived Cognitive Learning

The *Cognitive Learning Loss Measure* is two items and asks participants to report on how much they believe they

TABLE 1

Correlations Between Variables

Variables	1	2	3	4	5	6	7
1. Nonverbal Immediacy	---						
2. Verbal Immediacy	.54†	---					
3. Recall	.00	.12	---				
4. Learning Loss	-.23**	-.19**	.12	---			
5. Learning Indicators	.33†	.31†	-.16*	-.11	---		
6. Affective Learning	.70†	.45†	.00	-.21**	.54†	---	
7. State Motivation	.52†	.40†	.01	-.26†	.48†	.71†	---
8. Satisfaction	.61†	.39†	.06	-.24**	.44†	.79†	.81†

Note. ***p < .05. **p < .01. †p < .001.**

learned in a class, along with how much they would have learned with an ideal instructor. Learning loss is then measured by subtracting the student perceived learning score from the ideal learning score. Learning loss represents the discrepancy between the two scores (i.e., no loss occurs if they perceived learning and ideal learning are the same). Reponses were solicited using a 10-point semantic differential format ranging from (1) *not much* to (10) *a great deal.*

The *Revised Cognitive Learning Indicators Scale* is seven items and asks participants to report on behaviors or activities associated with learning course content. Responses were solicited using a 5-point Likert scale ranging from (0) *never* to (4) *very often*. Previous reliability coefficients ranging from .83 to .86 have been reported for the summed scale (Frymier, 2005; Frymier & Houser, 1999, 2000). In this study, the obtained Cronbach alpha was .76 (M = 17.41, SD = 4.01) for the summed scale.

Affective Outcomes

The *Affective Learning Scale* is 12 items and asks participants to report on their levels of affect for the course content, course instructor, and behaviors recommended in the course. Responses were solicited using three 7-point semantic differential subscales. Previous reliability coefficients between .95 and .96 have been reported for the summed scale (Ellis, 2000, 2004; Goodboy & Myers, 2008). In this study, the obtained Cronbach alpha was .91 (M = 64.56, SD = 10.69) for the summed scale.

The *Student Motivation Scale* is five items and asks participants to report on their levels of state motivation toward a specific course and instructor. Responses were solicited using a 7-point semantic differential scale. Previous reliability coefficients ranging from .89 to .93 have been reported for the summed scale (Myers & Zhong, 2004; Richmond, 1990; Weber, Martin, & Cayanus, 2005). In this study, the obtained Cronbach alpha was .88 (M = 24.11, SD = 5.17) for the summed scale.

The *Student Satisfaction Scale* is three items and asks participants to report on their feelings of satisfaction with their instructor. Responses were solicited using a 7-point semantic differential scale. Previous reliability coefficients ranging from .92 to .95 have been reported for the summed scale (Frymier, 2005; Frymier & Houser, 1998; Myers & Bryant, 2002). In this study, the obtained Cronbach alpha was .87 (M = 14.96, SD = 3.16) for the summed scale.

RESULTS

Prior to data analysis, a Pearson correlation matrix was computed among all variables.

TABLE 2

Results of ANOVAs Between Nonverbal/Verbal Immediacy and Learning Outcomes

	Mean Score					
	1	**2**	**3**	**4**	**F**	**η2**
Recall	**3.41a**	**4.24abc**	**3.51b**	**3.71c**	**5.29***	**.08**
Learning Loss	**0.95**	**1.19**	**0.93**	**1.21**	**0.37**	**.01**
Learning Indicators	**17.39**	**17.23**	**17.48**	**17.25**	**0.04**	**.00**
Affective Learning	**62.57**	**64.94**	**63.76**	**65.45**	**0.68**	**.01**
State Motivation	**24.07**	**23.74**	**24.41**	**24.02**	**0.13**	**.00**
Student Satisfaction	**14.20**	**15.40**	**14.44**	**15.55**	**2.20**	**.03**

Note. **1= Low NVI/Low VI, 44 participants. 2 = High NVI/High VI, 53 participants. 3 = Low NVI/High VI, 41 participants. 4 = HighNVI/Low VI, 53 participants. Means sharing subscripts across each row are significantly different from each other. *p < .01.**

Manipulation Check

A manipulation check was performed to determine if instructor nonverbal and verbal immediacy behaviors were manipulated adequately across the four recorded lecture conditions. Two independent samples t-tests were computed to observe if the high/low immediacy conditions discriminated between scores on the *Nonverbal Immediacy Scale-Observer Report* and *Verbal Immediacy Scale* serving as the outcome variables. Results of a t-test, t (165) = -3.10, $p < .01$, revealed that participants in the high nonverbal immediacy conditions (i.e., groups 2 and 4; M = 64.89, SD = 7.87) perceived the instructor as significantly more immediate than in the low nonverbal immediacy conditions (i.e., groups 1 and 3; M = 60.93, SD = 10.02). Results of another t-test, t (199) = -3.54, p < .001, revealed that participants in the high verbal immediacy conditions (i.e., groups 2 and 3; M = 52.64, SD = 6.75) perceived the instructor as significantly more immediate than in the low verbal immediacy conditions (i.e., groups 1 and 4; M = 49.24, SD = 6.82). Thus, the experimental manipulation of nonverbal and verbal immediacy across all four conditions was deemed successful. Although the immediacy manipulations were not drastic, the authors wanted to preserve ecological validity by depicting a realistic instructor through subtle increases in immediacy behavior. Previous research has drastically manipulated immediacy cues (i.e. no immediacy versus complete immediacy), which may not be representative of real instructor behavior at either extreme.

The research question inquired if instructor nonverbal and verbal immediacy caused increases in multiple learning outcomes. A Multivariate Analysis of Variance (MANOVA) was computed to examine this research question with the level of instructor immediacy (i.e., low/high NVI x low/high VI) serving as the independent variable and summed scores on the Recall Quiz, Cognitive Learning Loss Measure, Revised Cognitive Learning Indicators Scale, Affective Learning Scale, Student Motivation Scale, and Student Satisfaction Scale serving simultaneously as the dependent variables. The results yielded a statistically significant model, Wilks' λ = .80, F(18, 515) = 8.41, $p < .01$. However, univariate effects were only significant for the recall quiz, F(3, 187) = 5.29, $p < .01$, η^2 = .08. In this analysis, results of Levene's test of homogeneity of variance revealed that the variances between groups were significantly different (p = .03). Because ANOVA assumes normality and considering that equal variances were not assumed between groups, we used a conservative Tamhane's T2 post hoc analysis to correct for this assumption violation.

An examination of the mean scores using Tamhane's T2 post-hoc test revealed that recall scores in the High NVI/High VI condition (M = 4.24, SD = .93) were significantly greater than recall scores in the Low NVI/Low VI (M = 3.42, SD = 1.27), Low NVI/High VI (M = 3.52, SD = 1.23), and High NVI/Low VI (M = 3.70, SD = 1.09) experimental groups. No univariate effects were discovered for learning

loss, learning indicators, affective learning, state motivation, and student satisfaction.

DISCUSSION

The purpose of this experiment was to examine the effects of instructor nonverbal and verbal immediacy on numerous learning outcomes. Results indicated that student recall scores were significantly greater when the guest lecturer used higher levels of both nonverbal and verbal immediacy behaviors together. However, recall scores were not influenced by high levels of nonverbal immediacy alone nor high levels of verbal immediacy alone. Although Christophel (1990) found nonverbal immediacy to be more important for student learning whereas Christensen and Menzel (1998) discovered the contrary, results of the current study suggest that both nonverbal and verbal immediacy should be used in congruence to elicit real differences in student test performance. These results coincide with the meta-analysis conducted by Witt et al. (2006), which revealed higher learning correlations from studies which combined verbal and nonverbal immediacy into a single construct versus treating each variable independently.

However, no effects were discovered for the other two operationalizations of perceived cognitive learning (i.e., cognitive learning loss and learning indicators). Additionally, no effects were discovered for affective outcomes (i.e., affective learning, state motivation, student satisfaction) as a result of experimental manipulation. Interestingly, all perceived cognitive learning and affective outcomes were correlated with one another and also were correlated with student perceptions of instructor immediacy as measured from the manipulation check (see Table 1). These results suggest that student perceptions of immediacy are indeed related to all of the perceived learning outcomes measured in the posttest in the expected directions (besides recall). The criticisms provided by Hess and Smythe (2005) and Hess et al. (2001) may be valid in that students are not necessarily qualified to report on instructor immediacy and perceptions of learning may be confounded. As Witt et al. (2006, p. 161) explained, "students like more highly immediate teachers and think they learn more from their courses, but although actual cognitive learning improves, this improvement is not as dramatic as other measures of student learning." That is, student perceptions (e.g., perceived cognitive learning, affective learning) are influenced more by perceived immediacy; more so than actual changes in learning. Nonetheless, manipulated immediacy behavior did indeed have an effect on recall in the current study, accounting for 8% of the variance.

These results have two important implications. First, instructors should be cognizant of and implement nonverbal and verbal immediacy behaviors concurrently in their classrooms. Considering that the definitive goal of instructors is to foster student learning, actual recall/exam performance can be significantly increased through a series of simple teaching behaviors. Whether this effect is explained by a direct learning model (Anderson, 1979), motivation model (Christophel, 1990; Richmond, 1990), arousal model (Kelly & Gorham, 1988), affective learning model (Rodriguez et al., 1996), or integrating model (Zhang & Oetzel, 2006) is beyond the scope of this study. However, caution should be given when interpreting student perceptions of immediacy and learning outcomes. Although perceptions of instructor immediacy and perceived cognitive and affective learning outcomes were all intercorrelated, experimental manipulation had no effect on perceived learning. As researchers continue to address aforementioned criticisms in instructional immediacy research, this study reinforces previous experimental work that distinguishes survey perceptions from experimental manipulation. Immediacy, at the very worst, accounts for some variance in learning, which is still an important consideration for instructors. As more research is conducted on immediacy using variations in methodology, a more accurate depiction of the immediacy/learning link will unfold.

Second, the debate concerning the cognitive learning problem certainly continues. In respect to the cognitive learning debate, Witt and Wheeless (2001) examined associations among multiple measures of learning (i.e., recall, learning loss, affective learning). They discovered that recall shared 4% of the variance with learning loss and 5% of the variance with affective learning. Affective learning shared 24% of the variance with learning loss. However in this study, recall was not significantly related to learning loss, affective learning, state motivation, or student satisfaction. The only significant relationship that emerged was between recall and learning indicators was inverse and accounted for 4% of the variance, which is relatively meaningless.

Certainly, the current study has some significant limitations. First, experimental manipulations using videotapes lectures lack ecological validity. Videotapes do not necessarily reflect actual classroom experiences. Second, learning derived from a short lecture is not the same as learning that is derived throughout the course of the semester which is influenced by a host of affective variables and teacher behaviors. Third, the internal reliability estimate for the verbal immediacy scale was lower than desired[2]. Therefore, some caution is warranted in the interpretation of the results. Future research should continue to replicate and extend immediacy and learning studies while taking into consideration the problems of student perception and learning operationaliza-

tions. At this point, although immediacy is incontrovertibly an effective teaching behavior to employ in the classroom, additional research that examines the immediacy and learning link still appears justifiable.

Notes

[1] The four scripts and videos used in this study are available from the first author.

[2] We opted to use Jordan's (1989) operationalization of verbal immediacy instead of using Gorham's (1988), based on Robinson and Richmond's (1995) recommendation.

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