

DETERMINING THE IMPACT OF NONVERBAL  
IMMEDIACY ON COGNITIVE LEARNING  
AND AFFECTIVE PERCEPTIONS IN A  
POST SECONDARY TECHNICAL  
LEARNING ENVIRONMENT

By

TRUMAN RICHARD DANIEL

Bachelor of Arts  
University of Texas  
Arlington, Texas  
1971

Master of Arts  
Southwestern Baptist Theological Seminary  
Fort Worth, Texas  
1975

Submitted to the Faculty of the  
Graduate College of the  
Oklahoma State University  
in partial fulfillment of  
the requirements for  
the Degree of  
DOCTOR OF EDUCATION  
December, 2000

COPYRIGHT

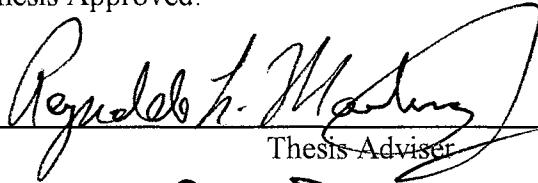
By

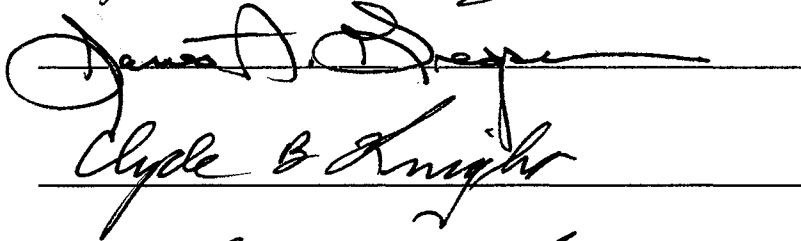
Truman Richard Daniel

December, 2000

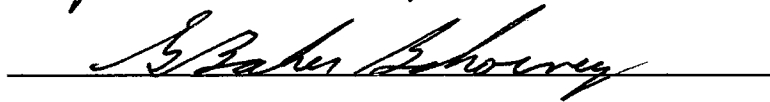
DETERMINING THE IMPACT OF NONVERBAL  
IMMEDIACY ON COGNITIVE LEARNING  
AND AFFECTIVE PERCEPTIONS IN A  
POST SECONDARY TECHNICAL  
LEARNING ENVIRONMENT

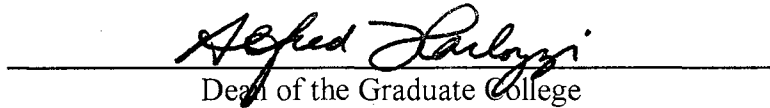
Thesis Approved:

  
Thesis Adviser







  
Dean of the Graduate College

## ACKNOWLEDGMENTS

My journey has been filled with great heights, low points, and lulls before the storm. Only someone who has traveled similar terrain would begin to comprehend both the frustrations and joys one encounters along the road.

A very special experience was made available to this author while seeking a doctorate. I was given the opportunity to associate with an incomparable committee. To my committee chair, Dr. Clyde Knight, dissertation chair, Dr. Reynaldo Martinez, Jr., and committee members, Dr. James Gregson and Dr. Baker Bokorney, I am deeply indebted. Having previously traveled this direction, they were of unquestionable support.

Others I wish to thank:

Dr. Bob Klabenes and the administration and staff of OSU-Okmulgee who provided the setting where this study could occur.

Gary Groff, “guest instructor” for this study, Kathryn Shurden, Sharon Mouss, Sareca Wedel, and Carsten Schmidtke who graciously volunteered their classes for this project.

Dr. Bill Warde for his assistance in statistical analysis.

Dr. John McBee, frequent listener who supported my move from A.B.D. to Ed.D.

Dr. Frank Pucelik, mentor, guru, and friend who first convinced me this was possible.

Words are inadequate vehicles to convey respect, appreciation, and love to my family who lived, breathed, suffered, and rejoiced alongside me in this lengthy pursuit.

My daughter Deena and son Shane have sacrificed to allow their Dad to reach this point. I am truly blessed to have such wonderful and supportive children.

To Fredda, my beautiful bride of almost 35 years—your sacrifice, tolerance, unselfishness, sense of humor, unlimited support, and praise are my greatest gifts. I love you so much!

This was one of the most difficult pages of this study to write, for there are many more people who deserve thanks than can be mentioned here. To other family members, friends, and work associates whose support was so valued, I can only hope to express gratitude in other significant ways.

## TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION .....	1
Rationale .....	2
Background of the Problem .....	4
The Problem .....	9
The Purpose .....	9
Research Questions .....	9
Scope and Limitations .....	10
Assumptions .....	10
Definitions .....	11
Significance of the Study .....	12
II. REVIEW OF THE LITERATURE .....	14
Historical Antecedents .....	14
Immediacy Effect in Classroom .....	17
Immediacy and Outcome Variables .....	19
Immediacy Challenged .....	21
Immediacy Effect on Learning .....	22
Immediacy and Liking .....	24
Linear and Non-Linear Relationship .....	24
Summary of Points .....	26
III. METHODOLOGY .....	27
Research Design .....	28
Procedures .....	29
Instruments .....	32
Pre-test .....	32
Posttest .....	32
Statistical Analysis .....	34
IV. FINDINGS AND ANALYSIS .....	35
Research Questions .....	35

Chapter	Page
Population Demographics .....	36
Procedures .....	40
Similarity of Intact Groups .....	42
Research Question One .....	42
Research Question Two .....	46
Research Question Three .....	49
Research Question Four .....	51
 V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS .....	 57
Introduction .....	57
Description of Population .....	58
Procedures .....	58
Research Question One .....	60
Research Question Two .....	61
Research Question Three .....	62
Research Question Four .....	63
Discussion .....	64
Recommendations .....	65
Recommendations for Practice .....	65
Recommendations for Research .....	66
 BIBLIOGRAPHY .....	 68
 APPENDIXES .....	 81
APPENDIX A – “BRAIN FOOD” SCRIPT .....	82
APPENDIX B – CONSENT FORM .....	86
APPENDIX C – SURVEY INSTRUMENTS .....	88
APPENDIX D – INSTITUTIONAL REVIEW BOARD APPROVAL FORM .....	93

## LIST OF TABLES

Table	Page
I. Experimental Design Groups Within Each Treatment .....	29
II. Age Distribution .....	37
III. Gender Distribution .....	38
IV. Classification Distribution .....	38
V. Plan of Study Frequency Distribution .....	38
VI. T-test Results on Eleven-Item Cognitive Knowledge Pre-test .....	42
VII. Two-tailed t-test Results of Posttest to Determine Short-Term Recall .....	44
VIII. T-test Results Measuring Self-Report of How Much Students Learned .....	45
IX. T-test Results Measuring Self-Report of How Much Students Would Have Learned with Ideal Instructor .....	45
X. Summary of Analysis of Variance on Eleven-Item Portion of Posttest Related to Measurement of State Motivation .....	47
XI. Summary of t-tests on Eleven-Item Portion of Posttest Related to Measurement of State Motivation .....	48
XII. Summary of Analysis of Variance on Four-Item Portion of Posttest Related to Student Attitude Toward Course Content .....	50
XIII. Summary of t-tests on Four-Item Portion of Posttest Related to Student Attitude Toward Course Content .....	50
XIV. Summary of Analysis of Variance on Four-Item Portion of Posttest Related to Student Attitude Toward Instructor .....	52



Table	Page
XV. Summary of t-tests on Four-Item Portion of Posttest Related to Student Attitude Toward Instructor .....	52
XVI. Summary of Analysis of Variance on Four-Item Portion of Posttest Related to Immediacy of the Instructor .....	53
XVII. Summary of t-tests on Four-Item Portion of Posttest Related to Immediacy of the Instructor .....	54
XVIII. Summary of Analysis of Variance on Four-Item Portion of Posttest Related to Teaching Style of the Instructor .....	55
XIX. Summary of t-tests on Four-Item Portion of Posttest Related to Teaching Style of the Instructor .....	56

## CHAPTER I

### INTRODUCTION

*“Facts have their own pronunciation—in every language a different one.”*

*Vieslav Brudzinski*

*“All communication has this characteristic—it can be magically modified*

*by accompanying communication.” Gregory Bateson*

The publication of A Nation at Risk in 1983 was the precursor for a reform movement that many critics still insist has not met the needs of today’s students, community or the nation as a whole. A whole generation of students had passed through the educational system, but many had passed without learning what was required for successful competition in the work place of today, much less tomorrow. Since 1983, over 10 million Americans had reached the 12<sup>th</sup> grade not even having learned to read at a basic level. Over 20 million had reached their senior year unable to do basic math. Almost 25 million had reached the 12<sup>th</sup> grade not knowing the essentials of U.S. history, and those were the young people who actually completed their senior year. In the same period, over 6 million Americans dropped out of high school altogether. The United States seemed to be the only country in the world whose children fell farther behind the longer they stayed in school (Fordham Foundation, 1998).

Increasing teacher effectiveness had emerged as the means to improve schools, meet national education goals, and insure that all students experienced learning success. But Nodding (1997) felt that too much emphasis had been placed on what students needed to know and ignored how teachers could assist in that learning process. The principles of pedagogy and their relationship to teaching and learning theory appeared lacking or poorly modeled (Dalton & Moir, 1992, 1996, NCTAF, 1996).

The 1996 reports to the National Commission on Teaching and America's Future recognized teaching expertise as the single most important factor in increasing U.S. student's academic success. Research and reports of effective practice confirmed the critical relationship between what teachers knew and what students learned (NCTAF, 1996; Darling-Hammond, 1997).

As the demand continued to change, post secondary education would become more competitive and learner-centered. Students would want programs that provided what they needed and how they needed it delivered. Instructors would be trained in the most sophisticated technology while incorporating equally sophisticated skills of nonverbal presentation/delivery.

### Rationale

Teachers entered classrooms on a daily basis and attempted to create an environment that maximized student learning. Although that process had been replicated for centuries, it had only been in the last thirty years that educational researchers were willing to agree that the classroom behaviors of individual teachers actually had significant impact upon student learning (Wilson, 1998). In a learning paradigm, it was no longer

presumed every student learned the same way or that widely accepted teaching practices necessarily resulted in optimal levels of learning for students (Barr & Tagg, 1995; Guskin, 1997).

Effective teacher communication, so vital to student learning, required competent interpersonal communication. Despite the fact that the search for optimal teacher communication behaviors had generated a substantial amount of research, determining what the most effective communication strategies for teachers were had proven to an elusive task. Despite much discussion, elaboration, and research over three decades, little was known about the characteristics that made a teacher effective (Austin, 1984). It was clear however; the interpersonal relationship teachers established with students in the classroom through their communicative behaviors was crucial in the teacher-student-learner equation (Bloom, 1976; Frederich, 1978; Richmond, Gorman & McCroskey, 1987). Teacher effectiveness was a factor closely related to immediacy. Communication was so vital to the teaching process that Hurt, Scott and McCrosky (1978) maintained “there is a difference between knowing and teaching, and that difference is communication” (p. 3). Palmer in The Courage to Teach (p.6, 1998) stated that “. . . teachers possess the power to create conditions that can help students learn a great deal—or keep them from learning at all.” Kearney (1984, p. 95), said “. . . effective teaching requires more than information dissemination from a central source.” Norton concluded: “Teacher effectiveness is shown to be intrinsically related to the way one communicates” (1977, p. 526).

## Background of the Problem

Teachers, however, were often unaware of the nonverbal messages they relayed to students. Although humans consciously take in only a very small amount of information the world offered, we noticed and responded to more without being consciously aware (Bandler & Grinder, 1975,1976; Lewis & Pucelik, 1982; Hall, 1995; Dilts, 1999; Bell, 1999). In a classic study by Miller (1956), it was shown that our conscious mind was very limited and seemed able to keep track of a maximum of seven (plus or minus two) variables or pieces of information at one time. His study, supported by Dilts and Epstein (1995), believed that learning was not only a multi-level process but might occur simultaneously on many levels.

Miller (1981) proposed that 82 percent of teacher communication was nonverbal. Incorporating nonverbal immediacy behaviors into ones methods of teachings had the potential to only assist the learner develop at their full potential (Garmston,1995).

Communication was not optional. Activity or inactivity, words or silence all had subtle messages that influenced others' responses, which generated a reciprocal flow of communication. Nonverbal communication was quick and subtle and could support or contradict the verbal message transmitted (Mehrabian, 1971), and intertwined with verbal messages as inseparable parts of human communication (Woolfolk & Galloway, 1985).

Over the last thirty years, a substantial body of research had emerged regarding the nature and prevalence of teacher immediacy. The concept of immediacy stemmed from the work of Mehrabian (1976, 1981), and reflected a positive attitude on the part of the sender toward the receiver. Andersen (1985) noted that immediacy behaviors indicated

approachability, signaled availability for communication, increased sensory stimulation, and communicated interpersonal warmth. They included the use of eye contact, physical closeness, and smiling (DeVito, 1998). Teacher immediacy specifically was the communication expressed by teachers that helped create this physical and psychological closeness between teachers and students (Andersen, 1979; Gorham, 1988). Therefore, it was probable that using positive teacher immediacy behavior would enhance the student-teacher relationship.

Communicator style was defined as “the way one verbally and nonverbally interacts to signal how literal meaning should be taken, interpreted, filtered and understood (Norton, 1978, p. 99) and “Teacher effectiveness is shown to be intrinsically related to the way one communicates” (1977, p. 526). “Style influences the perception of effective teaching” (Norton, 1983, p. 14). Nausbaum (1981) showed that communication style and teacher effectiveness were positively related.

A substantial body of research indicated that immediacy had a positive influence on student-teacher interaction. This research was derived from the work of Mehrabian (1969) who characterized immediacy as the behaviors that reduced physical and psychological distance between interactants. Research indicated that immediacy positively relates to a number of instructional processes including teaching effectiveness (Andersen, 1979; Collier & Powell, 1990), affective learning (Andersen, 1979; Andersen, Norton & Nussbaum, 1981; Plax, Kearney, McCroskey & Richmond, 1986; Cheseboro & McCroskey, 1998), perceived cognitive learning (Gorham, 1988; Richmond, McCroskey, Kearney & Plax, 1987; Richmond, Gorham & McCroskey, 1987), and information recall (Kelly & Gorham, 1988).

Messages sent by eyes, facial expressions, gestures, posture and the like created more than half of total communication (Bell, 1999). In a flow of conversation, no one could consciously pull all the strings of his or her own eyebrows, facial muscles, head angle and all the other aspects of nonverbal communication, further intensifying the role of nonverbal communication in establishing credibility and rapport (Bell, 1999).

The view of nonverbal cues having multiple but discernible meanings was consistent with the social meaning model of nonverbal communication, which held that many nonverbal behaviors comprised a socially shared vocabulary analogous to verbal communication. Behaviors forming such a coding system were used regularly among members of a social community and were presumed to be intentional acts (although any particular enactment need not be intentional), and had consensually recognizable interpretations. As with verbal language, a given behavior might have multiple meanings, but the range of possible interpretations was finite, fairly limited, and often constrained by the nature of the social situation. Additionally, because nonverbal behaviors typically occurred as part of behavioral composites, their meanings typically became evident through an accretion of complimentary information the individual components provided.

Since any single nonverbal indicator could have multiple meanings, and any single meaning might implicate multiple nonverbal cues, nonverbal relational messages tended to be ambiguous with a multiplicity of meanings. Just as language must be contextualized and questioned to discover what relations it legitimated and what it ignored, nonverbal “language” had to also be dissected and investigated. For instance, direct eye contact could signal intimacy, intimidation, or anger. What illuminated the interpretation of a given behavior was its accompanying composite of nonverbal behavior cues. No verbal

cue was an “island.” It was continually surrounded by a host of nonverbal behaviors that together might delimit and/or clarify meaning (Burgoon & LePoire, 1999).

An example of the importance of context (inclusive of the accompanying non verbal behaviors) was a situation where someone described an event that had everyone in stitches when it happened, but that did not even produce a smile when it was described to people who were not there. The storyteller usually shrugged and said, “I guess you just had to be there.” “Being there” was a reference to the context, and illustrated the point that not all of the meaning was contained in the message (Bluedorn, 1998).

The primary characteristic of nonverbal immediacy was that unlike verbal communication, nonverbal communication was conveyed using more than the voice. The body, hands, eyes, mouth, arms, touch, surrounding space, use of time, etc., were all components of nonverbal immediacy communication. It involved touch, reduced distance, laughter, syntax and even guttural sounds such as “hmm” and “uh huh.” These multi channels were usually synchronized quite well but, when mixed signals were sent, confusion or misinterpretation often resulted (Mehrabian, 1976,1981; Lewis & Pucelik, 1982; Thweatt & McCroskey, 1996, 1998).

Much of the recent research on teacher immediacy had focused on nonverbal cues and seemed to indicate that positive immediacy did increase teaching effectiveness. Nonverbal cues which had been identified as immediate included: eye contact, gestures, relaxed body position, directing body position toward students, smiling, vocal expressiveness, movement, and proximity (Andersen, 1979).

Positive nonverbal immediacy increased affective learning and signaled to the student that the teacher was open to his or her contribution. In Andersen's (1979) study,



she found that expressive immediacy positively influenced student attitude toward teacher communication, course content, the course in general, and the course instructor.

Immediacy was also positively related to student likelihood of engaging in similar communication and the likelihood of enrolling in another related course. In addition, teachers who exhibited positive proxemic behavior were perceived more favorably than teachers who exhibited distant proxemic behavior. Communication problems could occur whenever a person's nonverbal behaviors suggested a different meaning than the verbal intent (Mehrabian, 1971; Lewis & Pucelik, 1982; Thweatt & McCroskey, 1996, 1998).

In some ways, the nonverbal behaviors used to express liking could be more evocative than the verbal. For one, they might be enacted with less conscious control than verbal behaviors and might therefore be presumed to reflect more accurately the emotional states of the communicator (Burgoon, 1994, pp. 235-236; Bluedorn, 1998).

Most instructors had undoubtedly sensed the effects of proxemics on their effectiveness. Increasing physical space between the instructor and the student resulted in greater psychological space and created a host of communication problems (Nerger, 1997).

It was likely that most teachers walking into a classroom had very little knowledge of the significance of how nonverbal communications affected student's learning, reception and success. Andersen (1985) argued that in most instances positive immediacy increased arousal, decreased anxiety, setting the stage for cognitive learning. Teachers could reduce anxiety by recognizing what caused immediacy and what nonverbal messages they were sending (Stowell, 1993; Norton, 1977). Since most classroom messages came from

nonverbal communication (Garmston, 1995; Miller, 1982), learning achievement could be negatively impacted by ineffective nonverbal teacher immediacy.

### The Problem

The problem of this study is that it is uncertain which level of immediacy has a positive or negative impact on student learning and perception of the instructor and course content.

### The Purpose

The purpose of this study is to determine how learning states created by an instructor's nonverbal communication (immediacy) were perceived to influence students' cognitive and affective learning performance in a vocational/technical, post secondary educational setting.

### Research Questions

The following research questions will guide this study:

1. How will teacher nonverbal immediacy be related with a students' a short-term recall?
2. How will teacher nonverbal immediacy be related with students' state of motivation?
3. How will teacher nonverbal immediacy be related with students' attitudes toward the course content?

4. How will teacher nonverbal immediacy be related with attitudes toward the teacher?

#### Scope and Limitations

1. Participants were limited by the criteria given in the research design.
2. The study was limited by the timeframe necessary to complete four sessions.
3. The study will address only the effects of nonverbal immediacy behavior.
4. The information available was voluntary and there were no controls over who completed the questionnaire and test instruments.
5. The results of this study are limited and may be unique to this particular post secondary technical educational setting. Therefore, no inferences were made regarding all students.
6. The population of this study was based on a convenient sample.

#### Assumptions

1. One of the first assumptions often made concerning the instruction/learning relationship was that the behavior patterns of teachers affected the behaviors patterns of students (Smith, 1979).
2. In some ways, the nonverbal behaviors used to express relational messages could be more evocative than the verbal. For one, they might be enacted with less conscious control than verbal behaviors and might therefore be

presumed to reflect more accurately the emotional states of the communicator (Burgoon, 1994, pp. 235-236).

3. The students who participated in this study adequately reflected the demographic composition of the current student body at the participating institution.

### Definitions

Cornerstone Class – Required “orientation” class for all incoming students, regardless of age or educational achievement. A cadre of campus instructors and administrators led students through a mixture of classroom instruction and asynchronous learning modules.

Coverbal Behavior – Defined as gestures, facial expressions, eye gaze (Wolfolk & Brooks, 1985, p. 514).

Immediacy – Mehrabian (1971) conceptualized the immediacy construct as communication behavior that reduces physical and/or psychological distance between people.

Kinesics – Defined as the systematic study of how human beings communicate through body movement and gesture (Birdwhistell, 1955).

Nonverbal – This construct contains those behaviors not usually associated with verbal expressiveness: eye contact, gestures, relaxed body posture, movements, vocal expressions, and proximity (Schmidt & McCutcheon, 1994).

Nonverbal Immediacy – Behaviors considered as “nonlinguistic messages” (Andersen & Andersen, 1982, p.100).

Paralanguage – Defined as voice tone, rate of speaking, pauses (Wolfolk & Brooks, 1985, p. 514).

Proxemics – Defined as the physical space and interpersonal distance (Hall, 1959).

### Significance of the Study

Effective teachers promote student learning that has been shown (Bloom, 1956) to include cognitive, affective and behavioral changes. Teachers who communicate positive regard to their students also promote students learning as previous researchers have shown (Andersen & Andersen, 1987; Christensen & Menzel, 1998; Christopher, 1990; Frymier, Shulman & Houser, 1996).

The literature defines this positive regard as immediacy behavior dealing with mostly nonverbal cues communicated during normal instructional sessions. Those behaviors enhance closeness to and interaction with others because they reduce psychological and physical distance between communicators (Mehrabian, 1971).

Nonverbal immediacy behaviors are particularly useful to teachers because most relational messages are communicated nonverbally, leaving the verbal channel available for messages of course content ( Watzlawick, Beavin, & Jackson, 1967; Garmston, 1995).

To isolate and define the specific effect nonverbal immediacy has on these two levels of student learning will provide insight into how best to conduct/co-ordinate/manage a classroom environment. The effect has been noted in the literature about each of these parameters, but this study is intended to measure the effects in one study.

There has been no recent research found in the context of how nonverbal immediacy affects students in a post secondary vocational technical learning environment. The results of this investigation will be useful in strengthening the speech and communication aspects of teacher education.

## CHAPTER II

### REVIEW OF THE LITERATURE

The purpose of this study was to determine how learning states created by an instructor's nonverbal communication (immediacy) were perceived to influence their student's cognitive and affective learning ability in a vocational/technical, post secondary educational setting.

According to Nussbaum (1992, p. 167), "Over 1,000 studies in 30 journals have been published since 1970 that document teacher behavior." The study of teacher nonverbal behaviors had progressed from informal curiosity and anecdotal observations to more formal investigation. Researchers had focused on three major categories of behavior: proxemics (physical space and interpersonal distance), coverbal behavior (gesture, facial expressions, eye gaze), and paralanguage (voice tone, rate of speaking, pauses) (Wolfolk & Brooks, 1985, p. 514).

#### Historical Antecedents

The last three decades had generated an explosion of inquiry into teacher immediacy. Yet today's concern with the quality of instruction was often characterized as relatively recent. However, Amidon and Flanders, 1963 and Veldman and Peck, 1963, presented studies that revealed the same concerns in the early 1900s. Subsequent studies

by Woolfolk and Woolfolk, 1974a, 1974b; Heger, 1976; Norton, 1978; Leathers, 1979; Nussbaum and Scott, 1980; Andersen, Norton, and Nussbaum, 1981; Andriate, 1982; Rosenfield, 1983; and Nussbaum, 1983, placed increasing emphasis on the subject of nonverbal communication. That research was extended to measure the impact on the learning process by Andersen, Norton, and Nussbaum, 1981; Andriate, 1982; Daly and Korinek, 1980; Kearney and McCroskey, 1980; Norton and Nussbaum, 1980; and Nussbaum, 1981, 1983.

Historically, scientists have tried to judge human emotion from facial expression. Perhaps the most elaborate of recently developed systems was Ekman and Friesen's Facial Action Coding System (FACS). This procedure was based on underlying facial anatomy as well as the cross-cultural studies of facial expression of emotions. The FACS was so elaborate that over 7,000 different combinations of facial actions could be identified (Ekman & Friesen, 1978). The goal of such research was to measure emotion for which the verbal expression might be suppressed intentionally or cannot be verbalized but which might "leak" out through nonverbal channels such as the face. Research revealed that human beings learn to decode facial expressions in others to accurately interpret emotional cues and display rules (Hochschild, 1979; Thoits, 1984). Ekman (1980) tested members of an isolated New Guinea tribe and found that even those who had never seen people outside their own culture groups were able to distinguish emotions of other cultures by facial cues.

Visual behavior and facial expressions were only the beginning of observable human expressions. Just as facial expressions could be coded and gazes measured, so could other body movements be tabulated. The study of communicative body motions



was called kinesics. Birdwhistell's (1955) classic article introduced the science of kinesics, "the systematic study of how human beings communicate through body movement and gesture" (p. 10). He laid the foundation for subsequent study in nonverbal communication by defining important terms and giving research examples in kinesics. As theorized by Birdwhistell (1970), the kinesthetic channel was just one of several more or less continuously operating communication channels along with the speech channel. Head, arm, and other body motions communicated in a system of signals with shared meaning within a society. These signals transmitted information by themselves as gestures and in conjunction with other signals as kinesic markers and stress indicators (Birdwhistell, 1955).

Another body of literature had developed around the theme of interpersonal spacing, or proxemics. The distance between interacting persons were observed in a laboratory, where a person was asked to approach another up to the point at which discomfort was felt. Similarly, unobtrusive observations were made estimating the distances between people in a natural setting. To capture the context in which proxemic behavior was observed, an anthropologist had developed a notational system for recording gender, posture, orientation, body odors, touching behavior, and voice loudness, among other characteristics, of the observed person (Hall, 1965). Hall believed people not only spoke different verbal languages in different cultures, they also inhabited different sensory worlds.

### Immediacy Effect in Classroom

Research in emotion-communication had focused primarily on the area of nonverbal communication since relevant research had concluded nonverbal cues were more salient than verbal cues, with nonverbal channels carrying from 2-13 times the information of verbal cues (Archer, 1975; Argyle, Alkema & Gilmour, 1971, reported in Gudykunst, 1997). Richmond and her colleagues (1987) found immediacy behaviors to account for a quarter to a third of the positive variance in college classrooms. Gorham (1988) reported results which supported the findings of Richmond, et al.,

. . . while nonverbal and verbal variance accounted for almost 20 percent of the variance in student's perception of cognitive learning, nonverbal immediacy accounted for a greater portion of the unique variance than did verbal immediacy.

Norton (1977) reported that communication style predicted 50 percent of the variance in over-all perceived teacher effectiveness.

Miller (1956) in his classic work, "The magical number seven, plus or minus two: Some limits on our capacity to process information," amplified our understanding of how information was processed outside of our normal awareness and frames of reference. His contention was that most of our communication is outside of conscious awareness, therefore, we developed a reliance and trust on our nonverbal communication to convey pertinent and/or crucial information. Although most of us speak at least one "oral" language, everyone "spoke" a nonverbal language through kinesthetic and paralinguistic cues.

## Immediacy Definition

Social psychologist, Albert Mehrabian (1967) presented early research into “immediacy . . . defined as the degree of directness and intensity of interaction between two entities, such as people” (p. 325). Mehrabian (1971) introduced the construct of immediacy in terms of his “principle of immediacy.” This principle stated “people are drawn toward persons and things they like, evaluate highly, and prefer” (Mehrabian, 1971, p. 1.). Immediacy related to approach and avoidance behaviors and could be thought of as the perceived distance between people (Mehrabian, 1971). This social perspective suggested that positive affect caused people to become more immediate, while negative affect caused reduced immediacy (Sorenson, 1989; Rocca & McCroskey, 1999). Immediacy cues were approach behaviors that signaled availability, increased sensory stimulation, and decreased both the physical and psychological distance between interactants (Andersen, 1985; Burgoon, Buler, Hale & deTurck, 1984). Dolin's (1995) research indicated that students were less likely to engage in behaviors recommended in the classroom with an instructor who “misbehaved.” Students also indicated that the likelihood of taking additional courses in the same content area was diminished if a teacher was misbehaving. The absence of immediacy behaviors was perceived as misbehavior even when no operationally defined misbehaviors were used (Thweatt & McCroskey, 1996; 1998). In addition, the results indicated that teacher immediacy was inversely related to the amount of teacher misbehavior. As a result, Dolin (1995) concluded that non-immediacy may actually be a form of teacher misbehavior (Thweatt & McCroskey 1998).

The most commonly cited nonverbal immediacy behaviors were close proxemic distancing, touch, gaze, direct body orientation, and forward lean (Andersen, 1985; Andersen & Jensen, 1979; Burgoon, Buller & Woodale, 1989; Mehrabian, 1969; Patterson, 1983). Positive affect cues, such as smiling and vocal pleasantness, were also important because they signaled availability and communicated warmth and intimacy (Andersen, 1985; Burgoon, 1994; Andersen, Guerrero, Buller & Jorgenson, 1998) In fact, nonverbal immediacy cues were a valid and reliable indicator of a communicator's effect (Mehrabian, 1967; Kearney, Plax, Smith & Sorenson, 1988, p. 56).

#### Immediacy and Outcome Variables

Immediacy was a solid body of experimental evidence that has demonstrated the impact of a number of behaviors on desired instructional outcomes (Chesboro & McCroskey, 1998). Much of this research had focused on nonverbal cues and seemed to indicate that immediacy increased teaching effectiveness (Christophel, 1990). Nonverbal cues that had been identified as immediate include: eye contact, gestures, relaxed body postures, smiling, vocal expressions, movements and proximity. It was in Andersen's (1979) seminal work that she found an effect toward communication, course content in general and the course instructor. Researchers, in instructional communication had, for almost three decades, reported data consistent with this positive relationship between teacher immediacy and student cognitive and affective learning. No other communication variable had been so consistently associated with increase in student learning (Rodriquez, Plax, & Kearney; 1996). Early research on these behaviors labeled them as teacher enthusiasm or teacher expressiveness (Coats & Smidchens, 1966; Ware & Williams, 1975;

1975; Abrami, Leventhal & Perry, 1982) while research on the same behaviors conducted by communication researchers labeled them as immediacy behaviors (McCroskey & Richmond, 1992), in that they increased perceptions of physical and psychological closeness. The following two major implications were drawn: (1) Typically, nonverbal head cues affected relationship quality, while body cues affected relationship intensity; and (2) When confronted with contradictory verbal and nonverbal cues, people tended to give the nonverbal more credibility (Thibodeux, 1985). Regardless of the label, these behaviors had been identified as effective teaching behaviors, in experimental and correlational research.

Nonverbal immediacy behaviors were “nonlinguistic messages,” (Andersen & Andersen, 1982, p. 100). Mehrabian (1971) conceptualized the immediacy construct as communication behavior that reduced physical and/or psychological distance between people. The majority of the research had been conducted on the relationship between teacher immediacy and outcome variables. Immediacy consistently had been related to positive affect for both subject matter and for teachers (Andersen, 1979; Christophel, 1990; Frymier, 1994; Richmond, 1990). Students with immediate teachers also reported that they learned more in class (Christophel, 1990; Frymier, 1994; Richmond, 1990; Richmond, Gorham, & McCroskey, 1987). Immediate teachers were perceived as using more pro-social behavioral alteration techniques (Plax, Kearney, McCroskey, & Richmond, 1986). Immediacy behaviors also had been found to be effective across cultures (McCroskey, Sallinen, Fayer, Richmond & Baraclough, 1996; Powell & Harville, 1990). Clearly, teacher immediacy was important in the instructional process. Perhaps some of the most exciting research published on effective teacher behaviors was that

linking teacher immediacy to student learning (Richmond, Gorham, & McCroskey, 1987; Christophel, 1990). It had been linked to more positive affect towards courses and instructors, greater motivation to learn, greater achievement and greater perceptions of control.

### Immediacy Challenged

Merhabian (1966) in another classic study determined the general meaning of communication was attributed to 93 percent of the nonverbal message received and only 7 percent of verbal messages. Although this was one of the most frequently cited studies in pedagogical literature, Lapakko (1997) was one of its most vocal critics. He strongly questioned the over-all experimental design, sample size, and even the statistical analysis and suggested “healthy skepticism” and further study in this area to clarify his concerns. However, the widely accepted position was that our nonverbal messages (immediacy level) conveyed our frames of mind, beliefs and expectations with much greater accuracy than our most carefully selected words. In fact, language was so full of ambiguity, unless paired with the nonverbal component it was very easy to run the risk of failing to communicate at all (O’Hanlon & Wilk, 1985). Meanings of any verbal communication could only be obtained through a relationship of verbal and nonverbal arenas. Eisenberg (1984) argued that clarity and immediacy overlapped because they were both a “. . . relational variable which arises through a combination of source, message, and receiver factors” (p. 229). Personal examples, humor, expressiveness were relational behaviors which might also serve a clarifying function. Watzlawick, Beavin and Jackson (1967) asserted that all communication was composed of relational and content

components. Both co-existed to assist in the eventual assignment of meaning. The relational component defined the nature of the relationship between the interactants, providing the framework for understanding the content component of the message exchange. Relational messages were communicated primarily through nonverbal channels (Richmond, et al., 1987) and conveyed direct instructional impact on the affective dimension that touched on personal and social feelings, values and impressions (Andersen, 1986). Content messages focused on a particular subject, topic, or goal and were reflected primarily in verbal channels (Burgoon, et al., 1984; Burgoon & Saine, 1978; Adler, 1991; Burton & Dumbleby, 1990).

#### Immediacy Effect on Learning

Teacher immediacy had received a great deal of attention in the instructional literature. It had been established that instructors' use of nonverbal immediacy had a positive effect in the areas of student affective learning (Andersen, 1979; Sanders & Wiseman, 1990; Christensen & Menzel, 1998; Christophel, 1990; Gorham, 1988; Plax, Kearney, McCroskey & Richmond, 1986), behavioral learning (Christensen & Menzel, 1998) and perceived cognitive learning (Christopher, 1990; Gorham, 1988; Richmond, et al., 1987; Powell & Harville, 1990), instructor use of humor, (Gorham & Christophel, 1990), instructor effectiveness (Gorham & Zahaki, 1990; Christophel & Gorham, 1995; Frymier, 1993, 1994), and student learner empowerment (Frymier, Shulman & Houser, 1996).

Immediacy could be verbal as well as nonverbal. The words a person used may signal approach or openness for communication. Accordingly, the use of humor; praise of

a student's work, action or comments; and willingness to become engaged in conversation before, after, or outside of class were particularly significant verbal immediacy cues. Research on strategic communication had focused on verbal behavior, with less attention paid to the role of nonverbal behavior. Verbal communication was better understood, defined, and practiced than strategic nonverbal communication. For example, as our nation's schools experienced an increasingly diverse student population with a homogeneous teaching force (Grant & Secade, 1990), strategic nonverbal communication awareness and application in diverse classrooms became more vital for teachers (O'Hair & Ropo, 1994). Therefore, as teachers became nonverbally sensitive and strategic in classrooms, ultimately they became more successful in interacting with students from diverse cultures and races, motivating students, and negotiating classroom outcomes.

Past research indicated that verbal and nonverbal teacher immediacy had a positive effect on perceived cognitive learning and student effect, motivation and behavioral intent (Christophel, 1990). Students could be motivated to learn with competent communicators using more positive verbal and nonverbal behaviors (Haun, 1990; Butland & Beebe, 1992). Norton suggested that teachers who utilized nonverbal immediacy “provide clues that something different and possibly something significant is happening” (1983, p. 130). Gorham and Christophel (1992) attempted to clarify the role of teacher behavior in motivating and demotivating college students. Forty-four percent of both the motivating and the demotivating factors were reported as instructor behaviors. According to the results, students saw motivation as being under their control and saw the lack of motivation and demotivation as controlled by the instructor. Christophel (1990) concluded that the state of motivation was a crucial factor in impacting learning. In her words,



“... the unique variance regarding students’ motivation and learning was unequivocally attributable to state motivation. This finding strongly supports the theory that state motivation levels are modifiable within the classroom environment.” (p. 337)

More importantly her study established that, “a portion of students’ motivation was directly modified by teacher immediacy behaviors” (p. 337).

### Immediacy and Liking

In some ways, the nonverbal behaviors used to express liking could be more evocative than the verbal. For one, such behaviors might be enacted with less conscious control than verbal behaviors and might therefore be presumed to reflect more accurately the emotional states of the communicator (Burgoon, 1994, pp. 235-36). They might also entail less risk for the communicator than verbal expressions of liking because their intended meanings would be easier to deny if the sentiment was not reciprocated. While liking was often expressed verbally (Booth-Butterfield & Trotta, 1994), Mehrabian (1971, p. 77) suggested that “immediacy and liking are two sides of the same coin” and could be conveyed more effectively when verbal and nonverbal channels were congruently combined.

### Linear or Non-Linear Relationship

Though the relationship had been observed as linear, higher teacher immediacy might not always be better for the student. An experimental study by Comstock, Rowell, and Bowers (1995) found a curvilinear relationship between teacher nonverbal immediacy behaviors and actual cognitive, affective and behavioral learning. Teacher nonverbal

immediacy was operationalized at three levels and acted out by a guest instructor in three, separate, 10-minute workshops. The content of each 10-minute workshop was exactly the same, but the teachers' behavior exhibited varying levels of nonverbal immediacy. As predicted, both low and high levels of teacher immediacy had negative effects on student state motivation and actual cognitive, affective and behavioral learning. This finding left the possibility that undiscovered curvilinearity had been lurking somewhere in correlational studies on this topic. As a case in point, focusing on nonverbal immediacy, Richmond, Gorham, and McCroskey (1987) began with positive correlations between immediacy behaviors and perceived cognitive learning. Smiling, vocal expressiveness, and a relaxed body position were shown to have a high positive correlation with learning. Sitting or standing behind an object such as a desk or lectern, looking at the blackboard, and a tense body posture all had moderately negative effects on learning. Similar to Comstock, et al., (1995), these authors found a nonlinear relationship between nonverbal immediacy and cognitive learning. Low immediacy brought about low levels of perceived affective and cognitive learning, but a difference appeared with high levels of immediacy. While high level immediacy caused further increases in affective learning, the amount of perceived cognitive learning leveled off (Richmond, et al., 1987).

Christensen and Menzel (1998) questioned the results of Comstock, et al., (1995) by observing a disparity between real-life immediacy and experimental manipulations. They determined that either students reacted differently to immediacy behaviors in the actual classroom or immediacy existed differently in the actual classroom.

The conclusion of research was revealing: whether people were sitting, walking, laying down, standing still or verbalizing, we were communicating. Communication was

not an option. The ability to communicate with others apparently went far beyond one's ability to write or speak well.

#### Summary of Points

1. Nonverbal immediacy can have a positive or negative impact on learning.
2. No recent studies of this nature have been found in a post secondary vocational-technical setting.
3. Since there is a controversy on which levels of immediacy are appropriate, more research is needed to clarify its role.

## CHAPTER III

### METHODOLOGY

The purpose of this study is to determine how learning states created by an instructor's nonverbal communication (immediacy) was perceived to influence students' cognitive and affective learning performance in a vocational/technical, post secondary educational setting.

A modified Solomon Four quasi-experimental design (Dooley, 1990) will be employed to test two levels of manipulated teacher immediacy (moderate and excessively high) on cognitive and affective learning. Four intact groups chosen from the university's required college cornerstone class (providing a cross-section of all proposed majors with demographics unique to this campus) will be randomly assigned to one of the two levels of teacher immediacy. Within each treatment, subjects will be assigned to one of two testing groups.

This study employs a descriptive research design in which similar groups of students in a particular course are exposed to varying levels of nonverbal communication immediacy. Then they will be tested for cognitive knowledge gain and surveyed regarding their perception of the instructor and the course content.

A pretest will be utilized to measure prior cognitive knowledge about "Brain Food." Prior cognitive knowledge will be measured using specific content questions with

additional items included as filler. Two versions will be counterbalanced to avoid order effects.

A three-part posttest will measure short-term cognitive learning. Recall will be measured using the same eleven question true/false items in the pretest, with items counterbalanced to avoid order effects.

Affective learning will be measured by using Christophel's (1990) Motivation Scale. Andersen's (1979) Scale will measure the subject's affect toward the content and toward the teacher.

As manipulation checks, perceptions of teacher immediacy and teacher style will be assessed by utilizing a modified version of Andersen's (1979) Generalized Immediacy Scale.

### Research Design

Employing a modified Solomon Four quasi-experimental design, this study tested the following two levels of manipulated teacher immediacy; 1) moderate, and 2) excessively high on cognitive and affective learning. Four intact groups enrolled in a required Cornerstone Class provided a varied demographic spread of course content, age, gender, and ethnicity. Those four groups were randomly assigned to one of the two levels of teacher immediacy. Within each treatment, subjects were assigned to one of four testing groups (see Table I).

TABLE I  
EXPERIMENTAL DESIGN GROUPS WITHIN  
EACH TREATMENT

Group	Observation and Treatment Anticipation			
1	pre-test	treatment	(Moderate)	posttest
2	pre-test	treatment	(Extremely high)	posttest
3	pre-test	treatment	(Moderate)	posttest
4	pre-test	treatment	(Extremely high)	posttest

All undergraduate students are required to take the Cornerstone Class, regardless of their previous college experience. They will be asked to volunteer to take part in a data gathering effort to improve the class by completing a survey instrument at the end of the class. Those volunteers will be asked to sign a consent form. It is hoped that a minimum of 60 percent of each of the four classes will volunteer to participate. The class groups will be randomly assigned to either a moderate or extremely high immediacy section.

#### Procedures

An instructor (20 years experience in higher education) acted as the teacher for a ten-minute "Brain Food" workshop, and his delivery, but not the content of the message, varied by immediacy condition. The instructor was given a copy of the "Brain Food" script previously utilized by Comstock, et al., (1995) and the specific behaviors to be varied during his presentation six weeks before the scheduled interventions. Two weeks

later, hourly sessions were scheduled to practice, videotape, and receive feedback from the primary investigator. The script was also revised with specific cues inserted into the verbiage, which provided congruent behaviors in each of the two levels of nonverbal immediacy. Four hourly sessions were scheduled for each level of intervention to insure that each feature, gaze, gesture, eye contact, vocal intonation, and rate of speed were consistent. A videotape of each session was utilized to insure compliance with the expected and rehearsed nonverbal behaviors for each level of immediacy. Only the guest instructor was taped to insure anonymity of each student participant. The lesson focused on accurate information about the types of food students should consume in order to maximize their energy levels and brain power during exam preparation. (See Appendix A).

Immediately before each treatment, the researcher announced that the class was about to experience a university-sponsored workshop to help students learn about foods that could increase academic success during exams, but was also designed to assist administration in determining the effectiveness of the lesson, instructor and the course. A consent form was presented making participation optional (see Appendix B). The consent form (completed or blank) was retrieved before the presentation began. If the student chose to participate in the study they were to check the appropriate box on the first pretest. The researcher also asked the subjects to complete a "Myth-Fact" questionnaire. The questionnaire contained the cognitive knowledge pretest for the subjects to be used in a check of testing effects.

The manipulation of teacher immediacy included only three aspects of the variable: proxemics, kinesics, and coverbal behaviors (Andersen & Andersen, 1987). The instructor received written specifications for his nonverbal immediacy behavior in each of

the conditions. He practiced and was coached by the investigator until he could competently perform and manipulate the two levels of immediacy. Each session was videotaped to insure the use or nonuse of the nonverbal behaviors that were to occur or not occur during the sessions. In the moderate condition, the teacher arrived a few minutes before he started talking and left a few minutes after he finished. He wore glasses, and he took off his coat and loosened his tie just before he started speaking. He glanced at notes from time to time, made eye contact approximately 30% of the time, smiled approximately 30% of the time, nodded, spoke with moderate volume, used inflection and intonation to vary voice, walked across the floor in front of the class, did not touch any of the subjects and stayed at least 1.5 feet from subjects. In the excessively high condition, the teacher spent more time with the students, arriving before the workshop started and leaving after all students had finished their posttests. He wore no glasses, and he took off his coat and tie and rolled up his shirt sleeves just before he started speaking. He spoke while relying on his notes approximately 60% of the time, made eye contact approximately 60% of the time, smiled approximately 60% of the time, nodded, spoke in a loud voice approximately 60 % of the time, used inflection and intonation to vary voice, roamed the aisles, touched a subject's shoulder or upper arm from time to time, and approached some subjects at a distance of less than 1.5 feet. These manipulations of immediacy are consistent with Andersen and Andersen (1987), and have been utilized by Comstock, Rowell and Bowers (1995) in a similar research project.

Among other pertinent information, the lesson content highlighted the importance of eating snacks, and it identified foods that were appropriate snack choices (fruit and pretzels) and foods that were inappropriate snacks (doughnuts and potato chips). The



lesson also proposed that some snacks were portable and could be eaten later. The lesson emphasized the point that it was more appropriate to choose a healthy, portable snack than not to choose a snack at all. Subjects then completed a posttest that measured short-term cognitive learning (recall) and affective perceptions. These posttests were Christophel's Motivation Scale and Andersen's Generalized Immediacy Scale that has been validated in previous research. They handed in their posttest as they left the classroom.

## Instruments

### Pre-test

The pretest, previously validated by Comstock, Rowell and Bowers (1995), measured prior cognitive knowledge about "Brain Food." Prior cognitive knowledge was measured with 11 true-false items, for example, "Drinking several cups of coffee or other drinks with caffeine keeps you alert and ready for studying," "Most of your fat intake should come from saturated fats, like those found in dairy products," and "Students who need energy to study for exams should eat a supper containing high amounts of carbohydrates." Five additional items about study habits were included as filler. Items were counterbalanced (three versions) to avoid order effects.

### Posttest

The posttest measured (a) short-term cognitive learning (recall), (b) affective perceptions, and (c) perceptions of teacher immediacy and style to be used in the

manipulation check. Recall was measured using the same 11-item true-false items as in the pre-test, with items again counterbalanced to avoid order effects.

Three aspects of learning/perception were measured. Christophel's (1990) State Motivation Scale was used to assess the degree to which subjects were motivated by the workshop. This instrument contained 12 seven-point semantic differential scales to assess how students felt about participating in the workshop, including motivated-unmotivated, interested-uninterested, enthused-not enthused, and so on.

The scales measuring subject's affect toward the content of the workshop and their effect toward the teacher were drawn from Andersen (1979). Both of the effect dimensions were assessed by four 7-point semantic differential scales: good-bad, worthless-valuable, fair-unfair, and positive-negative.

As manipulation checks, perceptions of teacher immediacy and teacher style were assessed with a modified version of J. Andersen's (1979) Generalized Immediacy Scale (GIS). The GIS defines immediacy for subjects and included two sets of 8-point semantic differential scales to assess perceptions of immediacy. In this study, the two sets of semantic differential items were considered separately in order to produce two checks of the immediacy manipulation. Perceptions of teacher style were measured with four 8-point semantic differential scales: immediate-not immediate, cold-warm, unfriendly-friendly, close-distant. Perceptions of teacher immediacy were assessed using four 8-point semantic differential scales to the prompt "In your opinion, the teaching style of the Instructor for this workshop is very immediate": agree-disagree, true-false, correct-incorrect, yes-no (see Appendix C).

## Statistical Analysis

To assure that subjects in the four groups came from the same population, responses from the eleven-item cognitive knowledge of “Brain Food” pre-test were used as the dependent variable in a one tail t-test.

Short term recall was analyzed by conducting a two-tailed t-test using the “Brain Food” posttest as the dependent variable.

To check the immediacy manipulations, responses to teacher immediacy and teacher style were used as the dependent variable in a multivariate analysis of variance with the affective learning measures as dependent variable.

The video of each presentation was utilized to insure that the use or nonuse of the nonverbal behaviors that were to occur or not occur during the sessions.

## CHAPTER IV

### FINDINGS AND ANALYSIS

The results of the statistical analysis of the data pertaining to the research questions asked in this study are presented in this chapter. The purpose of this study was to determine the impact of nonverbal immediacy on cognitive and affective learning in a post secondary technical learning environment.

#### Research Questions

The following questions guided this study:

1. How will teacher nonverbal immediacy be related with students' short-term recall?
2. How will teacher nonverbal immediacy be related with students' state motivation?
3. How will teacher nonverbal immediacy be related with students' attitudes toward the course content?
4. How will teacher nonverbal immediacy be related with attitudes toward the teacher?

The data were entered into a computerized database (pcfileIII v. 4) and downloaded into Statistical Analysis System (SAS) (v.8, 1999). SAS was used to provide

descriptive statistics and perform statistical analysis. Additional analysis was provided utilizing a Texas Instrument calculator (TI-86). Analysis of variance (ANOVA) and T-Tests provided measures of variability to indicate the degree of dispersion among sets of scores.

### Population Demographics

The demographic section accompanying the posttest provided general information regarding the individuals participating in this study. The population of this study was 78 students chosen from four intact groups of a required College Cornerstone class. The demographic section accompanying the posttest provided general information regarding the individuals participating in this study. Those items included age, gender, classification and major course of study. The results portray the majority (83%) of the participants were between the ages of 18 and 23 (see Table II). The breakdown reveals that 34 (43.59%) of the students were female and 44 (56.41% were male) as shown in Table III. The distribution showed 31 (43.66%) were first semester students and 40 (56.34%) were second semester students (see Table IV). Twenty-six different major plans of study (including one undecided) were represented in Table V from the thirteen department offerings on campus. This information is consistent with data published by the registrar's office on student demographics.

TABLE II  
AGE DISTRIBUTION

Age	Frequency	Percent
18	11	14.10
19	9	11.54
20	17	21.79
21	7	8.97
22	6	7.69
23	3	3.85
24	8	10.26
25	4	5.13
26	1	1.28
28	1	1.28
29	1	1.28
31	1	1.28
32	1	1.28
34	1	1.28
36	2	2.56
38	2	2.56
41	1	1.28
46	1	1.28
53	1	1.28

TABLE III  
GENDER DISTRIBUTION

Gender	Frequency	Percent
Female	34	43.59
Male	44	56.41

TABLE IV  
CLASSIFICATION DISTRIBUTION

Semester	Frequency	Percent
First	31	43.66
Second	40	56.34

TABLE V  
PLAN OF STUDY FREQUENCY DISTRIBUTION

Major	Frequency	Percent
Science	2	2.60
Legal	2	2.60
Multimedia	1	1.30
Nursing	1	1.30
Photography	9	11.69

TABLE V - Continued

Major	Frequency	Percent
Sociology	1	1.30
Speech	1	1.30
Construction	5	6.50
Business	4	5.20
Auto	5	6.50
Autobody	4	5.20
Dietetics	2	2.60
General	2	2.60
CST	17	22.08
Electrical	2	2.60
Engineering	5	6.50
Education	2	2.60
English	1	1.30
Ford Asset	2	2.60
Health	1	1.30
Horticulture	1	1.30
Office Systems	2	2.60
Plumbing	1	1.60
Elementary Education	1	1.60
Drafting	1	1.60
Undecided	1	1.60



## Procedures

This study employed a descriptive research design in which similar groups of students in a particular course are exposed to varying levels of nonverbal communication immediacy. Upon completion of the workshop they were tested for cognitive gain and surveyed regarding their perceptions of the instructor and course content.

A pre-test was utilized to gather demographic information and measured prior cognitive knowledge about “Brain Food.” Prior cognitive knowledge was measured using specific content questions with additional items as filler. Two versions were counter-balanced to avoid order effects. A three-part posttest measured short-term cognitive learning. Recall was measured using the same eleven question true/false items in the pre-test, with items counter-balanced to avoid order effects.

Affective learning was measured by using Christophel’s (1990) Motivation Scale. Andersen’s (1979) Scale was used to measure the subject’s affect toward the content and toward the instructor. As manipulation checks, perceptions of teacher immediacy and teacher style were assessed by utilizing a modified version of Andersen’s General Immediacy Scale.

Employing a modified Solomon Four experimental design, this study tested two levels of manipulated teacher immediacy, moderate and excessively high, on cognitive and affective learning.

An instructor (20 years experience in higher education) acted as a guest instructor for a ten-minute “Brain Food” workshop, and his delivery, but not the content of the message, varied by immediacy conditions. The instructor was given a copy of the “Brain

Food” script previously utilized by Comstock, et al., (1995) and the specific behaviors to be varied during his presentation six weeks before the scheduled interventions. Two weeks later, hourly sessions were scheduled to practice, videotape, and receive feedback from the primary investigator. The script was also revised with specific cues inserted into the verbiage, which provided congruent behaviors in each of the two levels of nonverbal immediacy. Four hourly sessions were scheduled for each level of intervention to insure that each feature, gaze, gesture, eye contact, vocal intonation, and rate of speed were consistent. A videotape of each session was utilized to insure compliance with the expected and rehearsed nonverbal behaviors for each level of immediacy. Only the guest instructor was taped to insure anonymity of each student participant.

The moderate level required approximately 30% compliance on eye contact, facial features, gestures body language voice volume and intonation. The excessively high group condition required compliance on these same nonverbal immediacy conditions at approximately a 60 % level. All levels were video-taped and reviewed to insure the use or nonuse of nonverbal behaviors that were to occur or not occur during the sessions.

Announcement of the “guest” instructor was made prior to the appointed sessions. A consent form was presented to all students with instructions for it’s purpose, and necessity. The pre-test was administered upon receipt of the consent form and the workshop was conducted. The posttest was administered immediately upon completion of the content delivery.

### Similarity of Intact Groups

To assure that subjects in the four groups came from the same population, responses from the eleven-item cognitive knowledge of “Brain Food” pre-test were used as the dependent variable in a t-test. The results on the Medium level of Immediacy on the pre-test was (M= 4.7059) and on the Excessively High level of Immediacy pre-test was (M= 5.1356) with ( $t = -1.0486$ ;  $p = .2978$ ). The results showed no significant difference (see Table VI).

TABLE VI  
T-TEST RESULTS ON ELEVEN-ITEM COGNITIVE  
KNOWLEDGE PRE-TEST

Variable	Number	Mean	Standard Deviation	<i>t</i>	<i>p</i>
MI	34	4.7059	1.7150		
EHI	44	5.1364	1.8997	-1.0486	.2978
T	78	9.8425	3.6147		

Note: MI=Medium Immediacy; EHI=Excessively High Immediacy; T=Total.

### Research Question One

*How Will Teacher Nonverbal Immediacy Be Related with a Students'*

*Short-Term Recall?*

A two-tailed t-test was conducted by using the “Brain Food” posttest as the dependent variable. The results indicated there was a significant difference at the .05 level in scores on both the moderate and excessively high immediacy levels.

Scores reflected a mean of (M= 4.7059) on the pre-test and (M= 6.3824); (t= -3.8651; p= .0002573) on the posttest for the medium immediacy level. This is a gain of 1.6765. Excessively high immediacy levels scores reflect a mean of (M= 5.1364) and (M= 7.0227); (t= -5.4084 and p= .0000006922). This is a gain of 1.8863. Both Medium and Excessively High immediacy groups showed significant differences. Learning increased across both levels, suggesting that, where teacher nonverbal immediacy is concerned, students cannot get too much of a good thing. Excessively high teacher immediacy appeared to have a greater impact than moderate levels of nonverbal immediacy. At present, we can only conclude the need to isolate human communication variables that could have affected the outcome and determine more precisely what the impact of immediacy variables was.

Cognitive gain in one-shot, ten-minute lecture format where recall is immediately tested may not produce the same results based on a mid-term exam in an on-going classroom setting. Effects on teacher nonverbal immediacy on cognitive learning may dissipate due to naturally occurring intervening variables. (See Table VII).

TABLE VII  
TWO-TAILED T-TEST RESULTS OF POSTTEST TO  
DETERMINE SHORT-TERM RECALL.

Variable	Number	Mean	Standard Deviation	<i>t</i>	<i>p</i>
MI Pre-test	34	4.7059	1.7150		
MI Posttest	34	6.3824	1.8589	-3.8651*	.0002573
		Gain = 1.6765			
EHI Pre-test	44	5.1364	1.8997		
EHI Posttest	44	7.0227	1.3205	-5.4084*	.0000006972
		Gain = 1.8863			

Note: \*=significant at .05; MI=Medium Immediacy; EHI=Excessive High Immediacy.

Additional information gained from the posttest revealed no significant differences in how the two groups felt about how well they did on the cognitive portion. T-tests were run on what the students thought they learned and what they think they would have learned if they had the ideal instructor. Calculations (t-tests) between the medium and excessively high conditions on how much they thought they learned revealed means of (M= 5.8824) on the medium level and (M= 6.2955) on the excessively high level; (t= -1.1235; p= .2648). Similar calculation on how much they would have learned if they had the ideal instructor revealed means of (M= 6.7941) on the medium level and (M= 6.3409) on the excessively high level; (t=-1.1235; p= .2648). There was no significant difference between what the groups thought they learned and what they thought they could have learned with an ideal instructor (see Tables VIII and IX).

TABLE VIII  
T-TEST RESULTS MEASURING SELF-REPORT OF  
HOW MUCH STUDENTS LEARNED

Variable	Number	Mean	Standard Deviation	<i>t</i>	<i>p</i>
MI	34	5.8824	1.4723		
EHI	44	6.2955	1.7723	-1.1235	.2648
T	78	12.1779	3.2446		

Note: MI=Medium Immediacy; EHI=Excessively High Immediacy; T=Total.

TABLE IX  
T-TEST RESULTS MEASURING SELF-REPORT OF HOW  
MUCH STUDENTS WOULD HAVE LEARNED  
WITH IDEAL INSTRUCTOR

Variable	Number	Mean	Standard Deviation	<i>t</i>	<i>p</i>
MI	34	6.7941	1.7194		
EHI	44	6.3409	2.3815	.9755	.3324
T	78	13.1350	4.1009		

Note: MI=Medium Immediacy; EHI=Excessively High Immediacy; T=Total.

## Research Question Two

*How Will Teacher Nonverbal Immediacy Be Related with Students' State Motivation?*

The ANOVA data reveals only items 1, 3, and 6 as significantly different. However, when you consider the t-test results, the means are consistently higher for moderate levels of immediacy than for excessively high levels. Moderate nonverbal immediacy data indicates it has a stronger effect on state motivation. When levels of nonverbal immediacy significantly deviate from students' expectations or preferences for proper, professional teacher behavior then they are likely to experience a negative effect by decreasing positive regard for the source of the arousal. State motivation can be affected by both moderate and excessively high levels of nonverbal immediacy. The data suggests that a moderate level produces a greater impact (see Tables X and XI).

TABLE X  
SUMMARY OF ANALYSIS OF VARIANCE ON ELEVEN-  
ITEM PORTION OF POSTTEST RELATED TO  
MEASUREMENT OF STATE MOTIVATION

Question	Source of Variance	Degree of Freedom	Sum of Squares	Mean Square	F	<i>p</i>
1	Model	1	11.8923	11.8923	6.1236	.0156*
	Error	76	147.5949	1.9420		
	Total	77	159.4872	13.8343		
2	Model	1	3.7104	3.7104	1.6043	.2092
	Error	76	175.7767	2.3129		
	Total	77	179.4871	6.0233		
3	Model	1	20.3243	20.3243	8.3283	.0051*
	Error	76	185.4706	2.4404		
	Total	77	205.7949	22.7647		
4	Model	1	.6340	.6340	.2761	.6008
	Error	76	174.5455	2.2967		
	Total	77	175.1795	2.9307		
5	Model	1	.0232	.0232	.006552	.9357
	Error	76	268.8102	3.5370		
	Total	77	268.8334	3.5602		
6	Model	1	16.5102	16.5102	6.2446	.0146*
	Error	76	200.9385	200.9385		
	Total	77	217.4487	217.4487		
7	Model	1	.2121	.2121	.0720	.7891
	Error	76	220.8788	2.9450		
	Total	77	221.0909	3.1571		
8	Model	1	1.4816	1.4816	.5603	.4565
	Error	76	198.3106	2.6441		
	Total	77	199.8022	4.1257		
9	Model	1	2.3907	2.3907	.6294	.4301
	Error	76	284.8561	3.7981		
	Total	77	287.2468	6.1888		
10	Model	1	.000857	.000857	.0002377	.9877
	Error	76	273.9479	3.6046		
	Total	77	273.948757	3.60547		
11	Model	1	2.4935	2.4935	.9094	.3433
	Error	76	205.6364	2.7418		
	Total	77	208.1299	5.2353		

Note: \*=significant at .05.



TABLE XI  
 SUMMARY OF T-TESTS ON ELEVEN-ITEM PORTION  
 OF POSTTEST RELATED TO MEASUREMENT  
 OF STATE MOTIVATION

Question	Variable	Number	Mean	Standard Deviation
1	MI	34	3.2647	1.3328
	EHI	44	2.4773	1.4385
	Total	78	5.7420	2.7713
2	MI	34	2.7353	1.4628
	EHI	44	2.2955	1.5638
	Total	78	5.0308	3.0266
3	MI	34	3.5294	1.6187
	EHI	44	2.5000	1.5173
	Total	78	6.0294	3.1360
4	MI	34	5.0000	1.2792
	EHI	44	4.8182	1.6743
	Total	78	9.6711	2.9535
5	MI	34	4.8529	1.7431
	EHI	44	4.8182	1.9798
	Total	78	9.6711	3.7229
6	MI	34	3.3824	1.7235
	EHI	44	2.4545	1.5470
	Total	78	5.8369	3.2705
7	MI	34	4.6061	1.7310
	EHI	44	4.5000	1.7050
	Total	78	9.1061	3.4360
8	MI	34	4.6061	1.3906
	EHI	44	4.8864	1.7812
	Total	78	9.4925	3.1718
9	MI	34	3.6970	1.6295
	EHI	44	3.3409	2.1560
	Total	78	7.0379	3.7855
10	MI	34	4.0294	1.7492
	EHI	44	4.0227	2.0057
	Total	78	8.0521	3.7549
11	MI	34	4.6364	1.6922
	EHI	44	5.0000	1.6282
	Total	78	9.6364	3.3204

Note: MI=Medium Immediacy; EHI=Excessively High Immediacy.

### Research Question Three

*How Will Teacher Nonverbal Immediacy Be Related with Students' Attitudes Toward the Course Content?*

The ANOVA data shows only item 1 produced a significant change. Although both had impact, the t-test means show moderate level produces a consistently higher impact than excessively high levels of nonverbal immediacy. The data reflects that students are less likely to learn from or to have a positive effect toward the content of the material discussed by the excessively high immediacy teachers. Teachers should utilize a moderate level of nonverbal immediacy to measurably impact attitude toward content (see Tables XII and XIII).

Since this workshop contained somewhat new material not related to the subject's plans of study and not part of the course they were participating in, it is to be expected that the interest in the course would not be significant.

TABLE XII

SUMMARY OF ANALYSIS OF VARIANCE ON FOUR-ITEM  
PORTION OF POSTTEST RELATED TO STUDENT  
ATTITUDE TOWARD COURSE CONTENT

Question	Source of Variance	Degree of Freedom	Sum of Squares	Mean Square	F	<i>p</i>
1	Model	1	7.6693	7.6693	6.92	.0103*
	Error	76	84.2794	1.1089		
	Total	77	91.9497	8.7773		
2	Model	1	.2304	.2304	.11	.7362
	Error	76	153.2566	2.0165		
	Total	77	153.4870	2.2469		
3	Model	1	2.2640	2.2640	1.45	.2330
	Error	76	119.0307	1.5611		
	Total	77	121.2947	3.8301		
4	Model	1	1.0618	1.0618	.58	.4470
	Error	76	138.1176	1.8173		
	Total	77	139.1194	2.8791		

Note: \*=significant at .05.

TABLE XIII

SUMMARY OF T-TESTS ON FOUR-ITEM PORTION OF  
POSTTEST RELATED TO STUDENT ATTITUDE  
TOWARD COURSE CONTENT

Question	Variable	Number	Mean	Standard Deviation
1	MI	34	2.3825	1.1013
	EHI	44	1.7500	1.0144
	Total	78	4.1323	2.1157
2	MI	34	5.8823	.9133
	EHI	44	5.7727	1.7099
	Total	78	11.6550	2.6232
3	MI	34	2.4117	1.2819
	EHI	44	2.0681	1.2275
	Total	78	4.4798	2.5094
4	MI	34	2.2352	1.1297
	EHI	44	2.0000	1.4941
	Total	78	4.2352	2.6238

Note: MI=Medium Immediacy; EHI=Excessively High Immediacy.

#### Research Question Four

*How Will Teacher Nonverbal Immediacy Be Related with Attitudes Toward the Teacher?*

ANOVA data reflects significant relationship between teacher nonverbal immediacy and students' attitudes about the instructor. T-test data reflects that moderate teacher nonverbal immediacy has a stronger impact on students' perception of the instructor than does excessively high levels of nonverbal immediacy.

The presence of moderate immediacy level cues may reduce the ambiguity of the relational message. This goes to the very heart of the definition given by Mehrabian (1971) that immediacy reduces the psychological distance between individuals. Excessively high levels of nonverbal immediacy may interfere by debilitating the students' ability to pay attention to all that is going on and prohibits ability to process all the information being given.

Results on attitude about the instructor were:

- Attitude 1:  $F(1,76) = 11.58$  ( $p = .0011$ )
- Attitude 2:  $F(1,76) = 2.76$  ( $p = .1010$ )
- Attitude 3:  $F(1,76) = 4.74$  ( $p = .0325$ )
- Attitude 4:  $F(1,76) = 7.36$  ( $p = .0082$ ) (see Table XIV and XV).

TABLE XIV

SUMMARY OF ANALYSIS OF VARIANCE ON FOUR-ITEM  
PORTION OF POSTTEST RELATED TO STUDENT  
ATTITUDE TOWARD INSTRUCTOR

Question	Source of Variance	Degree of Freedom	Sum of Squares	Mean Square	F	<i>p</i>
1	Model	1	14.1728	14.1728	11.58	.0011*
	Error	76	93.0066	1.2237		
	Total	77	107.1794	15.3965		
2	Model	1	4.9760	4.9760	2.76	.1010
	Error	76	137.1778	1.8049		
	Total	77	142.1538	6.7809		
3	Model	1	6.3677	6.3677	4.74	.0325*
	Error	76	102.0040	1.3421		
	Total	77	108.3717	7.7098		
4	Model	1	12.6302	12.6302	7.36	.0082*
	Error	76	130.3569	1.7152		
	Total	77	142.9871	14.3454		

Note: \*=significant at .05.

TABLE XV

SUMMARY OF T-TESTS ON FOUR-ITEM PORTION OF  
POSTTEST RELATED TO STUDENT ATTITUDE  
TOWARD INSTRUCTOR

Question	Variable	Number	Mean	Standard Deviation
1	MI	34	2.3823	1.4145
	EHI	44	1.5227	.7920
	Total	78	3.9050	2.2065
2	MI	34	5.5588	1.3071
	EHI	44	6.0681	1.3707
	Total	78	11.6269	2.6778
3	MI	34	2.2352	1.3270
	EHI	44	1.6590	1.0102
	Total	78	3.8492	2.3372
4	MI	34	2.4705	1.4192
	EHI	44	1.6590	1.2189
	Total	78	4.1295	2.6381

Note: MI=Medium Immediacy; EHI=Excessively High Immediacy.

Additional measures to determine students' perception of teacher immediacy and style were also included in the portion of the posttest related to attitude toward the instructor. Both ANOVA and t-tests were conducted.

Results on teacher immediacy were:

- Immediacy 1:  $F(1,74)= 9.5362$  ( $p= .002836$ )
- Immediacy 2:  $F(1,76)= 5.8167$  ( $p= .01836$ )
- Immediacy 3:  $F(1,74)= 7.7897$  ( $p= .006680$ )
- Immediacy 4:  $F(1,74)=10.1016$  ( $p=.002163$ ) (See Tables XVI and XVII).

TABLE XVI

SUMMARY OF ANALYSIS OF VARIANCE ON FOUR-ITEM  
PORTION OF POSTTEST RELATED TO IMMEDIACY  
OF THE INSTRUCTOR

Question	Source of Variance	Degree of Freedom	Sum of Squares	Mean Square	F	<i>p</i>
1	Model	1	26.0681	26.0681	9.5362	.002836*
	Error	76	202.2871	2.7336		
	Total	77	228.3552	28.8017		
2	Model	1	19.5872	19.5872	5.8167	.01836*
	Error	76	249.1891	3.3674		
	Total	77	268.7763	22.9546		
3	Model	1	23.8842	23.8842	7.7897	.006680*
	Error	76	226.8922	3.0661		
	Total	77	250.7764	26.9503		
4	Model	1	34.9652	34.9656	10.1016	.002163*
	Error	76	256.1401	3.4614		
	Total	77	291.1053	38.4270		

Note: \*=significant at .05.

TABLE XVII  
SUMMARY OF T-TESTS ON FOUR-ITEM PORTION OF  
POSTTEST RELATED TO IMMEDIACY  
OF THE INSTRUCTOR

Question	Variable	Number	Mean	Standard Deviation
1	MI	34	3.0588	1.9531
	EHI	44	1.8810	1.3651
	Total	78	4.9398	3.3182
2	MI	34	5.7647	2.0150
	EHI	44	6.7857	1.6753
	Total	78	12.5504	2.6778
3	MI	34	5.7059	2.0675
	EHI	44	6.8333	1.4469
	Total	78	12.5392	3.5144
4	MI	34	3.4118	2.1898
	EHI	44	2.0476	1.5453
	Total	78	5.4494	3.7351

Note: MI=Medium Immediacy; EHI=Excessively High Immediacy.

Results on teacher style were:

- Style 1:  $F(1,75) = 16.2333$  ( $p = .0001330$ )
- Style 2:  $F(1,75) = 23.6870$  ( $p = .000006117$ )
- Style 3:  $F(1,73) = 46.9180$  ( $p = .000000001977$ )
- Style 4:  $F(1,74) = 15.1842$  ( $p = .0002122$ ) (See Tables XVIII and XIX).

Coupling the additional measures about style and teacher immediacy, with all portions of the scale, revealing substantial differences, it is concluded that nonverbal teacher immediacy had its greatest impact on how the students perceived the instructor after experiencing the excessively high level of nonverbal immediacy. This adequately

reflects information discovered during the literature review, and just confirms its effect in the post secondary technical learning environment.

TABLE XVIII

SUMMARY OF ANALYSIS OF VARIANCE ON FOUR-ITEM  
PORTION OF POSTTEST RELATED TO TEACHING  
STYLE OF THE INSTRUCTOR

Question	Source of Variance	Degree of Freedom	Sum of Squares	Mean Square	F	<i>p</i>
1	Model	1	52.9228	52.9228	16.2333	.0001330*
	Error	76	244.7415	3.2632		
	Total	77	297.6643	56.1860		
2	Model	1	44.5318	44.5318	23.6870	.000006117*
	Error	76	141.0007	1.8800		
	Total	77	185.5325	46.4118		
3	Model	1	114.5060	114.5060	46.9180	.000000001977*
	Error	76	178.1607	2.4406		
	Total	77	292.6667	116.9466		
4	Model	1	52.1053	52.1053	15.1842	.0002122*
	Error	76	253.9342	3.4315		
	Total	77	305.0395	56.5368		

Note: \*=significant at .05.



TABLE XIX  
 SUMMARY OF T-TESTS ON FOUR-ITEM PORTION OF  
 POSTTEST RELATED TO TEACHING STYLE  
 OF THE INSTRUCTOR

Question	Variable	Number	Mean	Standard Deviation
1	MI	34	3.6765	2.2525
	EHI	44	1.9767	1.3182
	Total	78	5.6532	3.5707
2	MI	34	5.7941	1.8386
	EHI	44	7.3256	.8373
	Total	78	13.1197	2.6759
3	MI	34	5.1765	2.2084
	EHI	44	7.6585	.6561
	Total	78	15.8350	2.8645
4	MI	34	4.1176	2.1287
	EHI	44	2.4524	1.5958
	Total	78	6.5700	3.7245

Note: MI=Medium Immediacy; EHI=Excessively High Immediacy.

## CHAPTER V

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### Introduction

The purpose of this study was to determine how learning states created by an instructor's nonverbal communication (immediacy) was perceived to influence students' cognitive and affective learning performance in a vocational/technical, post secondary educational setting.

Specifically, the research questions guiding this study were:

1. How will nonverbal teacher immediacy be related with students' short-term recall?
2. How will teacher nonverbal immediacy be related with students' state motivation?
3. How will teacher nonverbal immediacy be related with students' attitudes toward the course content?
4. How will teacher nonverbal immediacy be related with attitudes toward the teacher?

## Description of Population

The population of this study was 78 students chosen from four intact groups of a required College Cornerstone class. The demographic section accompanying the posttest provided general information regarding the individuals participating in this study, those items included age, gender, classification and major course of study. The results portray the majority (83%) of the participants were between the ages of 18 and 23. The breakdown reveals that 34 (43.59%) of the students were female and 44 (56.41%) were male. The distribution showed 31 (43.66%) were first semester students and 40 (56.34%) were second semester students. Twenty-six different major plans of study (including one undecided) were represented from the thirteen department offerings on campus.

## Procedures

This study employed a descriptive research design in which similar groups of students in a particular course are exposed to varying levels of nonverbal communication immediacy upon completion of the workshop they were tested for cognitive gain and surveyed regarding their perceptions of the instructor and course content.

A pre-test was utilized to gather demographic information and measured prior cognitive knowledge about "Brain Food." Prior cognitive knowledge was measured using specific content questions with additional items as filler. Two versions were counter-balanced to avoid order effects. A three-part posttest measured short-term cognitive learning. Recall was measured using the same eleven question true/false items in the pre-test, with items counter-balanced to avoid order effects.

Affective learning was measured by using Christophel's (1990) Motivation Scale. Andersen's (1979) Scale was used to measure the subject's affect toward the content and toward the instructor. As manipulation checks, perceptions of teacher immediacy and teacher style were assessed by utilizing a modified version of Andersen's General Immediacy Scale.

Employing a modified Solomon Four experimental design, this study tested two levels of manipulated teacher immediacy, moderate and excessively high, on cognitive and affective learning.

An instructor (20 years experience in higher education) acted as a guest instructor for a ten-minute "Brain Food" workshop, and his delivery, but not the content of the message, varied by immediacy conditions. The instructor received written specifications for his nonverbal immediacy behaviors in each of the two conditions. He practiced and was coached by the researcher until he could competently perform and manipulate the two levels of immediacy.

The moderate level required approximately 30% compliance on eye contact, facial features, gestures body language voice volume and intonation. The excessively high group condition required compliance on these same nonverbal immediacy conditions at approximately a 60% level. All levels were video-taped and reviewed to insure the use or nonuse of nonverbal behaviors that were to occur or not occur during the sessions.

Announcement of the "guest" instructor was made prior to the appointed sessions. A consent form was presented to all students with instructions for its purpose, and necessity. The pre-test was administered upon receipt of the consent form and the

workshop was conducted. The posttest was administered immediately upon completion of the content delivery.

A t-test was administered on all the pre-tests to assure that subjects came from the same population. Response to the 11-item cognitive knowledge “Brain Food” were used as the dependent variable. Results indicated there was no significant difference in knowledge among the medium ( $M= 4.7059$ ) and excessively high ( $M= 5.1365$ ) immediacy conditions ( $t= -1.0486$ ;  $p= .2978$ ), given this, it was appropriate to assume that any difference in posttest scores were due to the experimental treatment.

#### Research Question One

##### *How Will Nonverbal Teacher Immediacy Be Related with Students' Short-Term Recall?*

A t-test was conducted by using the “Brain Food” posttest as the dependent variable. The results indicated there was a significant difference in scores on both the moderate and excessively high immediacy levels. Scores reflected a mean of ( $M= 4.7059$ ) on the pre-test and ( $M= 6.3824$ ); ( $t= -3.8651$ ;  $p= .0002573$ ) on the posttest for the medium immediacy level. This is a gain of 1.6765. Excessively high immediacy levels scores reflect a mean of ( $M= 5.4084$ ) and ( $M= 7.0227$ ). This is a gain of 1.8863; ( $t= -5.4084$  and  $p= .0000006922$ ).

Learning increased across both levels, suggesting that, where teacher nonverbal immediacy is concerned, students cannot get too much of a good thing. Excessively high teacher immediacy appeared to have a greater impact than moderate levels of nonverbal

immediacy. At present, we can only conclude the need to isolate human communication variables that could have affected the outcome and determine more precisely what the impact of immediacy variables was.

Cognitive gain in one-shot, ten-minute lecture format where recall is immediately tested may not produce the same results based on a mid-term exam in an on-going classroom setting. Effects on teacher nonverbal immediacy on cognitive learning may dissipate due to naturally occurring intervening variables.

Additional information gained from the posttest revealed no significant differences in how the two groups felt about how well they did on the cognitive portion. T-tests were run on what the students thought they learned and what they think they would have learned if they had the ideal instructor. Calculations (t-tests) between the medium and excessively high conditions on how much they thought they learned portion revealed means of (M=6.7941 and M= 6.3409) ( $t= .9755$  ( $p= .3324$ )). Similar calculation on how much they would have learned if they had the ideal instructor revealed means of (M= 5.8824 and M= 6.2955) ( $t=-1.1235$ ;  $p= .2648$ ).

## Research Question Two

*How Will Teacher Nonverbal Immediacy Be Related with Students' State Motivation?*

The ANOVA data reveals only items 1, 3, and 6 as significantly different. However, when you consider the t-test results, the means are consistently higher for moderate levels of immediacy than for excessively high levels. Moderate nonverbal

immediacy data indicates it has a stronger effect on state motivation. When levels of nonverbal immediacy significantly deviate from students' expectations or preferences for proper, professional teacher behavior then they are likely to experience a negative effect by decreasing positive regard for the source of the arousal. State motivation can be affected by both moderate and excessively high levels of nonverbal immediacy. The data suggests that a moderate level produces a greater impact.

### Research Question Three

*How Will Teacher Nonverbal Immediacy Be Related with Students' Attitudes Toward the Course Content?*

The ANOVA data shows only item 1 produced a significant change. Although both had impact, the t-test means show moderate level produces a consistently higher impact than excessively high levels of nonverbal immediacy. The data reflects that students are less likely to learn from or to have a positive effect toward the content of the material discussed by the excessively high immediacy teachers. Teachers should utilize a moderate level of nonverbal immediacy to measurably impact attitude toward content.

### Research Question Four

*How Will Teacher Nonverbal Immediacy Be Related with Attitudes Toward the Teacher?*

An ANOVA and t-test were conducted on each of the four-item portion of the posttest related to measurement of attitudes toward the instructor, specifically on teacher

style and teacher immediacy. Results showed that three of the four items were significantly different with only item two reflecting no change.

Results on attitude about the instructor were:

- Attitude 1:  $F(1,76) = 11.58$  ( $p = .0011$ )
- Attitude 2:  $F(1,76) = 2.76$  ( $p = .1010$ )
- Attitude 3:  $F(1,76) = 4.74$  ( $p = .0325$ )
- Attitude 4:  $F(1,76) = 7.36$  ( $p = .0082$ )

Additional measures to determine students' perception of teacher immediacy and style were also included in the portion of the pre-test related to attitude toward the instructor. Both ANOVA and t-tests were conducted.

Results on teacher immediacy were:

- Immediacy 1:  $F(1,74) = 9.5362$  ( $p = .002836$ )
- Immediacy 2:  $F(1,76) = 5.8167$  ( $p = .01836$ )
- Immediacy 3:  $F(1,74) = 7.7897$  ( $p = .006680$ )
- Immediacy 4:  $F(1,74) = 10.1016$  ( $p = .002163$ )

Results on teacher style were:

- Style 1:  $F(1,75) = 16.2333$  ( $p = .0001330$ )
- Style 2:  $F(1,75) = 23.6870$  ( $p = .000006117$ )
- Style 3:  $F(1,73) = 46.9180$  ( $p = .000000001977$ )
- Style 4:  $F(1,74) = 15.1842$  ( $p = .0002122$ )

ANOVA data reflects significant relationship between teacher nonverbal immediacy and students' attitudes about the instructor. T-test data reflects that moderate



teacher nonverbal immediacy has a stronger impact on students' perception of the instructor than does excessively high levels of nonverbal immediacy.

The presence of moderate immediacy level cues may reduce the ambiguity of the relational message. This goes to the very heart of the definition given by Mehrabian (1971) that immediacy reduces the psychological distance between individuals.

Excessively high levels of nonverbal immediacy may interfere by debilitating the students' ability to pay attention to all that is going on and prohibits ability to process all the information being given.

### Discussion

This study experimentally demonstrates that teachers' nonverbal immediacy and cognitive and affective learning are related. This study extended research on teacher nonverbal immediacy by manipulating, rather than requesting students recall their perceptions of immediacy and measuring actual cognitive gain rather than perceptions of learning.

Earlier studies did not use a trained professional who could accurately exhibit two varying levels of nonverbal immediacy. They simply took what existed in the student's perceptions and assumed they encompassed the entire range of possibilities. This study found a cognitive gain using an objective test of message content.

Rather than randomly assign students to specific conditions, intact groups were used in this study. By determining that the groups were similar in age, gender, classification and prior knowledge of "Brain Food," the researcher feels no variable

affecting the outcome was utilized. The use of intact groups did not threaten the validity of the results.

For too long the assumption was strong that the essence of a teacher's communication lay in verbal messages delivered clearly and distinctly to a captive audience. What we now know about the impact of nonverbal communication immediacy behaviors clearly indicates that faculty members need a clear understanding of these variables and their impact in the classroom.

If we consider the results of this study with previous research we have compelling evidence that an understanding of teacher immediacy is of crucial importance in post secondary learning environments. If teachers are convinced that the use of specific nonverbal immediacy behaviors are related to positive student performance, then they should be able to modify their behavior accordingly. Immediacy is a trait, but one which can be modified through training. Previous study (Gorham & Zakahi, 1990) has shown teachers can improve their immediacy behaviors through practice. If teachers know what to do to be more immediate, and know the tremendous impact of immediacy in the classroom, they can become more effective teachers.

## Recommendations

### Recommendations for Practice

1. Teacher education training should include exposure to and experience in utilization of various levels of nonverbal immediacy. This should go

beyond a brief exposure in a methods or presentation seminar and reflect a full semester of training with a practicum attached.

2. Teacher in-service should address on-going exposure to the practice and utilization of nonverbal immediacy.
3. Nationally, there are numerous centers whose main purpose is the training and recognition of nonverbal immediacy. Teachers should have access to this training. Many people see expertise in nonverbal communication as manipulative. However, all communication in its basic sense is manipulative, whether trying to entertain, motivate, coerce, embarrass, threaten, flirt, or market a product. It only makes sense to understand and utilize it with structure rather than randomly.
4. Each post-secondary technical institution should have at least one teacher/administrator professionally trained in nonverbal communication. There should be on-going provisions for training, modeling, and feedback for teachers in their local teaching environment.

#### Recommendations for Research

1. This study was conducted with a relatively small subject sample size of 78 students. I recommend further study with greater numbers of participants to determine the impact of nonverbal immediacy.
2. Further study should be conducted utilizing three levels of nonverbal immediacy—cognitive, affective, and behavioral—to determine where the greatest effect occurs.

3. Further study should be conducted utilizing male and female instructors to determine the presence of gender bias in nonverbal immediacy.
4. I recommend conducting this intervention with a content subjects have an expressed interest in learning. The use of a technical presentation using material unfamiliar and difficult to assimilate in a ten-minute structured delivery may have impacted this study.
5. Research should be conducted to investigate the relationship between learning styles and nonverbal immediacy. This could assist educators in meeting the needs of their students in a more pronounced manner by coupling two proven methods of delivery.
6. Further study should be conducted to measure the effect on nonverbal immediacy only on cognitive learning.
7. I recommend conducting this study with a delayed posttest. The necessity being held accountable for a specific content at a much later date might show significantly different results on cognitive gain.

## BIBLIOGRAPHY

Abrami, P. C., Leventhal, L., & Perry, R. P. (1982). Educational Seduction. Review of Educational Research, 52, pp. 44-64.

Allen, J. L., & Shaw, D. H. (1990). Teachers' communication behaviors and supervisors' evaluation of instruction in elementary and secondary classrooms. Communication Education. Vol. 39, p. 90.

Amidon, E. J., & Flanders, N. A. (1963). The role of the teacher in the classroom. Minneapolis, MN: Amidon.

Andersen, J. F. (1978). The relationship between teacher immediacy and teaching effectiveness. Unpublished doctoral dissertation, West Virginia University, Morgantown, WV.

Andersen, J. F. (1979). Teacher immediacy as a predictor of teaching effectiveness. In D. Nimmo (Ed.), Communication Yearbook 3, (pp. 543-559). New Brunswick, NJ: Transaction Books.

Andersen, J. F. (1986). Instructor nonverbal communication: Listening to our silent messages. In J. Civikly (Ed.), Communication in the college classrooms, (pp.41-49). San Francisco, CA: Jossey-Bass.

Andersen, J. F., Andersen, P.A., & Jensen, A.D. (1979). The measurement of nonverbal immediacy. Communication Research, 7, p. 153, 180.

Andersen, P. A. (1985). Nonverbal immediacy in instruction. In L. Barker (Ed.), Communication in the classroom (pp. 98-120). Englewood, Cliffs, NJ: Prentice-Hall.

Andersen, P. A. & Andersen, J. (1985). Nonverbal immediacy in interpersonal communication. In A.W. Siegman & S. Feldstein (Eds.), Multichannel integration of nonverbal behavior (pp. 1-36). Hillsdale, NJ: Erlbaum.

Andersen, J. F., Norton, R.W., & Nussbaum, J.F. (1981). Three investigations exploring the relationship between perceived teacher communication behaviors and student learning. Communication Education, 30, pp. 377-392.

Andriate, G. S. (1982). Teacher communication and student learning: The effects of perceived solidarity with instructors and student anxiety proneness on three learning outcomes. In M. Burgoon (Ed.), Communication Yearbook(6), Beverly Hills, CA: Sage.

Argyle, M., Alkema, F., & Gilmour R. (1971). The communication of friendly and hostile attitudes by verbal and nonverbal signals. European Journal of Social Psychology, 1, pp. 385-402.

Bandler, R., & Grinder, J. (1975). The structure of magic. Vol. I. Palo Alto, CA: Science and Behavior Books.

Bandler, R., & Grinder, J. (1976). The structure of magic. Vol. II. Palo Alto, CA: Science and Behavior Books.

Barr, R. B., & Tagg, J. (1995). From teaching to learning: A new paradigm for the undergraduate education. Change, 27(6), 12-25.

Bateson, G. (1972). Steps to an ecology of mind. New York, NY: Ballantine Books.

Bell, A. H. (1999). Using nonverbal cues. Incentive, Vol. 173(9), pp.162-166. New York, NY.

Birdwhistell, R. L. (1955). Background to kinesics. ETC, 13, 10-18.

Birdwhistell, R. L. (1970). Kinesics and context: Essays on body motion communication. Philadelphia, PA: University of Pennsylvania Press.

Bluedorn, A. C. (1998). An interview with anthropologist Edward T. Hall, Journal of Management Inquiry. Vol.7, Issue 2, pp. 109-115. Thousand Oaks, CA.

Bloom, B. S. (Ed.). (1956). A taxonomy of educational objectives. Handbook I: The cognitive domain. New York, NY: Longmans Green.

Bloom, B. S. (1978). Human characteristics and school learning. New York, NY: McGraw-Hill.

Brooks, D. M. & Woolfolk, A. E. (1987). The effects of students' nonverbal behavior on teachers. The Elementary School Journal. Vol. 88,(1), pp. 51-63. Chicago, IL: The University of Chicago.

Booth-Butterfield, M., & Trotta, M. R. (1994). Attributional patterns for expression of love. Communication Reports. 7, pp. 119-129.

Burgoon, J. K. (1991). Relational message interpretation of touch, conversational distance, and posture. Journal of Nonverbal Behavior, 15, pp. 233-259.

Burgoon, J. K. (1994). Nonverbal signals. In M/L/ Knapp & G.R. Miller (Eds.), Handbook of Interpersonal Communication, 2<sup>nd</sup> Ed. (pp. 229-285). Thousand Oaks, CA: Sage.

Burgoon, J. K., Buller, D. B., Hale, J. L., & deTurck, M. A. (1984). Relational messages associated with nonverbal behaviors. Human Communication Research, 10, pp. 351-378.

Burgoon, J. K., Buller, D. B., & Woodall, W. G. (1996). Nonverbal communication: The unspoken dialogue. New York, NY: McGraw-Hill.

Burgoon, J. K., & LePoire, B. A. (1999). Nonverbal cues and interpersonal judgments: Participant and observer perception of intimacy, dominance, composure and formality. Communication Monographs, 66, pp. 105-124.

Burgoon, J. K., & Saine, T. (1978). The unspoken dialogue: An introduction to nonverbal communication. Boston, MA: Houghton Mifflin.

Butland, M. J. & Beebe, Steven A. (1992). A study of the application of implicit communication theory, teacher immediacy and student learning. ERIC Document Reproduction Service, ED 346532.

Butland, M. J. (1992). Teacher immediacy and power in the classroom: The application of implicit communication theory. ERIC Document Reproduction Service, ED 371421.

Coats, W. D., & Smidchens, U. (1966). Audience recall as a function of speaker dynamism. Journal of Educational Psychology, 57, pp. 189-191.

Conville, R. (1975). Linguistic nonimmediacy and self-presentaion. Journal of Psychology, 90, pp. 219-227.

Cheseboro, J. L., & McCroskey, J. C. (1998). The relationship of teacher clarity and teacher immediacy with students' experience of state receiver apprehension. Communication Quarterly.

Christensen, L. J. (1995). Classroom situations which lead to student participation. ERIC Document Reproduction Service, ED 391207.

Christensen, L. J., & Menzel, K. E. (1998). The linear relationship between student reports of teacher immediacy behavior and perceptions of state motivation, and of cognitive, affective, and behavioral learning. Communication Education.

Christophel, D. M. (1990). The relationships among teacher immediacy behaviors, student motivation, and learning. Communication Education. Vol. 39.

Collier, M. J., & Powell, R. (1990). Ethnicity, instructional communication and classroom systems. Communication Quarterly.

Comstock, J., Rowell, E., & Bowers, J. W. (1995). Food for thought: Teacher nonverbal immediacy, student learning, and curvilinearity. Communication Education. Vol. 44.

Couch, R. (1993). Nonverbal language and its implications for teachers. ERIC Document Reproduction Service, ED 363331.

DeVito, J. A. (1998). The interpersonal communication handbook. New York, NY: Random House.

Dalton, S.S., & Moir, E. (1992). Evaluating limited English proficient (LEP) teacher training and in-service programs. In Proceedings of the Second National Research Symposium on Limited English Proficient Student Issues: Focus on Evaluation and Measurement (pp. 415-445). Washington, D.C.: U.S. Department of Education, Office of Bilingual Education and Minority Language Affairs.

Darling-Hammond, L. (1997). Doing what matters most: Investing in quality teaching. New York, NY: The National Commission on Teaching and America's Future.

Dooley, D. (1990). Social research methods. Englewood Cliffs, NJ: Prentice Hall.

Downs, V. C., Javide, M., & Nussbaum, J. F. (1988). An analysis of teacher's verbal communication within the college classroom: Use of humor, self-disclosure, and narratives. Communication Education. Vol. 37.

Dwyer, K. K. (1998). Communication apprehension and learning style preference: Correlations and implications for teaching. Communication Education.

Eisenberg, E. M. (1984). Ambiguity as strategy in organizational communication. Communication Monographs, 51, pp. 227-242.

Ekman, P. (1980). The face of man: Expressions of universal emotions in a New Guinea village. New York, NY: Garland STMP Press.

Ekman, P., & Friesen, W. (1971). Constants across cultures in face and emotion. Journal of Personality and Social Psychology. 17, pp. 124-129.



Ekman, P., & Friesen, W. V. (1975). Unmasking the face: A guide to recognizing emotions from facial cues. Englewood Cliffs, NJ: Prentice Hall.

Ellis, K. (1995). Apprehension, self-perceived competency, and teacher immediacy in the laboratory supported public speaking course: Trends and relationships. Communication Education. Vol. 44.

Floyd, K., & Burgoon, J. K. (1999). Reacting to nonverbal expressions of liking: A test of interaction adaption theory. Communication Monographs. Vol. 66(3), pp. 219-239.

Frymier, A. B. (1993). The relationship among communication apprehension, immediacy and motivation to study. Communication Reports. 6(8), p.17.

Frymier, A. B. (1994). A model of immediacy in the classroom. Vol. 42(2) pp.133-144. ERIC Document Reproduction Service, ED 506406.

Frymier, A. B., Shulman, G. M., & Housh, M. (1996). The development of a learner empowerment measure. Communication Education. Vol. 37, pp. 40-53.

Garmsont, R. J. (1995). The persuasive art of presenting. The magic of non-verbal communications. Journal of Staff Development. Vol. 16(2) p.60-61. ERIC Document Reproduction Service, ED 512850.

Goertz, M. E., Floden, R. E., & O'Day. (1996). Systemic reform: Studies of education reform. Washington, D.C.: U.S. Department of Education.

Gorham, J. (1988). The relationship between verbal teacher immediacy behaviors and student learning. Communication Education. Vol. 37.

Gorman, J., & Christophel, D. M. (1990). The relationship of teachers' use of humor in the classroom to immediacy and student learning. Communication Education.

Gorham, J., & Christophel, D. M. (1992). Students perceptions of teachers behaviors as motivating and demotivating factors in college classes. Communication Education, Vol. 39, pp. 46-62.

Gorham, J., & Millette, D. (1997). A comparative analysis of teacher and student perceptions of sources of motivation and demotivation in college classes. Communication Education.

Gorham, J., & Zakahi, W. R. (1990). A comparison of teacher and student perceptions of immediacy and learning. Communication Education. Vol. 9, pp. 354-368.

Grant, C. A., & Secada, W. G. (1990). Preparing teachers for diversity. In W. R. Houston (Ed.) Handbook of research on teacher education (pp. 403-422). New York, NY: Macmillan.

Guerrero, L. K., & Miller, T. A. (1998). Associations between nonverbal behaviors and initial impressions of instructor competence and course content in videotaped distance education courses. Communication Education.

Guskin, A. E. (1997). Restructuring to enhance student learning and reduce costs. Liberal Education. 83(2), pp. 10-19.

Hall, E.T. (1979). The silent language. New York, NY: Doubleday.

Hall, E.T. (1979). Cultural models in transcultural communication. In A. Wolfgang (Ed.) Nonverbal behavior: Application and cultural implications, (p. 9-17). New York, NY: Academic Press.

Hall, M. L. (1995). Meta-States: A new domain of logical levels, self-reflexiveness in human states of consciousness. Grand Junction, CO: ET Publications.

Haun, M. W. (1990). Communication competence through faculty development. ERIC Document Reproduction Service, ED 327 909.

Heger, H. K. (1976). How to analyze verbal and nonverbal classroom communication. ERIC Document Reproduction Service, ED 183 616.

Hensley, R. B., & Taylor, P. K. (1987). Nonverbal behavior analysis instrument. Cleaning Home. Vol. 60(5), pp. 199-201, ERIC Document Reproduction Service, ED 349 089.

Hinton, B. E. (19 ). Selected nonverbal communication factors influencing adult behavior and learning. Lifelong Learning. Vol.8, pp. 23-26.

Hochschild, A. (1983). The managed heart. Berkeley and Los Angeles, CA: University of California Press.

Hurt, H., Scott, M., & McCroskey, J. (1978). Communication in the classroom. Reading, MA: Addison Wesley.

Jaasma, M., & Koper, R. J. (1999). The relationship of student-faculty out-of-class communication to instructor immediacy and trust and to student motivation. Communication Education.

Javidi, M., Downs, V. C., & Nussbaum, J. F. (1988). A comparative analysis of teachers' use of dramatic style behaviors at higher and secondary educational levels. Communication Education, 37, pp. 278-288.

Kearney, P. (1984). Perceptual discrepancies in teacher communication style. Communication Education, Vol. 13, pp. 95-108.

Kearney, P., & McCroskey, J. C. (1980). Relationships among teacher communication apprehension and teacher effectiveness. In D. Nimmo (ED.) Communication Yearbook 4 (pp. 533-551). New Brunswick, NJ: Transaction.

Kearney, P., Plax, T., Smith, V. R., & Sorensen, G. (1988). Effects of teacher immediacy and strategy type on college student resistance to on-task demands. Communication Education, Vol. 37.

Kelly, D. H. & Gorham, J. (1988). Effects of immediacy on recall of information. Communication Education, Vol. 37, pp.198-207.

Keng, C. S. (1993). Nonverbal behavior and its place in the classroom. Guidelines, Vol. 15(1), pp. 59-67.

Langdon, D. A. (1997). Poll of teachers' attitudes toward the public schools. Phi Delta Kappan, 79, pp. 212-220.

Lapakko, D. (1997). Three cheers for language; A closer examination of a widely cited study of nonverbal communication. Communication Education. Vol. 46(1) pp. 63-67.

Leathers, D. G. (1979). The informational potential of the nonverbal and verbal components of feedback response. Communication Yearbook 4. New Brunswick, NJ: Transaction Books.

Lewis, B., & Pucelik, F. (1982). Magic demystified. Lake Oswego, OR: Metamorphous Press.

Lind, D. A. & Mason, R. D. (1994). Basic statistics for business and economics. Boston, MA: Irwin.

McCroskey, J. C., & Richmond, V. P. (1992). Increasing teacher influence through immediacy. In V. P. Richmond & J. C. McCroskey (eds.). Power in the classroom: Communication, control and concern, (p. 101-120). Hillsdale, NJ: Lawrence Erlbaum.

McCorskey, J. C., Richmond, V. P., Sallinen, A. Fayer, J. M., & Barraclough, R. A. (1995). A cross-cultural and multi-behavioral analysis of the relationship between nonverbal immediacy and teacher evaluation. Communication Education. Vol. 44.

Mehrabian, A. (1966). Immediacy: An indicator of attitude in linguistic communication. Journal of Personality, 34, pp. 26-34.

Mehrabian, A. (1967). Attitudes inferred from nonimmediacy of verbal communication. Journal of Verbal Learning and Verbal Behavior. 6, pp. 294-295.

Mehrabian, A. (1967). Attitudes inferred from neutral verbal communication. Journal of Consulting Psychology. 31, pp. 414-417.

Mehrabian, A. (1967). Orientation behaviors and nonverbal attitude communication. Journal of Consulting and Clinical Psychology. 16, pp. 324-332.

Mehrabian, A. (1968). Inference of attitudes from the posture, orientation and distance of a communicator. Journal of Consulting and Clinical Psychology. 10, pp. 26-30.

Mehrabian, A. (1969). Some referents and measures of nonverbal behavior. Behavioral Research Methods and Instruments. 1, pp. 213-217.

Mehrabian, A. (1969). Significance of posture and position in the communication of attitude and status relationships. Psychological Bulletin, 71, pp. 359-372.

Mehrabian, A. (1971). Silent messages: Implicit communication of emotions and attitudes. (2<sup>nd</sup> Ed). Belmont CA.

Mehrabian, A. (1971). Nonverbal betrayal of feelings. Journal of Experimental Research in Personality. 5(1), pp. 64-71.

Mehrabian, A., & Ferris, S. (1967). Inference of attitudes from nonverbal communication in two channels. Journal of Consulting Psychology, 31, pp. 248-252.

Mehrabian, A., & Weiner, M. (1967). Decoding of inconsistent communication. Journal of Personality and Social Psychology. 6, pp. 109-114.

Menzell, K. E., & Carrell, L. J., (1999). The impact of gender and immediacy on willingness to talk and perceived learning. Communication Education.

Miller, G. A. (1956). The magical number seven, plus or minus two: Some limits on our capacity for processing information. Psychological Review, Vol. 63(2), pp. 81-97.

- Miller, P. (1981). Nonverbal communications. Washington, D.C.: NEA Publications.
- Moore, A., Masterson, J. T., Christophel, D. M. & Shea, K. A. (1996). College teacher immediacy and student ratings of instruction. Communication Education.
- Mottet, T. P., & Richmond, V. P. (1998). An inductive analysis of verbal immediacy: Alternative conceptualization of relational verbal approach/ avoidance strategies. Communication Quarterly.
- Myers, S. A. (1997). Communicating in the classroom. Communication Quarterly.
- National Commission on Teaching and America's Future (NCTAF). (1996). What matters most: Teaching for America's future. New York, NY: Author.
- National Council of Teachers of Mathematics. (1991). Professional standards for teaching mathematics. Reston, VA: Author.
- Noddings, N. (1997). Thinking about standards, Phi Delta Kappan, 79(3), pp. 184-189.
- Norton, R. W. (1977). Teacher effectiveness as a function of communication style. In B. Ruben (Ed.) Communication Yearbook I, (pp. 525-542). New Brunswick, NJ: Transaction.
- Norton, R. W. (1978). Foundation of a communication style construct. Human Communication Research, 4, 99-112.
- Norton, R. W. (1983). Communication style: Theory, application, and measures. Beverly Hills, CA: Sage.
- Norton, R. W., & Nussbaum, J. (1980). Dramatic behaviors of the effective teacher. In D. Nimmo (Ed.) Communication Yearbook 4 (pp. 565-579). New Brunswick, NJ: Transaction Books.
- Nussbaum, J. F. (1982). Effective teaching: A nonrecursive causal model. In M. Burgoon, (Ed.), Communication Yearbook 5, (pp. 737-749). New Brunswick, NJ: Transaction
- Nussbaum, J. F. (1992). Effective teacher behaviors. Communication Education. Vol. 41, pp. 167-180.

Nussbaum, J. F., & Scott, M. D. (1979). Instructor communication behaviors and their relationship to classroom learning. In D. Nimmo (Ed.). Communication Yearbook 3, (pp. 561-583). New Brunswick, NJ: Transaction.

Nussbaum, J.F. & Scott, M.D. (1980). Student learning as a relational outcome of teacher student interaction. In D. Nimmo (Ed.), Communication Yearbook 4, (pp. 533-552). New Brunswick, NJ: Transaction.

O'Hanlon, B., & Wilk, J. (1987). Shifting contexts. New York, NY: The Guilford Press.

Palmer, M. T., & Simmons, K. B. (1995). Communicating intentions through nonverbal behaviors: Conscious and nonconscious coding of liking. Human Communication Research, 22, pp. 128-160.

Patterson, M. L. (1982). A sequential function model of nonverbal exchange. Psychological Review, 59, 231-249.

Perkins, D. N., & Salomon, G. (1988). Teaching for transfer. Educational Leadership, 46(1), pp. 22-32.

Plax, T. G., Kearney, P., McCroskey, J. C., & Richmond, V. R. (1986). Power in the classroom VI: Verbal control strategies, nonverbal immediacy and affective learning. Communication Education. Vol. 35.

Potter, J. W., & Emanuel, R. (1990). Student's preferences for communication styles and their relationship to achievement. Communication Education. Vol. 39.

Powell, R. G., & Harville, B. (1990). The effects of teacher immediacy and clarity on instructional outcomes: An intercultural assessment. Communication Education. Vol. 39(4), pp. 369-379.

Puro, P., & Bloome, D. (1987). Understanding classroom behavior. Communication Education. Vol. 26(1), p. 26-31.

Rainer, J. D. (1999). Faculty living their beliefs. Journal of Teacher Education. May/June.

Richmond, V. P. (1990). Communication in the classroom: Power and motivation. Communication Education, 39, pp. 181-195.

Richmond, V. P., Gorham, J. S. & McCroskey, J.C. (1987). The relationship between selected immediacy behaviors and cognitive learning. In M. McLaughlin (Ed.) Communication Yearbook 10 (pp. 574-590). Beverly Hills, CA: Sage.

Robinson, R. Y. (1995). Affiliative communication behavior: A comparative analysis of inter-relationships among teacher nonverbal immediacy, responsiveness, and verbal receptivity on the prediction of student learning. ERIC Document Reproduction Service, ED 386767.

Rodriguez, J. I., Plax, T. G., Kearney, P. (1996). Clarifying the relationship between non-verbal immediacy and student cognitive learning: Affective learning as the central causal mediator. Communication Education, Vol. 45(4), pp. 293-303.

Rubin, R., & Feezel, J. D. (1986). Elements of teacher communication competence. Communication Education. Vol. 35.

Sallien-Kuparinen, A. (1992). Teacher Communication style. Communication Education. Vol. 41.

Sanders, J. A., & Wiseman, R. L. (1990). The effects of verbal and nonverbal teacher immediacy on perceived cognitive, affective, and behavioral learning in the multicultural classroom. Communication Education. Vol. 39.

Schmidt, C. P., & McCutcheon, J. W. (1994). Verbal versus nonverbal clues in evaluations of teaching. Journal of Research and Development in Education. Vol. 27(2) pp. 118-125, ERIC Document Reproduction Service, ED 488775.

Scott, M. D., & Nussbaum, J. F. (1981). Student perceptions of instructor communication behavior and their relationship to student evaluation. Communication Education. 30, pp. 44-53.

Scott, M. D., & Wheelless, L. R. (1975). Communication apprehension, student attitudes, and levels of satisfaction. Western Journal of Speech Communication, pp.188-198.

Sensenlaugh, R. (1995). How effective communication can enhance teaching at the college level. ERIC Document Reproduction Service, ED 380847.

Skav, L., & Whitaker, T. (1996). It's what you say and what you do! Nonverbal immediacy behaviors: A key to effective communication. NASSP Bulletin December. Vol. 80(584), pp.90-95.

Smith, H.A. (1979). Nonverbal communication in teaching. Review of Educational Research, 49, pp. 631-672. ✓

Snyder, T. D., & Hoffman, C. M. (1995). Digest for education statistics (NCES Publication No. 95-029). Washington, D.C.: U.S. Government Printing Office.

Sorensen, G. (1989). The relationships among teachers: Self-disclosive statements, students' perceptions, and affective learning. Communication Education, 38, pp. 359-376.

Stone, B. L. (1997). Communication for the classroom teacher: Communicating in the classroom. Communication Education.

Stowell, J. (1993). Faculty can adjust communication environments to improve interactions with students: The theories that drive the environment. ED 368024

Thibodeaux, T. M., & Siltmen, S. A. (1995). Classroom communication climate: The development and testing of a measure of the nonverbal communication in the classroom. ERIC Document Reproduction Service, ED 264612.

Thomas B. Fordham Foundation. (1998). A nation "still" at risk: An education manifesto. Washington, D.C.. ERIC Document Reproduction Service, ED 422-455.

Thweatt, K. S., & McCroskey, J. C. (1998). The impact of teacher immediacy and misbehavior on teacher creditability. Communication Education. Annandale, Oct.

Wanzer, M. B., & Frymier, A. B. (1999). The relationship between student perceptions of instructor humor and students' reports of learning. Communication Education.

Watzlawick, P., Beavin, J., & Jackson, D. (1967). Pragmatics of human communication: A study of interactional, patterns, pathologies, and paradoxes. New York, NY: Norton.

Wiener, M., & Mehrabian, A. (1968). Language within language: Immediacy in verbal communication. New York, NY: Appleton-Century-Crofts.

Wilson, R. (1998). Report blasts research universities for poor teaching of undergraduates. Chronicle of Higher Education, Vol. 4(33), pp. A12-13.

Witt, P. L., & Wheelless, L. R. (1999). Nonverbal communication expectancies about teacher and enrollment behaviors in distance learning. Communication Education.

Woolfolk, A., & Brooks, D. M. (1985). The influence of teachers' nonverbal behaviors on students' perceptions and performance. The Elementary School Journal. Vol. 85(4). Chicago, IL: The University of Chicago.

Woolfolk, A., & Galloway, C. M. (1985). Nonverbal communication and the study of teaching. Theory Into Practice. Vol. 24(1), p. 77-84.



Woolfolk, R. L., & Woolfolk, A. E. (1974a). Effects of teacher verbal and nonverbal behaviors on student perceptions and attitudes. American Education Research Journal. 11, pp. 297-303.

Woolfolk, R. L., & Woolfolk, A. E. (1974b). Nonverbal teaching behavior: A rejoinder. American Education Research Journal. 11, pp. 307-309.

Wubbel, T. (1995). An interpersonal perspective on teacher behavior in the classroom. ERIC Document Reproduction Service, ED 398193.

## APPENDIXES

APPENDIX A

“BRAIN FOOD” SCRIPT

## BRAIN FOOD SCRIPT

It's the beginning of the semester but exam time is coming and for most students energy is a prime concern. Everyone wants to be able to stay up a little longer or stay awake and mentally focused for any exam. That "exam energy" comes in a large part from what you eat. Today I am going to discuss those three nutritional elements that build the "energy reserve": carbohydrates, fats, and proteins.

Carbohydrates are the body's main energy source. It's important to remember that there are two types of carbohydrates: simple and complex. Simple carbohydrates are your simple sugars...like refined white table sugars used in candies, cakes, and doughnuts...as well as processed foods, canned soups, and cereals---not just sugar-coated, but "good" cereals like All Bran, Special K, and Corn Flakes.

Because of their high caloric content and low nutritional value, simple carbohydrates are not recommended for increasing your energy. As you metabolize these simple sugars and starches, your brain produces a "soothing substance" called serotonin. A neurotransmitter produced by your brain to "slow you down" and mellow you out...serotonin is the main ingredient in mood elevators. Simple sugars may cause you not to reach your energy peak. So, if you want to maximize your energy level, avoid sugary foods like deserts, candy, doughnuts, or other sweet snacks.

On the other hand, complex carbohydrates contain less fat and supply more nutrients and minerals, than simple carbohydrates. These are found in starches like bread, rice, potatoes, pastas, nuts, fruits, and vegetables. These rich carbohydrate foods should constitute 60% of your daily caloric intake in order to provide adequate energy. Fruits are an excellent way to satisfy your sweet tooth while getting needed vitamins and energy.

They are quick, easy, and portable sources of complex carbohydrates... foods like pretzels or crackers, and rice cakes. So, when you need energy and are at a machine...go for the pretzels or crackers, not the simple sugars found in candy, snack cakes, or doughnuts.

The second most important source of nutritional energy is FAT. In moderation, fat is necessary. "Carbohydrates are the kindling for the energy fires, but fats are the logs". Carbohydrates may get you going but it's fats that keep you going. There's another bonus to fats...they help to curb hunger!

Just like carbohydrates, fats come in two sizes, unsaturated (or good fat) and saturated (bad fat). You should try to avoid all saturated fats...which research shows can contribute to heart disease. Even though it is important to consume some fat, you should minimize your intake of butter, whole milk, and cheese because the fat in these products is saturated.

On the other hand, a good source of unsaturated fats provides an important source of fuel for your body. Unsaturated fats are found mostly in oils: peanut, olive, and canola. Since 25% of your daily caloric intake should come from fat, it's important for you to recognize the unsaturated fats in your diet. When choosing between a hunk of cheese and a handful of peanuts...take the peanuts. And when choosing between potato chips and pretzels...both excellent sources of carbohydrates...choose the pretzels because they contain a small amount of fat.

The third nutritional element needed for maximum energy is protein. Your body produces only a small percentage of the necessary proteins...known as nonessential amino acids. The remaining amino... essential amino acids are supplied through your diet. Your body cannot manufacture essential amino acids.

Your daily requirement for protein is only 12%. But this percent is essential to good health. Proteins contain an amino acid known as “tyrosine”...a brain chemical which keeps you alert. This means that you must eat foods containing protein if you want to stay healthy and alert during finals week.

The most common sources of protein are meat and animal produces. But some of these are high in saturated fats. Fortunately, there are other food products that contain adequate amount of protein and less fats...such as eggs, skim milk, nuts, and grains. The best sources of protein are lean meats, such as pork and chicken, or other foods that contain little, if any saturated fats...like nuts and grains.

Not all source of protein contain all the essential amino acids. Often, one food is high in protein and another is low. Therefore, you must combine these protein-rich foods to ensure your intake of essential amino acids. For example, would it be better to eat a peanut butter sandwich, or crackers and peanut butter...or just the nuts and crackers alone? The answer is the peanut butter sandwich, because the peanut butter provides the amino acids that the grain in the bread lacks, and vice versa.

Not only is it important to know what you eat, equally important is when you eat. Breakfast is considered the most important meal of the day. The foods you eat at breakfast can set your mood and energy level for the day. Again, the simple carbohydrates—simple sugar—increase the neurotransmitter serotonin level in your brain...signaling your brain to slow down and inhibiting your ability to reach your peak energy levels. So, if you want to maximize your energy level, avoid simple sugars in the morning. This means no doughnuts, no pop-tarts, and no candy bars. Instead, eat more whole grain breads or cereal without added sugar...such as oatmeal or shredded wheat. You may also want to have some fresh fruit, like apples or bananas, or juice. Just make sure you avoid syrups, sweet cereal, and sugary foods like doughnuts.

Many people drink a cup of coffee and call it breakfast. It's not uncommon for student to drink a cola...in the morning...for that extra bit of pep or to load up the night before on coffee while studying. Caffeine in moderation is a good idea. Studies show that after one or two cups of coffee, you will feel more alert, have a better reaction time, and score better on some type of performance tests. However, after three cups, caffeine “over stimulation” begins making you less sharp and alert. So go ahead and have caffeinated drinks, but remember drinking more than two cups of coffee is not a good idea in critical times when you need to be alert for tests.

Do not skip lunch. Lunch is important because it keeps up your momentum and your brain functioning fully. Lunch should contain a balance of carbohydrates and proteins. Remember, complex carbohydrates enable you to maintain peak energy and proteins keeps you alert.

Pastas are a good source of energy, but should not comprise your entire noon meal, if you eat only complex carbohydrates you will become sleepy and lethargic. Proteins working in conjunction with modest amounts of complex carbohydrates will provide the energy necessary to revive and carry through the rest of the day!

Because exams can cover several days or an entire week, you need to know what foods to eat and when, to ensure that you will be alert, have energy, and stay awake to study. You also need to be able to relax enough to get adequate amounts of rest so that you perform well.

When your primary goal is a good night's sleep, avoid proteins for dinner. Instead choose simple carbohydrates or an all pasta dinner. These carbohydrates aid in the production of that "soothing" neurotransmitter...serotonin...that helps your body relax. If your primary goal is to stay awake late...to study...you will need brain food to keep you alert in order to get the stimulation and energy you need...eat a supper high in protein.

For that late night snack when you are studying late at night...steer clear of those simple sugars like doughnuts...they only produce a short term high that in the long term can prove detrimental. Do focus on carbohydrates with small amounts of unsaturated fats and a bit of protein. Avoid high fat snacks like potato chips. The carbohydrate-fat combination you need can best be found in a peanut butter sandwich, pretzels, and non-buttered popcorn. While carbohydrates, fats, and proteins are all important nutrients, when meals are not balanced they can work against you.

Remember whether you need to relax or be energetic, the kind of food you eat affects your body. To be at your best during exams...or anytime you need to be alert and energetic...avoid simple carbohydrates. Consume complex carbohydrates like pasta, bread, or grains combined with small amounts of unsaturated fat and protein necessary to sustaining alertness and high energy. Never forget that what you eat can change your mood, alertness, memory, and clarity of thought.

So try to maintain a balanced diet and get plenty of rest prior to and during exams.

APPENDIX B

CONSENT FORM

### STUDENT CONSENT FORM

I, \_\_\_\_\_, hereby agree to participate in the research project that describes the most influential factors that affect student learning and instructional effectiveness of the "Cornerstone Course Lesson" in which I have participated. I understand the research is part of an Oklahoma State University research project. To maintain confidentiality, all information obtained in the process will be reported in aggregate and/or by code. No specific reference to my identify, department/division, or organization for whom I work will be made at any time. All records of this research will be kept exclusively by the researcher under lock and key. After the research has been concluded and the report approved, all records will be destroyed.

The purpose of the procedure is to gather insightful information into the perceived factors that influence student learning in and instructional effectiveness of the "Cornerstone Course Lesson". This information will then serve as data to reach meaningful individual findings, conclusions and recommendations for those involved in the planning and implementation of future design and strategies to be used for effectively delivering this course.

I understand participation is voluntary, that there is no penalty for refusal to participate, and that I am free to withdraw my consent and participation in this project at any time without penalty after notifying the project director. I may contact Dr. Reynaldo Martinez at telephone number (405) 744-7741 or Mr. Dean Daniel at (405) 722-1411. I may also contact Sharon Bacher, IRB Executive Secretary, 305 Whitehurst, Oklahoma State University, Stillwater, OK 74078; telephone (405) 744-5700.

I have read and fully understand the consent form. I sign it freely and voluntarily. A copy has been given to me.

Date: \_\_\_\_\_ Time: \_\_\_\_\_ (a.m/p.m.)

Signed: \_\_\_\_\_  
(Signature of student)

I certify that I have personally explained all elements of this form to the subject or his/her representative before requesting the subject or his/her representative to sign it.

Signed: Dean Daniel  
(Project director or his/her authorized representative)



APPENDIX C

SURVEY INSTRUMENTS

**WHAT DO YOU KNOW ABOUT ACHIEVING ACADEMIC SUCCESS?**

This is not a test and will not be graded. We are only interested in the effectiveness of our workshop. So, please answer the questions to the best of your ability, without consulting others around you. Please read each of the following statements and indicate whether the statement is TRUE (T) or FALSE (F).

1. T F "Cramming" helps you retain information.
2. T F Eating simple carbohydrates for breakfast is a good way to increase your morning energy level.
3. T F You should keep your favorite things in your study area so you will have something positive to think about while you are studying.
4. T F Your daily calorie intake should contain more calories from fat than protein.
5. T F Serotonin is a neurotransmitter that helps people relax.
6. T F You should begin studying by quickly reviewing the introductory and summary paragraphs in your text.
7. T F Drinking several cups of coffee or other drinks with caffeine keeps you alert and ready for studying.
8. T F Students who sleep after memorizing material tend to recall more than students who stay awake.
9. T F Fats are an important source of energy.
10. T F Students who need a good night's sleep before an exam should drink warm milk before trying to fall asleep.
11. T F Protein helps keep you alert.
12. T F Students who have a positive attitude about their teachers and their exams do better on exams than those who think negatively.
13. T F Most of your fat intake should come from saturated fats, like those found in dairy products.
14. T F Students who need energy to study through the night should eat an evening meal containing high amounts of carbohydrates.
15. T F The human body manufactures most of the non-essential protein it needs.
16. T F A lunch of complex carbohydrates for breakfast is a good way to increase your morning energy level.

**WHAT DID YOU LEARN ABOUT BRAIN FOOD?**

**REMEMBER:** This is not a test and will not be graded. We are only interested in the effectiveness of our workshop. So, please, answer the questions to the best of your ability, without consulting others around you.

Please read each of the following statements and indicate whether the statement is True (T) or False (F).

Circle your response

1.    T    F    Increasing simple carbohydrates for breakfast is a good way to increase your morning energy level.
2.    T    F    A lunch of complex carbohydrates like those found in pasta and bread will maximize your energy level for the afternoon.
3.    T    F    Fats are an important source of energy.
4.    T    F    Drinking several cups of coffee or other drinks with caffeine keeps you alert and ready for studying.
5.    T    F    Serotonin is a neurotransmitter that helps you relax.
6.    T    F    Students who need a good night's sleep before an exam should drink warm milk before falling to sleep.
7.    T    F    Protein helps keep you alert.
8.    T    F    Most of your fat intake should come from saturated fats like those found in dairy products.
9.    T    F    Students who need energy to study through the night should eat supper containing high amounts of carbohydrates.
10.   T    F    The human body manufactures most of the non-essential protein it needs.
11.   T    F    Your daily calorie intake should contain more calories from fat than from protein.

### WHAT DO YOU THINK OF THE MINI-WORKSHOP?

These items are concerned with how you feel about this specific workshop.

1. Please circle the number toward either word that best represents your feelings. Note that in some instances the most positive score is "1" while in other cases it is "7".

Motivated	1	2	3	4	5	6	7	Unmotivated
Interested	1	2	3	4	5	6	7	Uninterested
Involved	1	2	3	4	5	6	7	Uninvolved
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	Uninspired
Not challenged	1	2	3	4	5	6	7	Challenged
Not enthused	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

2. On a scale of 0-9, how much did you learn in this workshop, with "0" meaning you learned nothing and "9" meaning you learned more than any other workshop you have attended? (Circle only one).

0 1 2 3 4 5 6 7 8 9

3. How much do you think you could have learned in this workshop had you had the ideal instructor? (Circle only one).

0 1 2 3 4 5 6 7 8 9

Using the following scales, evaluate this workshop. Please circle the number for each item which best represents your feelings.

4. My attitude about the content of this workshop:

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

## 5. My attitude about the instructor of this workshop:

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

6. Immediate behaviors are those communication behaviors that reduce distance between people. Immediate behaviors may actually decrease the physical distance, or they may reduce the psychological distance. The more immediate people are, the more likely they are to communicate at close distance, smile, engage in eye contact, use direct body orientations, use over-all body movements and gestures, touch others, relax, and be vocally expressive. In other words, we might say that an immediate person is perceived as overtly friendly and warm.

Please place an "X" in each of the following scales to indicate your agreement with the following statements:

In your opinion, the teaching style of the instructor for this workshop is very Immediate (as defined above).

Agree	_____	_____	_____	_____	_____	_____	_____	_____	Disagree
False	_____	_____	_____	_____	_____	_____	_____	_____	True
Incorrect	_____	_____	_____	_____	_____	_____	_____	_____	Correct
Yes	_____	_____	_____	_____	_____	_____	_____	_____	No

Please place an "X" in each of the following scales to indicate the word that best Describes the teaching style of the instructor of this workshop.

Immediate	_____	_____	_____	_____	_____	_____	_____	_____	Not immediate
Cold	_____	_____	_____	_____	_____	_____	_____	_____	Warm
Unfriendly	_____	_____	_____	_____	_____	_____	_____	_____	Friendly
Close	_____	_____	_____	_____	_____	_____	_____	_____	Distant

What is your gender?

1. Female                      2. Male

What is your age? \_\_\_\_\_

What is your major plan of study? \_\_\_\_\_

What is your academic classification?

First year \_\_\_\_\_ Second year \_\_\_\_\_ Other \_\_\_\_\_

APPENDIX D

INSTITUTIONAL REVIEW BOARD

APPROVAL FORM

Oklahoma State University  
Institutional Review Board

Protocol Expires: 7/6/01

Date: Friday, July 07, 2000

IRB Application No: ED00280

Proposal Title: DETERMINING THE IMPACT OF NONVERBAL IMMEDIACY ON COGNITIVE LEARNING  
AND AFFECTIVE PERCEPTIONS IN A POST SECONDARY TECHNICAL LEARNING  
ENVIRONMENT

Principal  
Investigator(s):

Daniel Truman  
8009 nw 114th  
Oklahoma City, OK 73162

Reynaldo Martinez  
200 Willard  
Stillwater, OK 74078

Reviewed and  
Processed as: Expedited

Approval Status Recommended by Reviewer(s) : Approved

---

Signature:

  
Carol Olson, Director of University Research Compliance

Friday, July 07, 2000

Date

Approvals are valid for one calendar year, after which time a request for continuation must be submitted. Any modifications to the research project approved by the IRB must be submitted for approval with the advisor's signature. The IRB office MUST be notified in writing when a project is complete. Approved projects are subject to monitoring by the IRB. Expedited and exempt projects may be reviewed by the full Institutional Review Board.

VITA

Truman Richard Daniel

Candidate for the Degree of

Doctor of Education

Thesis: DETERMINING THE IMPACT OF NONVERBAL IMMEDIACY ON  
COGNITIVE LEARNING AND AFFECTIVE PERCEPTIONS IN A POST  
SECONDARY TECHNICAL LEARNING ENVIRONMENT

Major Field: Occupational and Adult Education

Biographical:

Education: Graduated from Mineral Wells High School, Mineral Well, Texas in May 1964; received Associate of Arts degree from Weatherford Junior College, Weatherford, Oklahoma in May 1969; received Bachelor of Arts degree in Psychology from University of Texas, Arlington, Texas in May 1971; received Master of Arts in Religious Education from Southwestern Baptist Theological Seminary in May 1975. Completed the requirement for the Doctor of Education degree with a major in Occupational and Adult Education in December, 2000.

Experience: 1974-1978, Senior Pastor, Hilltop Baptist Church; 1978-1980, Director, Schick Center for the Control of Weight and Smoking; 1980-1995, Director of Education and Member Services, Oklahoma Restaurant Association; 1995-1999, Department Head, Oklahoma State University - Okmulgee branch; 1999-present, Human Resource Specialist, Oklahoma State University - Okmulgee branch.