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## The Effect of Socioeconomic Status on Student Perceptions of Instructional Communication Behaviors

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The Effect of Socioeconomic Status on Student Perceptions of Instructional Communication

Behaviors

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A Thesis

Presented to

The College of Graduate and Professional Studies

Department of Communication

Indiana State University

Terre Haute, Indiana

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In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

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by

Samuel A. Crecelius

August 2013

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Keywords: Family Income, First Generation College Students, Teacher Nonverbal Immediacy,  
Teacher Credibility, Teacher Clarity

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## ABSTRACT

In spite of desegregation and efforts to provide equitable education for all students, minorities and students living in poverty continue to underperform their peers. Education theorists have attributed this achievement gap to a cultural mismatch between students and their teachers and schools. At the same time, instructional communication research has found that cultural differences may influence student perceptions of teacher communication behaviors and that these behaviors have an effect on learning outcomes. Interestingly, while race has received extensive study in the instructional communication literature, little research has examined the role of socioeconomic status on students' perceptions of instructor communication behaviors. The current study attempted to bridge this gap by examining the extent to which a student's family income and first generation college student status affect perceptions of teacher nonverbal immediacy, clarity, and credibility. Data were derived from surveys completed by students enrolled in an entry level communication course and analyzed using multivariate methods. No significant effects were observed; however, a review of effect sizes suggests that family income may influence students' perceptions of their instructor's communication behaviors. While nonsignificant, these findings contribute to existing instructional communication research and provide some empirical evidence for the conceptual framework on which the study was based. Further research is recommended to establish a greater understanding of these phenomena.

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## CHAPTER 1

### INTRODUCTION

Following the Civil Rights Movement of the 1960s, ongoing disparity in the quality of education experienced by minorities and the poor remains perhaps the most devastating social justice issue plaguing the United States (Armor, 2006). In fact, during his recent confirmation hearings, U.S. Secretary of Education Arne Duncan referred to education as “the civil rights issue of our generation” (U.S. Department of Education, 2010, n.p.). Without equitable education, students of color and low socioeconomic status lack the resources necessary to break the cycle of poverty and to contribute to the development of a balanced society in which all people have the opportunity to succeed (U.S. Department of Education, 2010).

While *Brown v. Board of Education of Topeka, Kansas* ended legal segregation in this country, the Court’s decision produced only slight decreases in the achievement gap between poor or minority students and their white, more affluent peers (Armor, 2006). Operationally defined, an achievement gap occurs “when one group of students outperforms another group and the difference in average scores for the two groups is statistically significant (that is, larger than the margin of error)” (National Center for Education Statistics, 2010a, n.p.). While standardized test scores have increased for the majority of students, recent national data continue to demonstrate a persistent difference between the average test scores of white students compared to minority students (National Center for Education Statistics, 2010b). Additionally, significant

differences are observed between students who pay for their lunches compared to those who received free or reduced lunches (National Center for Education Statistics, 2010c). With desegregation producing only minimal effects on the achievement gap, educators, politicians, and scholars have sought a greater understanding of its causes in order to predict and ultimately, control the factors that contribute to this gap (Ladson-Billings, 1994, 1995).

Cushner, McClelland, and Safford (2000) identify two key events within the social landscape that have contributed to the observed achievement gap: the rapid diversification of the United States population and the transformations of institutions during the industrial age, especially the American education system. The combination of these phenomena has increased the number of students who differ culturally from their teacher and hindered teachers' ability to adapt their instructional communication behaviors to the needs of a diversifying society (Cushner et al., 2000; Kahn, 2008).

In contrast to the largely European immigrations in early American history, recent waves of immigration have consisted largely of non-European immigrants who differ significantly from those in the cultural 'mainstream' (Cushner et al., 2000). Furthermore, population projections from the U.S. Census Bureau forecast that the population will continue to diversify in the next four decades, with all racial groups except for non-Hispanic Whites expected to increase at least moderately. In fact, from 2000 to 2050, the Asian population is predicted to increase by 79 percent, and the Hispanic population is expected to double (Ortman & Guarneri, 2009).

Further complicating the issue, schools – and the educational system in general – in the United States have become larger and have evolved to espouse the values of the industrial age: standardization, synchronization, specialization, and centralization. Specifically, the twentieth century education system realigned its focus to promote the standardization of methods,

curricula, and testing; the synchronization of time during the school day; the specialization of coursework to focus on single subjects; and the centralization of decision-making (Cushner et al., 2000). Unfortunately, these trends have continued into the current century. By promoting and rewarding standardization, the educational system fails to address the needs of a diverse student body because this structure prohibits instructors from tailoring the educational experience to serve pupils' individual needs (Kahn, 2008). As a result, students must adapt their learning style to conform to the ideals established by the educational system or find themselves left behind. For students outside of the cultural mainstream, this presents a crippling dilemma between education and culture (Gonzalez & Soltero, 2011; Kahn, 2008).

While the student body in the United States has grown increasingly diverse, the majority of the education labor force remains white, college-educated, and middle class (Cushner et al., 2000; Santoro & Allard, 2005). Moreover, most individuals entering careers in education have attended primarily white, middle-class institutions for their primary, secondary, and post-secondary education, which further limits opportunities to engage with those of a different culture (Santoro & Allard, 2005). As such, one can posit with near certainty that most, if not all, minority students will experience a 'cultural mismatch' with at least one teacher during their academic career (Cushner et al., 2000; Rogers-Sirin & Sirin, 2009). As a result, in diverse schools around the country, heterogeneity exists in worldview, values, communication behaviors, and expectations between teachers and their students (Hauser-Cram, Sirin, & Stipek, 2003; McKown & Weinstein, 2008; Rogers-Sirin & Sirin, 2009). Cultural disparity hinders teachers' ability to address the needs of the diversifying student body, and these differences manifest themselves in miscommunication, misinterpretation of cultural values, and ultimately, academic underachievement (Gonzalez & Soltero, 2011; Santoro & Allard, 2005).

Within the recent literature, cultural mismatch theory has been developed to explain the performance of minority students (Allen & Boykin, 1992; Fryberg et al., 2012; Gonzalez & Soltero, 2011; Stephens, Fryberg, Markus, Johnson, & Covarrubias, 2012). In an education context, a cultural mismatch occurs when an institution (e.g., a university) or teacher promotes values or norms that differ from those espoused by the student (Stephens, Fryberg, et al., 2012). “When the educational context matches, students feel that they belong and can be successful, but when the context does not match, belonging and potential for success are undermined” (Fryberg et al., 2012, p. 2). While research that empirically identifies the outcomes of cultural mismatch in the classroom is somewhat scarce, existing studies report mostly negative effects on achievement (Fryberg et al., 2012; Gill & Reynolds, 1999; Stephens, Fryberg, et al., 2012). Specifically, differences in culture can produce erroneous assessments of student ability and lower expectations for minority students that indirectly affect academic achievement (Gill & Reynolds, 1999; Hauser-Cram et al., 2003; McKown & Weinstein, 2008; Rogers-Sirin & Sirin, 2009; Tenenbaum & Ruck, 2007). Furthermore, a mismatch in values and learning styles disconnects minority students from the educational system, and these issues result in lower achievement (Fryberg et al., 2012; Stephens, Fryberg, et al., 2012).

These mismatches occur most frequently as a result of racial and socioeconomic differences between teachers and their students. Specifically, values favored by minority students and those from working-class backgrounds differ from those necessary to succeed in the American education system (Stephens, Fryberg, et al., 2012; Stephens, Townsend, Markus, & Phillips, 2012). Interestingly, while the differences in values among social classes provide fertile ground for the study of intercultural communication, little instructional communication research has examined the role of socioeconomic status on students’ perceptions of instructor

communication behaviors. This study attempted to fill this void by examining the extent to which cultural mismatch manifests itself in perceptions of communication behaviors. Two general findings provided rationale for this study. First, as noted above, theorists contend that socioeconomic status serves as a key casual factor in cultural mismatches. These mismatches produce disparity in values, miscommunication, and misinterpretation between students and teachers (Fryberg et al., 2012; Gill & Reynolds, 1999; Stephens, Fryberg, et al., 2012). Secondly, research in communication has demonstrated 1) that cultural factors have an effect on the perception of instructional communication behaviors (Gendrin & Rucker, 2007; McCroskey, Fayer, Richmond, Sallinen, & Barraclough, 1995, 1996) and 2) that instructional communication behaviors influence learning outcomes (Chesebro, 2001, 2003; Finn & Schrodtt, 2012; King & Witt, 2009). Given the role of socioeconomic status in cultural mismatch theory, the current study sought to contribute to a greater understanding of the achievement gap by examining the extent to which student socioeconomic status influenced student perceptions of instructional communication behaviors. Understanding the relationship between SES and perceptions of classroom communication is especially important because nearly thirty years of instructional communication research has shown instructional communication behaviors to directly and indirectly influence student learning (Allen, Witt, & Wheelless, 2006; Andersen, 1979; Comadena, Hunt, & Simonds, 2007; McCroskey, Fayer, et al., 1996; McCroskey, Sallinen, Fayer, & Richmond, 1996; Richmond, McCroskey, Kearney, & Plax, 1987; Rodriguez, Plax, & Kearney, 1996; Witt & Wheelless, 2001; Witt, Wheelless, & Allen, 2004; Zhang, 2009; Zhang & Oetzel, 2006b; Zhang, Oetzel, Gao, Wilcox, & Takai, 2007a; Zhang & Zhang, 2006). Specifically, this study assessed the impact of socioeconomic status – as measured by family

income and first generation college student status – on students' perceptions of teacher nonverbal immediacy, clarity, and credibility. Each of these concepts is discussed in the following sections.



## CHAPTER 2

### LITERATURE REVIEW

#### **Culture**

Most simply, intercultural communication is communication between and among people of different cultures (Kim, 1988; Rich & Ogawa, 1972). However, wide disagreement on the definition of culture exists within the literature. For instance, Kim (1988) does not restrict culture to simply national, racial, or ethnic groups, but explains that it is “potentially open to all levels of groups whose life patterns discernibly influence individual communication behaviors” (p. 13). The magnitude of heterogeneity between parties determines each interaction’s place on the intracultural-intercultural continuum (Kim, 1988). In contrast to Kim’s rather broad definition, many scholars – especially those within communication – understand *culture* as the human-made, socially-constructed, and shared environment through which individuals generate, interpret, and experience attitudes, beliefs, rituals, customs, and behavioral patterns (Liang & Zhang, 2009; Lustig & Koester, 2006; Spitzberg & Changnon, 2009). Further underscoring the role of culture on developing one’s social reality, Turner (2003) states that “in a definitive sense, different cultures inhabit different worlds” (p. 12).

As with communication research, dissention exists within education regarding definitions of culture. Delgado-Gaitan and Trueba (1991) define culture as “socially shared cognitive codes and maps, norms of appropriate behavior, assumptions about values and world view, and lifestyle in general, [which] influence the way... humans think and act” (p. 17). Other education

scholars employ a much narrower definition of culture than those provided by intercultural communication researchers. For instance, a commonly cited text isolates nine factors that compose cultural identity and influence instructional processes: race, ethnicity, age, geographic region, sexuality, religion, social status, language, and ability (Cushner et al., 2000).

While exceptions exist, the majority of cultural research in instructional communication has focused on three factors: race, country of origin, and sex (McCroskey, Fayer, et al., 1996; McCroskey, Sallinen, et al., 1996; Roach, Cornett-Devito, & Devito, 2005; Zhang, 2009; Zhang & Huang, 2008; Zhang & Oetzel, 2006a). The majority of cultural studies compare college student populations across two or more countries. For example, McCroskey et al. (1996) compared American, Puerto Rican, Australian, and Finnish students; Johnson and Miller (2002) examined differences between Kenyan and American students; Pribyl, Sakamoto (2004) and Neuliep (1997) compared U.S. and Japanese samples; and much of Zhang's work has focused on Chinese and American students (e.g., Zhang, 2005a, 2005b; Zhang, 2009, 2011; Zhang & Oetzel, 2006a, 2006b; Zhang & Zhang, 2005, 2006; Zhang, Zhang, & Castelluccio, 2011). Other studies have focused on different racial groups within the United States, including African Americans, Hispanics, and Korean-Americans (Gendrin & Rucker, 2007; Martin & Mottet, 2011; Neuliep, 1995; Park, Lee, Yun, & Kim, 2009). Finally, examinations of biological sex have examined the effect of both instructor and student sex on perceptions of instructional communication behaviors (Glascok & Ruggiero, 2006; Hargett & Strohkirch, 1999; Schrodt & Turman, 2005). As shown above, instructional communication has focused on only a limited number of cultural factors, leaving room for additional study and theory.

## **Cultural Mismatch**

In an effort to explain the achievement gap, the theory of cultural mismatch argues that students struggle academically because of a disconnect between their values and those of their teacher and/or school (Fryberg et al., 2012; Losey, 1995; Stephens, Fryberg, et al., 2012; Stephens, Townsend, et al., 2012). Specifically, American institutions – especially colleges and universities – promote an environment of independence, while minority and impoverished students favor and thrive on interdependence (Stephens, Fryberg, et al., 2012; Stephens, Townsend, et al., 2012). Compared to middle- or upper-class backgrounds, working-class upbringings provide “limited material resources and fewer opportunities for choice, influence, and control” (Stephens, Townsend, et al., 2012, p. 1390). Therefore, working-class students often experience decision-making as part of a community, with the needs of others affecting the actions of the individual (Stephens, Hamedani, Markus, Bergsieker, & Eloul, 2009; Stephens, Townsend, et al., 2012). Cultural mismatches disconnect students from the school or the teacher, decreasing feelings of belonging and undermining potential for academic achievement (Fryberg et al., 2012; Stephens, Fryberg, et al., 2012).

A number of studies provide evidence for the principles advanced by cultural mismatch theorists. Tyler, Boykin, Miller, and Hurley (2006) found that low-income African-American students and their parents preferred in-school activities that focused on communal pursuits rather than those that were individualistic or competitive. As predicted, in-school activities mirrored the types of interests that these students preferred in their home lives. Furthermore, students perceived teachers as preferring competitive and individualistic behaviors, indicating a cultural mismatch. Following an extensive review of literature, Losey (1995) reported that Mexican-American students succeed in classrooms that provide opportunities for collaborative learning

and “a sense of belonging to the classroom community” (p. 312). Finally, Stephens et al.’s (2012) original testing of cultural mismatch theory supports its basic claims. Specifically, 72% of administrators in first-tier American universities and 69% of administrators at second-tier institutions reported that their institutional culture favored independence over interdependence. Moreover, incoming students of lower socioeconomic status reported fewer independent motivations for pursuing a college education than their more affluent peers. Interestingly, when assessed two years later, students who reported interdependent motives for attending college had lower achievement than those who reported independent motives (Stephens, Fryberg, et al., 2012). These findings suggest that the values favored by low-income and minority students may be negatively associated with academic success. Of most importance to the current study, cultural mismatch findings indicate that cultural differences exist among students of different socioeconomic status akin to the racial and country of origin factors (e.g., individualistic vs. collective) that have received extensive study in instructional communication since its inception.

### **Socioeconomic Status**

As noted in the cultural mismatch literature, socioeconomic status (SES) and race contribute the greatest to cultural mismatch between students and their teachers or schools (Fryberg et al., 2012; Stephens, Fryberg, et al., 2012). During the last thirty years, communication researchers have examined race and ethnicity in relation to instructional communication behaviors; however, only a few instructional communication studies have focused on SES. Fortunately, however, scholars in education, sociology, psychology, and other disciplines have studied SES in detail (Sirin, 2005). Sirin (2005) defines SES as “an individual's or a family's ranking on a hierarchy according to access to or control over some combination of valued commodities such as wealth, power, and social status” (p. 418). Studies from multiple

disciplines have reported that SES influences academic achievement (Baker & Johnston, 2010; Markle, 2010; Sirin, 2005; van Ewijk & Slegers, 2010), physical and mental health (Nuru-Jeter, Sarsour, Jutte, & Thomas Boyce, 2010; Robert et al., 2009), and other outcomes (Diemer et al., 2010; Mueller & Toby, 1981). These findings – particularly those from education – provide evidence of the need for communication scholars to incorporate SES into studies of instructional communication behaviors. The study of SES in relation to education is discussed in the following sections, beginning with a brief discussion of the social capital theory (Bourdieu, 1986; Coleman, 1988), which provides a theoretical framework for the study of SES, and followed by a description of and rationale for two measurement strategies.

### **Social Capital Theory**

Education scholars have utilized theories of social capital to provide additional theoretical backing for the performance of students living in poverty (Lin, 2000; Markle, 2010; Miller, 2012; Tedin & Weiher, 2011). Social capital theory states that social networks have value and are associated with specific outcomes, advantages, and disadvantages (Bourdieu, 1986; Coleman, 1988; Lin, 2000; Miller, 2012). Specifically, Bourdieu (1986) defines *social capital* as the combination of the existing and potential resources shared by a “more or less institutionalized” (p. 51) group of individuals who share mutual recognition and association. Networks may exist either from practical circumstances (e.g., coworkers) or social institutions (e.g., families); however, agents must maintain these networks through interactions and other rites that are designed – consciously or unconsciously – to establish “durable obligations (feelings of gratitude, respect, friendship, etc.) subjectively felt or institutionally guaranteed” (Bourdieu, 1986, p. 52). One’s social capital will depend on the size of his or her network, his or

her location in the network, and economic, social, and cultural capital possessed by other members (Bourdieu, 1986; Lin, 2000).

To explain inequality in social capital, Lin (2000) theorizes that both structural and agentic (i.e., relating to the individual) factors influence disparity in social capital. First, social groups naturally reside in different socioeconomic situations as a result of historical and institutional factors including sexism and racism. Secondly, individuals favor networks that include those who are similar to them (i.e., homophily), which keeps them from moving into social networks with greater resources. As a result, certain groups inhabit socially-rich networks, while others inhabit socially-poor networks. All the while, little or no individual mobility occurs among networks because of both self-regulation and seclusion. Because of this, resource-rich “networks enjoy access to information from and influence in diverse socioeconomic strata and positions..., [and] resource-poor networks share a relatively restricted variety of information and influence” (Lin, 2000, p. 787). Parents pass their social networks (and the resources that these networks possess) to their children because the combination of these structural and agentic factors preserves the distribution of social capital across multiple generations.

In an education context, families with lower levels of social capital have less access to the resources necessary for students to succeed academically (Markle, 2010). For instance, families in socially-poor networks may face greater obstacles in evaluating and choosing academic institutions, obtaining letters of recommendation, preparing admission essays, locating financial aid, and navigating the course registration process. As shown in the preceding sections, SES – as a result of social capital – exerts control over students’ ability to succeed in the educational system. This provides rationale for the continued study of SES in education situations. Furthermore, given the role that education and income play in social capital, the theory supports

the operational definitions and associated measurements of SES described in the following sections (Markle, 2010).

### **Measuring SES**

Efforts to define and measure SES have pervaded the sociology, psychology, and education literature for much of the last century (Markle, 2010; Sirin, 2005). As a latent variable, measuring SES requires the selection of observable variables (e.g., income) that align with a theoretical construction. While by no means a monolithic consensus, many researchers agree that education, income, and occupation comprise SES (Markle, 2010; Sirin, 2005). Typically, research on students utilizes family income and education as indicators because most students do not have occupations (Kiviruusu, Huurre, Haukkala, & Aro, 2012; Markle, 2010). According to Markle (2010), to predict accurately if a student will succeed academically, one must consider both the family's income level and its education level because each of these factors influences the student's access to the education system and ability to navigate it. Furthermore, studies in health report that wealth and education have the strongest associations with health and development outcomes (Nuru-Jeter et al., 2010). Therefore, this study focused on the effects of family income and family education (i.e., first-generation college student status).

**Socio-economic status as measured by income.** Family income has the longest history in the study of SES and continues to serve as its primary indicator (Markle, 2010; Sirin, 2005). According to Sirin (2005), income reflects the family's economic capital and the resources available to its members. In studies of elementary and secondary students, researchers often utilize free and reduced lunch status to measure SES; however, these data are not available for students enrolled in post-secondary institutions (Markle, 2010). Therefore, the current study utilized the family income gradations based on the 2012 poverty thresholds established by the

U.S. Department of Health and Human Services (2012), which are the criteria used to determine eligibility for the Food Stamp Program. Using procedures established by Alaimo, Olson, and Frongillo (2001), the study examined students' family income in relation to three gradations: low income (less than or equal to 130% of the poverty line); middle income (131% to 300% of the poverty line); and high income (greater than 300% of the poverty line).

As mentioned previously, a myriad of research in education has linked family income to student achievement (Baker & Johnston, 2010; Duncan, Morris, & Rodrigues, 2011; Humlum, 2011). Some of the most compelling findings come from Duncan et al. (2011) who reported that for every additional \$1,000 of family income, student achievement increased by .06 standard deviations. On its face, this finding may not seem practically significant; however, when one considers that approximately \$29,000 separate the median U.S. annual income (\$51,914) from the annual income of a household of four living in poverty (\$23,021), the salience of this increase becomes apparent (U.S. Census Bureau, 2012a, 2012b). These findings demonstrate the impact that family income has on student academic outcomes, and given the relationship between instructional communication behaviors and learning outcomes (described in detail in later sections), the study of these behaviors in relation to income has merit.

**Socio-economic status as measured by parental education.** Like income, parental education has enjoyed longevity and widespread use in the study of SES (Markle, 2010; Sirin, 2005). For those studying SES in educational settings, the greatest benefit of using parental education as a measure of SES is its stability across a child's educational career. Specifically, parental education level is established early in a child's life and remains mostly stable for the entirety of his or her academic career (Sirin, 2005). Furthermore, the relationship between parental education level and family income gives it greater utility to measure SES, making it



attractive to researchers (Markle, 2010; Sirin, 2005). Finally, much of the cultural mismatch literature has used first-generation college (FGC) student status as an observable variable for SES (Stephens, Fryberg, et al., 2012; Stephens, Townsend, et al., 2012). Therefore, based on this work, this study utilized FGC student status to measure parental education level.

Simply defined, FGC students are those whose parents have not attended college or a post-secondary institution (Saenz, Hurtado, Barrera, Wolf, & Yeung, 2007; Woosley & Shepler, 2011). Much of the research suggests that while FGC students receive high levels of support from their families and communities, their social circles lack the resources to provide assistance or guidance related to the college experience (Holley & Gardner, 2012; Markle, 2010; Olive, 2010; Saenz et al., 2007). According to Olive (2010), a number of factors influence FGC students' decision to enroll in college: opportunity to break from their current lifestyle, earlier academic success, encouragement from family and friends, desire to prove themselves, career aspirations, self-discovery, and opportunity to help others. These motivations differ from those reported by traditional college students and play a part in the development of FGC student identity (Olive, 2010; Stephens, Townsend, et al., 2012). While the influence of FGC student status on identity may vary by student, FGC students must often negotiate several identities throughout their college career. For example, students must balance their identity as a student with their identity as an employee, member of a working-class family, spouse, or parent (Orbe, 2004).

As one would expect, entering college with fewer resources than one's peers presents a number of disadvantages. For FGC students, finances have a greater influence over academic decisions than for students whose parents attended college (Saenz et al., 2007; Woosley & Shepler, 2011). Specifically, anxiety caused by college debt and the need to work to pay for

classes and living expenses creates additional hardships for FGC students that separate them from their peers (Saenz et al., 2007). Moreover, career ambitions drive the decisions to enroll in college, and finances and family responsibilities influence the selection of a major and a college or university location (Holley & Gardner, 2012; Saenz et al., 2007). Along with financial concerns, differences in upbringing and culture provide additional challenges for FGC students (Fryberg et al., 2012; Holley & Gardner, 2012; Stephens, Fryberg, et al., 2012). Female FGC students report resistance from their male family members – especially their fathers – regarding their decision to pursue higher education (Holley & Gardner, 2012; Orbe, 2004). Further, as described above, FGC students favor interdependence, which places them at odds with institutions of higher education that promote independence, and these differences manifest themselves in lower academic achievement (Fryberg et al., 2012; Stephens, Fryberg, et al., 2012). The data show that FGC students face an increased risk for college dropout than students whose parents attended a college or university (Woosley & Shepler, 2011), have lower grade point averages (Grayson, 1997; Riehl, 1994), participate less in college activities (Grayson, 1997; Terenzini, Springer, Yaeger, Pascarella, & Nora, 1996), have lower levels of critical thinking (Terenzini et al., 1996), and take fewer humanities and arts courses (Terenzini et al., 1996). To date, no published communication research has examined the effect of FGC student status on perceptions of instructional communication behaviors; however, given the cultural differences observed for FGC students, this construct may have implications for communication research.

## **Nonverbal Immediacy**

### **Overview**

With origins in the work of Albert Mehrabian (Mehrabian, 1966, 1969), immediacy (both verbal and nonverbal) has emerged as one of the most commonly studied variables in instructional communication research (Zhang, 2011). Mehrabian (1966, 1969) defines immediacy as the use of communication to increase closeness between individuals, and immediate behaviors communicate interpersonal warmth and accessibility, increase sensory stimulation, and decrease physical or physiological distance (Andersen, Andersen, & Jensen, 1979; Andersen, Guerrero, Jorgensen, & Buller, 1998; Sanders & Wiseman, 1990; Thomas-Maddox, 2003). Examples of nonverbal behaviors include smiling, eye contact, vocal expressiveness, movement, proximity, relaxed body position, and gestures (Andersen et al., 1979; Sanders & Wiseman, 1990; Thomas-Maddox, 2003). Verbal immediacy includes “small talk, self-disclosure, and addressing students by their first names” (Zhang, 2011, p. 96), and may involve words and phrases that signal closeness, such as ‘us’ and ‘we’ (Sanders & Wiseman, 1990).

### **Immediacy Exchange Theories**

Within the communication literature, Andersen et al. (1998) identify three key immediacy exchange theories that have emerged to explain the function of immediacy during interactions: expectancy violation theory (Burgoon & Hale, 1988), discrepancy arousal theory (Cappella & Greene, 1982), and cognitive valence theory (Andersen, 1985; Andersen & Andersen, 1984; Andersen et al., 1998). All of these theories suggest that arousal (i.e., alertness or an orienting response to the immediacy behavior) has a central role in the immediacy process and argue that arousal predicts immediacy response (Andersen & Andersen, 1984; Andersen et

al., 1998; Burgoon & Hale, 1988; Cappella & Greene, 1982; Miller, 2005; Witt & Wheelless, 2001). Each of these theories (as they relate to immediacy) is discussed briefly below.

According to Burgoon and Hale (1988), situations exist during which “violations of social norms and expectations may be a superior strategy to conformity” (p.58). This thesis provides the basis for the expectancy violation theory, which argues that individuals have expectations related to nonverbal behavior (e.g., proximity, touching, and eye contact) and that immediate behaviors violate expectations, causing some sort of arousal (Burgoon & Hale, 1988; Miller, 2005). Evaluation of the act, the valence (i.e., intrinsic attractiveness) of the person committing the violation, and the implicit messages contained in the act determine if the behavior is positive or negative, thereby influencing communication outcomes (Andersen & Andersen, 1984; Andersen et al., 1998; Burgoon & Hale, 1988; Miller, 2005).

Discrepancy-arousal theory differs from other theories of immediacy exchange because it attributes arousal to the discrepancy between the immediacy behavior and the receiver’s expectations. Moreover, the magnitude of arousal affects the occurrence of reciprocity or compensation (Andersen & Andersen, 1984; Andersen et al., 1998; Cappella & Greene, 1982). Specifically, “no discrepancy is assumed to be nonarousing, moderate discrepancy to be moderately arousing and therefore pleasurable, and excessive discrepancy to be highly arousing and unpleasant” (Cappella & Greene, 1982, pp. 96-97). While closely related to expectancy violation theory, the greatest difference relates to high-level arousals (Andersen et al., 1998). Unlike expectancy violation theory, which posits that attractive communicators can successfully employ behaviors that produce high levels of arousal, discrepancy-arousal theory rejects this claim, suggesting that even the most attractive communicators will cause discomfort with

immediacy behaviors that produce extreme arousal (Andersen et al., 1998; Cappella & Greene, 1982).

Cognitive valence theory differs from the aforementioned theories of immediacy in that it maintains that all immediacy causes arousal, regardless of whether the behavior deviates from expectations (Andersen, 1985; Andersen & Andersen, 1984; Andersen et al., 1998).

Furthermore, it suggests that by causing arousal, immediacy behaviors trigger cognitive schemata (e.g., norms, situational context, and personality traits) that help the receiver evaluate the behavior (Andersen, 1985; Andersen et al., 1998). Unlike the prior theories, Anderson et al. (1998) note that if one of the schema is evaluated negatively, others can compensate and produce a positive evaluation of the behavior. Conversely, negatively valenced schema can produce negative evaluations for attractive communications. Like the discrepancy arousal theory, cognitive valence theory predicts that extreme arousal will be evaluated negatively because steep increases in arousal are “inherently stress- and fear-producing, [and they] circumvent cognitive processes altogether and commonly yield quick-occurring panic, flight responses, and aggression” (Andersen et al., 1998, p. 509). This theory suggests that although the evaluation of immediacy is multifaceted, the presence of extreme immediacy will produce negative outcomes regardless of other factors.

The preceding paragraphs have provided an overview of the three theories of immediacy exchange. A full discussion of the evidence base for immediacy exchange theories is beyond the scope of this investigation; however, the literature shows that while components of each model are confirmed by empirical evidence, no one theory has been completely validated (Andersen et al., 1998). This suggests that the immediacy-arousal relationship is more complex than theories

of immediacy exchange predict, supporting further research and application (Andersen, Norten, & Nussbaum, 1981; Andersen, 1985; Andersen & Andersen, 1984).

### **Immediacy Research in Communication**

Early research found that the presence of immediate behaviors had positive impacts on evaluations of an interaction (Mehrabian, 1966), which made it an attractive topic for communication research. As a result, the concept began to receive extensive attention from a number of communication subfields. Specifically, immediacy appears in instructional communication research (e.g., Allen et al., 2006; Andersen, 1979; Frymier, 1994; Zhang & Oetzel, 2006b), health communication (e.g., Siminoff, Traino, & Gordon, 2011), organizational communication (e.g., Faylor, Beebe, Houser, & Mottet, 2008; Teven, 2007a), and interpersonal communication (e.g., Andersen et al., 1998; Burgoon & Hale, 1988; Santilli & Miller, 2011).

While immediacy occurs both verbally and nonverbally, scholars contend that nonverbal behaviors have the greatest effect on affective components of communication and have called for a focus on the study of nonverbal immediacy in instructional communication contexts (McCroskey, Sallinen, et al., 1996; Mottet & Richmond, 1998). Further, Robinson and Richmond (1995) challenge existing measurements of verbal immediacy and question the validity of prior studies. Therefore, much of the recent literature has focused on nonverbal immediacy (e.g., Findley & Punyanunt-Carter, 2007; Martin & Mottet, 2011; Ozmen, 2010; Santilli, Miller, & Katt, 2011; Teven, 2007a; Wang & Schrodt, 2010). In keeping with these findings, the following sections will focus on nonverbal immediacy research in instructional communication.

## **Nonverbal Immediacy Research in Instructional Communication**

Though each of the aforementioned subfields has contributed greatly to the understanding of immediacy, instructional communication research has the strongest relevance to the current study. Moreover, during the last three decades nonverbal immediacy has proven one of the most fruitful subjects in the instructional communication literature (Johnson & Miller, 2002; Pribyl et al., 2004; Witt et al., 2004; Zhang, 2011). Specifically, immediacy has been linked to cognitive learning (Baker, 2004; Christophel, 1990; Finn & Schrodtt, 2012; Johnson & Miller, 2002; King & Witt, 2009; McCroskey, Sallinen, et al., 1996; Neuliep, 1997; Pribyl et al., 2004; Roach & Byrne, 2001; Roach et al., 2005; Rodriguez et al., 1996), affective learning (Andersen, 1979; Andersen et al., 1981; Baker, 2004; Christophel, 1990; McCroskey, Fayer, et al., 1996; Neuliep, 1995, 1997; Plax, Kearney, McCroskey, & Richmond, 1986; Richmond, McCroskey, Plax, & Kearney, 1986; Roach & Byrne, 2001; Roach et al., 2005; Rodriguez et al., 1996; Witt & Wheelless, 2001), motivation (Christophel, 1990; Frymier, 1993, 1994; Neuliep, 1995; Rodriguez et al., 1996; Velez & Cano, 2008; Wilson & Locker, 2008), willingness to take another course with the same instructor (McCroskey et al., 1995; Neuliep, 1997), compliance learning (Burroughs, 2007), student upward mobility orientation (Tibbles, Richmond, McCroskey, & Weber, 2008), class attendance (Rocca, 2004), in-class involvement (Rocca, 2008; Sidelinger, 2010), classroom climate (Johnson, 2009), and out-of-class communication with instructor (Zhang, 2006),

Along with being the one of the most commonly studied topics, nonverbal immediacy may be one of the most critical determinants of teacher effectiveness (McCroskey & Richmond, 1992). The literature has shown nonverbal immediacy to relate to teacher assertiveness (Thomas, Richmond, & McCroskey, 1994), teacher responsiveness (Thomas et al., 1994), credibility

(Johnson & Miller, 2002; Witt & Kerssen-Griep, 2011), clarity (Finn & Schrod, 2012; Sidelinger & McCroskey, 1997), instructor evaluations (Allen & Shaw, 1990; Moore, Masterson, Christophel, & Shea, 1996; Roach et al., 2005; Rowden & Carlson, 1996; Wilson & Locker, 2008), and homophily (Powell, Hickson, Hamilton, & Stuckey, 2001).

In spite of largely positive impacts of acceptable levels of immediacy on student outcomes, some researchers caution that excessive immediacy has negative effects (Comstock, Rowell, & Bowers, 1995; Rester & Edwards, 2007). As predicted by immediacy exchange theories, they argue that extreme levels of immediacy produce high arousal, which individuals find displeasing (Andersen et al., 1998; Cappella & Greene, 1982; Rester & Edwards, 2007). Comstock et al. (1995) demonstrated a curvilinear (inverted U shaped) relationship between immediacy and cognitive, affective, and behavioral learning. This relationship indicates that positive effects of nonverbal immediacy taper off as it becomes excessive (Comstock et al., 1995). Moreover, instructor sex influences the appraisal of immediacy behaviors, with excessive immediacy enacted by males viewed as more offensive than that of females. Specifically, students view excessive immediacy by female instructors as caring and the same behaviors from males as controlling (Rester & Edwards, 2007).

In contrast to the curvilinear relationship advanced by Comstock et al. (1995), Christensen and Menzel (1998) argue for a linear relationship, stating that “rather than indicating that high immediacy is bad,... [this research] indicates that moderate immediacy may be sufficient in some variables” (p. 88). Further, the authors claim that experimental manipulations of excessive nonverbal immediacy fail to reflect real-life instructional contexts. First, the authors contend that subjects perceive behaviors differently from instructors with whom they have become familiar than from confederates in experimental conditions (Christensen & Menzel,



1998). Specifically, over the course of the semester, students get used to and forgive their instructors' eccentricities. Secondly, most instructors make efforts to correct offensive behaviors, and those who do not would typically be removed from teaching positions. As a result, the excessive nonverbal immediacy to which experimental subjects are exposed has little chance of occurring in an actual classroom setting. This challenges the validity of existing research on excessive teacher immediacy (Christensen & Menzel, 1998).

**Immediacy-learning models.** As noted above, the literature is overwhelmingly monolithic in its support of the link between immediacy and learning; however, efforts continue to explain the relationship fully, and instructional communication scholars have proposed several theoretical positions regarding immediacy's place in the learning process (Allen et al., 2006; Frymier, 1993, 1994; Zhang & Oetzel, 2006b; Zhang et al., 2007a). Early immediacy research theorized a direct relationship between immediacy and affective and cognitive learning, a concept now referred to as the learning model (Andersen, 1979). As the instructional communication research base grew, however, scholars quickly abandoned the learning model for more advanced and empirically sound models.

Based on the work of Christophel (1990) related to the effect of motivation in the learning process, Frymier's (1994) motivation model states that student motivation acts as a mediator in the indirect relationship between immediacy and learning. In other words, immediate teacher behaviors motivate students, which in turn, causes affective and cognitive learning to increase (Frymier, 1994).

A response to the motivation model, Rodriguez, Plax, and Kearny's (1996) affective learning model suggests that affective learning mediates the indirect relationships between immediacy and cognitive learning (Allen et al., 2006; Rodriguez et al., 1996).

Based on the theory of planned behavior (Ajzen, 1985, 1991; Fishbein & Ajzen, 1975) and Bandura's (2001) social cognitive theory, the integrated immediacy-learning model (Zhang & Oetzel, 2006b; Zhang et al., 2007a) restructures the relationships advanced by the earlier models and provides the most advanced conceptualization of the learning process. According to Zhang et al. (2006b, 2007a), immediacy affects cognitive learning both directly and indirectly, with the indirect relationship mediated first by affective learning and then by motivation. While each subsequent model has shed a greater light on the learning process, none has fully explained the relationship between immediacy and learning, paving the way for continued research.

**Teacher nonverbal immediacy and culture.** Along with establishing nonverbal immediacy as a key factor in student learning and teacher effectiveness, the literature has investigated the role that culture plays in immediacy (Findley & Punyanunt-Carter, 2007; Gendrin & Rucker, 2007; Powell & Harville, 1990; Pribyl et al., 2004; Roach & Byrne, 2001; Roach et al., 2005; Rowden & Carlson, 1996; Rucker & Davis-Showell, 2007; Rucker & Gendrin, 2003; Zhang, 2005b; Zhang & Oetzel, 2006a, 2006b; Zhang et al., 2007a). Differences in culture have been shown to influence “the perception, expectation, interpretation, and evaluation of teacher immediacy” (Zhang, 2011, p. 96). The study of culture has focused almost exclusively on two factors: race (Roach & Byrne, 2001; Roach et al., 2005; Santilli et al., 2011; Zhang, 2005a; Zhang & Oetzel, 2006a, 2006b) and sex (Rester & Edwards, 2007; Rowden & Carlson, 1996; Santilli & Miller, 2011; Thompson, Klopff, & Sallinen-Kuparinen, 1991). Research in each of these areas is discussed below.

“Culture, as reflected in ethnic membership, strongly influences how teachers and students communicate to accomplish teaching and learning goals” (Gendrin & Rucker, 2007, p. 42). As such, the largest piece of cultural research has focused on comparisons among students

attending universities in different countries. Overall, these studies have suggested that instructors of all races and nationalities employ nonverbal immediacy and that students benefit from it regardless of race; however, subtle differences exist across cultures (Johnson & Miller, 2002; Klopff, Thompson, Ishii, & Sallinen-Kuparinen, 1991; McCroskey, Fayer, et al., 1996; Neuliep, 1995, 1997; Pribyl et al., 2004; Roach & Byrne, 2001; Roach et al., 2005; Thompson et al., 1991; Zhang, 2011). In low-immediacy cultures (e.g., China, Japan, Germany), teacher immediacy has a less robust impact than other instructional communication behaviors or qualities (McCroskey, Fayer, et al., 1996; Neuliep, 1997; Roach & Byrne, 2001; Roach et al., 2005; Zhang, 2011). The following sections provide notable examples of this research.

In some of the first cultural studies of immediacy, McCroskey et al. (McCroskey et al., 1995; 1996) found that U.S., Puerto Rican, Australian, and Finnish students differed in the extent to which they rated their instructors as immediate, with students from immediate cultures providing the highest ratings. Further, in all cultures, immediacy positively correlated with cognitive learning and teacher evaluations; however, the magnitude of the effects differed by culture. This early research on the effect of culture set the stage for several subsequent phases of cultural research.

In recent years, Asian and American comparisons have become a key focus of cultural effects research in instructional communication. Due to their low-immediacy cultures, Asian students experience immediacy differently than American students and have different expectations regarding instructor behaviors (Zhang, 2005a, 2006; Zhang & Oetzel, 2006a, 2006b). Specifically, American students perceive instructors as more immediate than the Japanese, and the relationship between immediacy and affective learning, intentions to enroll in another course with instructor, and intention to engage in the behaviors taught in class are greater

for American students (Neuliep, 1997; Pribyl et al., 2004). However, Pribyl et al. (2004) found that similar relationship among immediacy, motivation, and learning existed for both Japanese and American students. In Chinese classrooms, instructor nonverbal immediacy was positively correlated with out-of-class communication, but not communication apprehension (Zhang, 2005a, 2006).

Along with Asian culture, a number of studies have concentrated on European countries. A comparison of French and American classrooms revealed that instructors in the U.S. utilize nonverbal immediacy more than their French counterparts (Roach et al., 2005). Moreover, in both the French and American samples, nonverbal immediacy was positively correlated with student affective learning, cognitive learning, affect toward instructor, and rating of instruction. In a similar study, Roach and Byrne (2001) found greater levels of nonverbal immediacy in American classrooms than in German classrooms, and while immediacy was related to cognitive learning in both samples, the relationship was stronger for American students. No differences in perceptions of immediacy were observed between American and Finnish students (Thompson et al., 1991).

In addition to studies that examine samples from universities in different countries, several studies have also examined racial differences among students living in the U.S. Neuliep (1995) reported that African American students found African American instructors more immediate than Euro-American instructors. In a study of Hispanic high school students, Martin and Mottet (2011) found a link between nonverbal immediacy and affective learning akin to that reported by prior research on Caucasian college students. Students studying in Korea reported lower perceptions of nonverbal immediacy than Korean students studying in the U.S. (Park et al., 2009).

Along with race, communication research has also focused on educational institutions that differ culturally. Little research exists that examines links between classroom communication and institutional culture, so based on the evidence of differences in the culture of Historically Black Colleges and Universities (HBCU) and Primarily White Institutions (PWI), Gendrin and Rucker (2007) investigated the effect of school type (HBCU vs. PWI) on perceptions of instructor immediacy. They found significant differences for school type in perceptions of immediacy, with students attending HBCUs rating their professors as more immediate. Furthermore, in HBCUs, immediacy behaviors were positively correlated with student motivations to communicate, indicating that greater instructor immediacy may produce greater motivation to communicate in class for African American students (Gendrin & Rucker, 2007).

Along with race, sex has also been shown to influence perceptions of nonverbal immediacy (Rester & Edwards, 2007; Santilli & Miller, 2011; Thompson et al., 1991). In symmetric relationships (e.g., friendships), women utilize nonverbal immediacy more than men (Santilli & Miller, 2011); however, in asymmetrical relationships (e.g., instructor-student), sex has no effect on immediacy (Rowden & Carlson, 1996; Santilli & Miller, 2011).

## **Teacher Clarity**

### **Overview**

The literature abounds with examples of instructors who possess extensive content knowledge but who fail to transfer this information to their students successfully, and many would argue that effective communication bridges this gap (Chesebro, 2001; Simonds, 1997). Therefore, to understand this phenomenon, scholars have concentrated extensively on the study of teacher clarity for nearly 40 years (Bush, Kennedy, & Cruickshank, 1977; Chesebro, 2001;

Chesebro & McCroskey, 1998a; Civikly, 1992; Comadena et al., 2007; Cruickshank, 1985; Cruickshank & Kennedy, 1986; Kennedy, Cruickshank, Bush, & Myers, 1978; Land, 1980; Land & Smith, 1979). Chesebro (2001) defines teacher clarity as “a process through which an instructor effectively stimulates the desired meaning of course content and processes in the minds of the students through the use of appropriately-structured verbal and nonverbal messages” (p. 3). In other words, clear teachers share knowledge in a way that students can understand (Frymier & Weser, 2001; Rodger, Murray, & Cummings, 2007; Simonds, 1997). Moreover, clarity manifests itself in instructors’ written and oral communication (Sidelinger, 2010).

Referred to as the most promising teacher-effect variable for impacting student outcomes, teacher clarity has received extensive study from education and communication researchers (Kennedy et al., 1978; Rosenshine & Furst, 1971). Specifically, a review of literature reveals two phases of clarity study: research by education scholars in the 1970s and 1980s (e.g., Bush et al., 1977; Chilcoat & Vocke, 1988; Hativa, 1998; Hines, Cruickshank, & Kennedy, 1985; Land & Smith, 1979; McCaleb & White, 1980; Sherman & Giles, 1983; Smith & Land, 1981; Williams, 1985) and by communication researchers from the 1990s to present (Avtgis, 2001; Chesebro, 2003; Chesebro & McCroskey, 1998a; Faylor et al., 2008; Finn & Schrodtt, 2012; Frymier & Weser, 2001). As noted by Zhang and Huang (2008), research from both disciplines has focused on two areas: 1) defining clarity and identifying specific teacher behaviors (Bush et al., 1977; Cruickshank & Kennedy, 1986; Hines et al., 1985; Kennedy et al., 1978; McCaleb & White, 1980) and 2) student outcomes (Land, 1979; Land & Smith, 1979; Sidelinger & McCroskey, 1997). Given the relevance of this research, findings from both disciplines will be discussed in the following sections.

## **Defining Teacher Clarity**

Research originating in both communication and education favors a multidimensional conceptualization of teacher clarity; however, specific definitions have varied somewhat across disciplines (Chesebro, 2001; Civikly, 1992; Cruickshank & Kennedy, 1986; Kennedy et al., 1978; Simonds, 1997; Williams, 1985). Much of this disagreement is attributed to the highly inferential nature of clarity (i.e., informed by subjective judgments and assumptions), which makes it difficult to define and measure (Civikly, 1992; Cruickshank & Kennedy, 1986; Hines et al., 1985; Simonds, 1997). Measuring high-inference behaviors causes methodological problems because one cannot assume that a respondent/observer can truly understand a global behavior (e.g., clarity) or that all respondents/observers define the behavior in the same way (Civikly, 1992). To combat these issues, scholars opted to define clarity by identifying low-inference behaviors that enhance or hinder clarity (Civikly, 1992; Hines et al., 1985; McCaleb & White, 1980; Simonds, 1997; Smith & Land, 1981; Williams, 1985). Measuring low-inference behaviors requires simply observing what is “directly sensed or seen” (Cruickshank & Kennedy, 1986, p. 44). Employing this conceptualization, Cruickshank and Kennedy (1986) define teacher clarity as “a cluster of teaching behaviors that result in learners gaining knowledge or understanding, if they possess adequate interest, aptitude, opportunity, and time” (p. 43). Throughout its history, this work has established over 1000 behaviors to assess the existence or absence of clarity (Civikly, 1992).

Given the large number of behaviors associated with clear teaching, Bush et al. (1977) made an early effort to condense these observable behaviors into manageable constructs. Beginning with an earlier list of over 1000 descriptions of clear teaching identified by middle school students (Cruickshank, Myers, & Moenjak, 1975), Bush et al. (1977) isolated 110

behaviors and asked students to rate the frequency with which each of these behaviors occurred in their clearest teacher's classroom and in their most unclear teacher's classroom. Factor analysis of student responses revealed five factors of teacher clarity: explaining, individualizing, task orientation, verbal fluency, and organizing student work (Bush et al., 1977). Of these dimensions, explaining and individualizing were shown to be the strongest (Bush et al., 1977; Cruickshank & Kennedy, 1986). Most importantly, this research demonstrated that low inference behaviors can discriminate between clear and unclear teachers, providing evidence for the low-inference behaviors method (Cruickshank & Kennedy, 1986). To address generalizability concerns, several replication studies were conducted that confirmed original findings (Cruickshank & Kennedy, 1986; Kennedy et al., 1978). Much of the early work on clarity employed instruments developed using these dimensions (Kennedy et al., 1978; Land, 1979; Williams, 1985).

During the early 1990s, instructional communication researchers began to examine communication aspects of teacher clarity and to make contributions defining it (Chesebro, 2001; Chesebro & McCroskey, 1998a; Civikly, 1992; Simonds, 1997). In her seminal review of literature, Civikly (1992) brought teacher clarity to the field of communication and identified neglected areas in the existing research that would benefit from attention by communication scholars. Unlike earlier models of clarity (Bush et al., 1977; Kennedy et al., 1978; McCaleb & White, 1980), Civikly (1992) viewed teacher clarity as a communication process and argued for a relational approach, which relies on both teacher behaviors and student clarity behavior. Simonds (1997) further expanded the notion of clarity to include process clarity, which earlier research had overlooked. Moreover, utilizing both content and process clarity, she created the first instrument in the communication discipline (Simonds, 1997).



Recent research in instructional communication has concluded that two components comprise clarity: verbal and structural clarity (Chesebro, 2001). Verbal clarity requires fluency (i.e., the absence of vocalized pauses and vagueness), clear explanations, and clear, tangible examples (Chesebro, 2001). Structural clarity refers to the organizational qualities of instruction, which includes prepared, pertinent lectures and use of previews, hands-on activities, visual aids, outlines, reviews, and transitions (Chesebro, 2001). This definition, along with its accompanying instrument (Chesebro & McCroskey, 1998a), have been utilized in the majority of subsequent instructional communication research (Chesebro, 2001; Chesebro & McCroskey, 2001; Comadena et al., 2007; Frymier & Weser, 2001; Rodger et al., 2007; Sidelinger, 2010; Titsworth, 2004; Zhang & Zhang, 2005).

**Theory of clarity-learning.** To date, only one theory of clarity-learning has appeared in the communication literature. Zhang and Huang's (2008) mediated clarity-learning model posits that student affective learning and then student motivation govern the effect of teacher clarity. In other words, clear teachers impact students' affect (or attitudes) toward the course and the instruction, which motivates them to learn. This model has roots in Bandura's (2001) social cognitive theory, which argues that individuals regulate the extent to which environmental factors impact their behavior. According to Bandura (2001), social or observational learning requires the presence of four interrelated mechanisms: attention, retention, motor reproduction, and motivation. Applied to an instructional context, effective instructors must "attract students' attention, increase their affective states and self-efficacy, motivate them to learn, and improve their self-regulatory skills to achieve desired learning outcomes" (Zhang, 2009, p. 328). Along with existing theory, Zhang and her colleagues' work in developing immediacy- and credibility-learning models provides additional evidence for the mediated clarity-learning model (Zhang,

2009; Zhang & Huang, 2008; Zhang & Oetzel, 2006b; Zhang et al., 2007a; Zhang & Zhang, 2005).

**Teacher behaviors and student outcomes associated with clarity.** Once satisfactory definitions and measurement techniques were established, education researchers set out to determine the effects of teacher clarity and strategies for teachers to improve their clarity (Cruickshank & Kennedy, 1986; Hines et al., 1985; Land, 1979, 1980, 1981). Answering Simonds' (1997) call for research that examines the relationships among teacher clarity, other teacher communication behaviors, and student outcomes, subsequent instructional communication research has examined the extent to which teacher clarity relates to instructional communication variables (Chesebro, 2003; Chesebro & McCroskey, 1998b, 2001; Sidelinger & McCroskey, 1997).

**Teacher behaviors.** Along with defining the construct and creating instruments to measure it, early research also identified a number of behaviors that separated clear and unclear instructors. Bush et al. (1977) indentified the following behaviors: provides individual help, uses understandable explanations, uses teaching pace appropriate to the subject matter and students, takes time explaining, answers questions, stresses difficult topics, uses examples, reviews student work, provides sufficient practice time, and bolsters lessons with precise details. In a replication of the Bush et al. (1977) study, Kennedy et al. (1978) proposed ten similar behaviors: provides simple explanations, gives understandable explanations, utilizes appropriate pace, repeats topics until students understand, seeks out topics students do not understand, employs step-by-step teaching, describes work and provides guidance on how to complete it, asks students if they understand how to complete tasks, repeats challenging material, and follows explanations with examples. Recent literature has discovered a number of additional teacher behaviors and

qualities to which clarity is related: type-a personality (Lamude & Wolven, 1998), nonverbal immediacy (Chesebro & McCroskey, 2001; Powell & Harville, 1990; Sidelinger, 2010; Sidelinger & McCroskey, 1997), assertiveness (Sidelinger & McCroskey, 1997), responsiveness (Sidelinger, 2010), credibility (Schrodt et al., 2009), pedagogical knowledge (Hativa, 1998), and instructors' knowledge of students (Hativa, 1998). Furthermore, Sidelinger and McCroskey (1997) report a positive correlation between teacher clarity and student evaluations.

***Student outcomes.*** Along with identifying associated teacher behaviors and qualities, researchers in communication and education have identified a number of related student outcomes. Specific outcomes include talking in class (Sidelinger, 2010), out-of-class involvement (Sidelinger, 2010), affective learning (Chesebro, 2003; Chesebro & McCroskey, 2001; Mottet et al., 2008; Sidelinger & McCroskey, 1997; Zhang, 2011; Zhang & Huang, 2008), academic achievement (Cruickshank & Kennedy, 1986; Hines et al., 1985; Land, 1979; Land & Smith, 1979; Rodger et al., 2007; Smith & Land, 1980; Solomon, Rosenberg, & Bezdek, 1964), information recall (Chesebro, 2003), motivation (Chesebro & McCroskey, 2001; Rodger et al., 2007), cognitive learning (Chesebro & McCroskey, 2001; Zhang & Huang, 2008), understanding (Finn & Schrodt, 2012; Hativa, 1998; Solomon et al., 1964), satisfaction (Hativa, 1998; Hines et al., 1985), note taking (Titsworth, 2004), interest (Solomon et al., 1964), willingness to take another course with similar content (Powell & Harville, 1990), willingness to engage in the behaviors taught in the course (Powell & Harville, 1990), and student empowerment (Houser & Frymier, 2009). On the other hand, clarity is negatively correlated with student anxiety (Chesebro, 2003; Chesebro & McCroskey, 1998b, 2001).

## **Teacher Clarity and Culture**

Unlike the other instructional communication behaviors discussed in this review, very little research has examined effects of culture on perceptions of clarity. Generally, findings indicate that students from other cultures experience clarity just as American students do (Zhang, 2011; Zhang & Huang, 2008; Zhang & Zhang, 2005). In Chinese classrooms, teacher clarity was positively correlated with affective learning, cognitive learning, and motivation, and it was negatively correlated with communication apprehension (Zhang & Zhang, 2005). Further, Zhang (2011) reported that clarity significantly predicted affective learning, and a model regressing credibility and clarity on affective learning accounted for 57% of the variance in affective learning scores. Testing of the mediated clarity-learning model (described above) revealed that it successfully explained the relationship between clarity, affective learning, motivation, and cognitive learning for students in the U.S., China, Japan, and Germany. Specifically, Zhang and Haung (2008) contend that regardless of race, “clarity always produces positive learning outcomes” (p. 14). As demonstrated by the sparse research base, a need exists for additional study of the link between culture and clarity. Specifically, factors other than race and country of origin should be examined.

## **Teacher Credibility**

### **Background**

The study of teacher credibility stems from some of the earliest writing on communication theory: Aristotle’s *Rhetoric* (Finn et al., 2009; McCroskey & Teven, 1999; McCroskey & Young, 1981; Teven & Herring, 2005; Zhang, 2009). To Aristotle, *ethos*, or a speaker’s appearance of trustworthiness (i.e., source credibility), served a critical role in the rhetorical process (Aristotle, 2007; Finn et al., 2009; Foss, 2004; McCroskey & Teven, 1999).

Along with *logos* (i.e., logical arguments) and *pathos* (i.e., appeals to the audience's emotions), a speaker must consider *ethos* to persuade an audience successfully (Aristotle, 2007; Foss, 2004; Griffin, 2006). Speakers establish *ethos* via three dimensions: moral character or integrity, intelligence, and goodwill (Foss, 2004; Griffin, 2006; McCroskey & Young, 1981). According to Foss (2004), a speaker establishes character by aligning his or her persona and message with "what the audience considers virtuous" (p. 31). As envisioned by Aristotle (trans. 2007), intelligence involves common sense, practical wisdom, and shared values to a greater extent than cognitive ability (Foss, 2004; Griffin, 2006). Finally, *goodwill* refers to the speaker's perceived caring or positive intentions related to the wellbeing of the audience (Aristotle, trans. 2007; Foss, 2004; Griffin, 2006; McCroskey & Teven, 1999).

Over 2000 years following his death, the study of rhetoric has continued to incorporate the basic tenets of successful discourse proposed by Aristotle (McCroskey, Holdridge, & Toomb, 1974; McCroskey & Teven, 1999; McCroskey & Young, 1981). "Contemporary research generally has supported the proposition that source credibility is a very salient element in the communication process, whether the goal of the communication effort be it persuasion or the generation of understanding" (McCroskey & Young, 1981, p. 24). As a primary component of rhetorical theory, credibility has received extensive attention in the communication literature (Finn et al., 2009; McCroskey & Young, 1981). For example, recently, source credibility has received scholarly attention in studies of media (Mingsheng & Sligo, 2012; Thorson, Vraga, & Ekdale, 2010), computer-mediated communication (Martin & Johnson, 2010; Schmierbach & Oeldorf-Hirsch, 2012), advertising and marketing (Baek, Kim, & Yu, 2010; Guido, Peluso, & Moffa, 2011; Prendengast, Ting Wai, & Yi Cheung, 2012), interpersonal communication (Horan & Chory, 2011), crisis communication (Hostetler & Kahl, 2011), and organizational

communication (Dunleavy, Chory, & Goodboy, 2010; Horan & Chory, 2011; Teven, 2010).

While there is some dissent regarding the ability of Aristotle's work to explain modern rhetoric (for discussion, see Foss, 2004), most communication scholars would agree that credibility has a fundamental role in the communication and persuasion process (Finn et al., 2009; McCroskey & Teven, 1999; McCroskey & Young, 1981).

### **Teacher Credibility in Instructional Communication**

Beginning in the early 1970s, instructional communication researchers brought the study of source credibility to the classroom (McCroskey et al., 1974; McCroskey & Teven, 1999). While it has evolved somewhat in the literature, the definition utilized in instructional communication strays very little from concepts advanced by Aristotle in ancient Greece (Aristotle, 2007; Finn et al., 2009; McCroskey et al., 1974; McCroskey & Teven, 1999; McCroskey & Young, 1981). When "applied to the classroom context, highly credible teachers are those who are perceived by their students as competent, trustworthy, and caring" (Glascok & Ruggiero, 2006, p. 198). In their seminal study of teacher credibility, McCroskey, Holdridge, and Toomb (1974) operationally defined teacher credibility and presented an instrument to measure it. Like Aristotle's (2007) multidimensional conception of *ethos*, the study found several dimensions of teacher credibility: character, sociability, composure, extroversion, and competence (McCroskey et al., 1974). However, more recent scholarship rejects many of these original constructs and argues that teacher credibility has three dimensions: competence, character, and goodwill (Finn & Schrod, 2012; Glascok & Ruggiero, 2006; McCroskey & Teven, 1999; McCroskey & Young, 1981). Interestingly, these new dimensions align directly with the original conception of *ethos* described by Aristotle (2007).

Along with defining and creating an instrument to measure teacher credibility, McCroskey et al. (1974) began what scholars refer to as the first generation of teacher credibility research, which established a link between credibility and student outcomes (Finn et al., 2009; McCroskey et al., 1974; Schrodtt et al., 2009). A wealth of communication research in this tradition has been published during the last thirty years (Finn et al., 2009). Specifically, teacher credibility may influence out-of-class involvement (Sidelinger, 2010), willingness to take another course (McCroskey et al., 1974), willingness to recommend a course (McCroskey et al., 1974), affective learning (Henning, 2010; Pogue & AhYun, 2006), perceived understanding (Schrodtt & Finn, 2011; Schrodtt, Turman, & Soliz, 2006), student persistence (Wheeless, Witt, Maresh, Bryand, & Schrodtt, 2011), motivation (Frymier & Thompson, 1992; Pogue & AhYun, 2006), classroom climate (Holland, 2006), student upward mobility orientation (Tibbles et al., 2008), respect for teacher (Martinez-Egger & Powers, 2007), and teacher rating (Schrodtt et al., 2006). Furthermore, teacher credibility is positively correlated with learning and negatively correlated with learning loss (Gray, Anderman, & O'Connell, 2011; Johnson & Miller, 2002) and ambivalence (Tibbles et al., 2008).

Following Frymier and Thompson's (1992) call for research that provides practical advice for instructors seeking to improve their credibility, the second phase of research examined the variables that positively and negatively affect teacher credibility (Finn et al., 2009). To this end, communication and education literature have demonstrated that multiple variables influence the perception of instructor credibility. Specifically, affinity seeking (Frymier & Thompson, 1992), consistent verbal and nonverbal messages (Beatty & Behnke, 1980), management of compulsive communicators with pro-social strategies (McPherson & Liang, 2007), use of social networking websites (Johnson, 2011; Mazer, Murphy, & Simonds, 2007, 2009), task and social

attractiveness (Edwards, Edwards, Qingmei, & Wahl, 2007), leadership (Bolkan & Goodboy, 2009), confirming language (Schrodt et al., 2006), referent and expert power (Teven & Herring, 2005), socio-communicative style (i.e., assertiveness, responsiveness, and versatility) (Henning, 2010), office aesthetic quality (Teven & Comadena, 1996), caring (Teven, 2007b; Teven & Hanson, 2004), use of progressive teaching philosophies that focuses on active learning (Brann, Edwards, & Myers, 2005), high argumentativeness paired with low verbal aggressiveness (Edwards & Myers, 2007), use of technology (Schrodt & Turman, 2005), and immediacy (Johnson & Miller, 2002; McCroskey, Valencic, & Richmond, 2004; Teven & Hanson, 2004; Thweatt & McCroskey, 1998; Wheelless et al., 2011; Zhang, 2011; Zhang & Oetzel, 2006b) have a positive relationship with student perceptions of credibility.

On the other hand, scholars have identified a number of factors that inhibit teacher credibility: marginalized group status (Brown, Cervero, & Johnson-Bailey, 2000; Hendrix, 1998; McLean, 2007; Russ, Simonds, & Hunt, 2002), negative online teacher ratings (e.g., [www.ratemyprofessor.com](http://www.ratemyprofessor.com)) (Edwards et al., 2007), teacher burnout (Zhang & Sapp, 2009), misbehaviors (i.e., incompetence, indolence, and offensiveness) (Banfield, Richmond, & McCroskey, 2006; Semlak & Pearson, 2008; Teven, 2007b; Thweatt & McCroskey, 1998), non-American accents and English-language inadequacy (Li, Mazer, & Ju, 2011; McLean, 2007), and youth (Semlak & Pearson, 2008).

**Credibility-learning models.** Informed by both phases of teacher credibility research, recent research has attempted to develop a model that explains the role of credibility in the learning process (Schrodt et al., 2009; Zhang, 2009). There is some evidence that teacher credibility functions as the mediator of all communication behaviors in the learning process, with behaviors (e.g., nonverbal immediacy and clarity) improving or thwarting credibility, which



affects learning (Finn & Schrodts, 2012; McCroskey et al., 2004; Schrodts et al., 2009).

Furthermore, there is theoretical and empirical evidence to suggest that the link between credibility and learning is governed by student motivation and affect (Bandura, 2001; Krawthwohl, Bloom, & Masia, 1964; Zhang, 2009). These trends have led to the development of the credibility-learning models described below.

Schrodts et al. (2009) proposed two models of credibility-learning: the full mediation model and the partial mediation model. The full mediation model theorizes that the use of immediacy, confirming messages, and clarity enhances credibility, which mediates the relationship with student outcomes. Based on immediacy-learning research that has established direct and indirect effects on student learning (Andersen, 1979; Frymier, 1994; Rodriguez et al., 1996; Zhang & Oetzel, 2006b; Zhang et al., 2007a), the partial mediation model hypothesizes that immediacy, confirming messages, and clarity have both direct and indirect effects on learning and that credibility mediates indirect effects (Schrodts et al., 2009). A large-scale study of students from four post-secondary institutions revealed that the partial mediation model was a better fit than the full mediation model, indicating that while teacher credibility serves as a critical mediator in the relationship between teacher behaviors and learning, teacher behaviors may have a direct effect (Schrodts et al., 2009).

A third model of credibility-learning, the etic (i.e., culturally neutral) structural credibility-learning model, focuses primarily on the interaction between credibility, affect, motivation, and learning (Zhang, 2009). Based on Bandura's (2001) social cognitive theory and the work of Krawthwohl, Bloom, and Masia (1964), Zhang (2009) argues that as environmental factors, instructors (and their communication behaviors) influence student affect and motivation, rather than directly affecting learning. Focusing on the agent, the social cognitive theory

contends that individuals self-regulate their behavioral reactions to environmental stimuli. In other words, through their attention and motivation, individuals choose how to behave in response to their environment (Bandura, 2001). The influential work of Krawthwohl, Bloom, and Masia (1964) in education provides further theoretical backing for the model, indicating that motivation can govern the relationship between affective and cognitive learning, a notion supported by existing communication literature (Zhang & Oetzel, 2006b; Zhang et al., 2007a). Therefore, this model postulates that credibility has both a direct and indirect relationship on learning, with stronger indirect effects mediated by affective learning and subsequently motivation (Zhang, 2009). Initial testing of this model that utilized data from U.S., Chinese, German, and Japanese universities revealed that credibility related only indirectly to cognitive learning, with the relationship mediated first by student affective learning and then by motivation (Zhang, 2009).

Given the relative newness of the three models, limited validation has occurred. Therefore, while the literature provides evidence of the link between student outcomes both directly and indirectly, further research is necessary to determine the precise role that credibility plays in learning (Zhang, 2009).

**Credibility and culture.** As with the aforementioned instructional communication behaviors, a number of teacher credibility studies include a cultural component, and within those studies, cultural foci include race, country of origin, native language, sex, and sexual orientation (Glascok & Ruggiero, 2006; Hargett & Strohkirch, 1999; Johnson & Miller, 2002; Li et al., 2011; McLean, 2007; Russ et al., 2002). Given the cultural focus of this study, studies exploring these factors are discussed in detail below.

The work of Hall and Sandler (Hall & Sandler, 1982, 1984; Sandler, 1991) has thoroughly described the college experience from the female perspective, which provides a springboard for examining instructor credibility in college classrooms. Most notably, this work depicts the college campus – including the classrooms, campus services, and extracurricular activities – as a “chilly environment” for women (Hall & Sandler, 1982, 1984). Gender biases are subtly and overtly built into the education system and perpetuated by both males and females (Hall & Sandler, 1982, 1984; Sandler, 1991). For instance, women receive less time and attention than men during discussions and have fewer opportunities to engage in extracurricular activities. Sandler (1991) notes that female faculty must endure both subtle and overt attacks on their credibility. Specifically, female faculty face greater scrutiny related to their academic and professional credentials, speech, authority, and clothing. Each of these factors has been shown to affect credibility (e.g., Gorham & Cohen, 1999; Gorham, Morris, & Cohen, 1997; McLean, 2007; Simonds, Meyer, Quinlan, & Hunt, 2006). Additionally, females may be the object of sexual harassment and sexual slurs (Sandler, 1991). Gender biases in colleges and universities provide an environment in which perceptions of credibility are further complicated.

While several studies have found evidence that sex can affect students’ general evaluations of instructors (Centra & Gaubatz, 2000; Cooper, Stewart, & Gudykunst, 1982; Galguera, 1998), inconsistent findings permeate much of the existing literature on sex and credibility (Feldman, 1992, 1993; Fernández & Mateo, 1997; Glascock & Ruggiero, 2006). In fact, nearly all results align with the argument advanced in psychology that studies of sex produce more “close-to-zero” differences than most other concepts in the field (Feldman, 1992, 1993; Fernández & Mateo, 1997; Hyde & Plant, 1995). In similar examinations of sex, Glascock and Ruggiero (2006) and Patton (1999) found no effects of student or instructor sex on

perceptions of teacher credibility. Similarly, Fenandez and Mateo (1997) reported that female students rate instructor competence slightly higher than males; however, student sex accounted for less than 1% of the variance, which provides little practical significance. Additionally, faculty sex had no effect on ratings of credibility (Fernández & Mateo, 1997).

As noted above, there is little evidence of sex differences impacting perceptions of credibility, and those reporting significant effects produce less than compelling evidence (Fernández & Mateo, 1997). For example, investigating the effects of use of technology and sex on perceived credibility, Schrodtt and Turman (2005) revealed some differences between male and female perceptions of instructor credibility, but only in discrete classroom technology-use situations. Moreover, while several literature reviews have cited Hargett and Strohkirch (1999) as evidence of sex effects, the report lacks the detail necessary to verify the validity of these findings. The lack of research on sex-effects in the recent literature suggests that scholars have accepted prior findings.

Gender has played an important role in the study of instructor credibility (Hall, Braunwald, & Mroz, 1982; Hall & Sandler, 1982; Kierstead, D'Agostino, & Dill, 1988; Sandler, 1991; Wood, 1993; Wood & Lenze, 1991). In fact, the components of credibility have been divided into masculine (i.e., cool) and feminine (i.e., warm) domains, with competence, composure, and knowledge viewed as masculine and caring, sociability, extroversion, and character as feminine (Basow & Silberg, 1987; Gorham & Cohen, 1999; Gorham et al., 1997; Kierstead et al., 1988; Morris & Gorham, 1996; Sandler, 1991). Research shows that in western classrooms, masculinity (e.g., assertiveness, competitiveness, and talkativeness) is favored (Hall & Sandler, 1982; Wood, 1993; Wood & Lenze, 1991), and as a result, these classifications negatively affect female instructors because students often struggle to perceive females as both

competent instructors and feminine (Brooks, 1982; Clune, 2009; Sandler, 1991; Selinow & Treinen, 2004). Specifically, while students often expect greater levels of caring from female instructors, students may view these behaviors as overly feminine or as a sign of weakness, but on the other hand, females who assert themselves maybe viewed as overly masculine (Sandler, 1991). These gender roles affect how students perceive credibility.

As one would expect, male and female instructors receive higher student ratings when they successfully employ their traditional gender roles in the classroom (Basow & Silberg, 1987; Hall et al., 1982; Kierstead et al., 1988). Interestingly, there is some recent evidence to suggest that androgynous instructors (i.e., those possessing low levels of masculine and feminine traits) may have the most success in the classroom (Pope & Chapa, 2008). Using the Bem Sex Role Inventory (Bem, 1974) to measure perceived instructor gender, Pope and Chapa (2008) stated that instructor gender – as perceived by students – has an effect on credibility, with androgynous individuals (i.e., possessing high levels of masculine and feminine traits) rated as more competent, caring, and trustworthy than undifferentiated individuals. Furthermore, androgynous instructors were viewed as more caring and trustworthy than masculine instructors (Pope & Chapa, 2008). Student gender had no effect on ratings of credibility.

A relatively large body of research has established the existence of homophobia on college campuses; however, until recently, no research had examined the ramifications of a homosexual teacher disclosing his or her sexual orientation on student perceptions of credibility (Russ et al., 2002). In the first investigation of sexual orientation on teacher credibility, Russ et al. (2002) report that students rated homosexual instructors as less credible than heterosexual instructors and indicated that they learned significantly more from heterosexual teachers.

Further, homosexual instructors received over five times as many negative open-ended comments as heterosexual instructors.

As recently as the late 1990s, scholars argued that the studies of credibility have failed to address the impact of race on perceptions of credibility, especially as it relates to instructors of color (Hendrix, 1998). Therefore, new research has focused on the impact of race. Hendrix (1998) found that students view African Americans as more credible than whites in race or ethnic studies courses or in courses that focus on topics linked to minorities (e.g., crime). Additionally, students believe that African American instructors must work harder to secure university teaching positions than whites (Hendrix, 1998). In college math classrooms, a typically white and male domain, African American females reported that their credibility was often questioned by students; therefore, they directed special attention to avoiding mistakes in the classroom (Brown et al., 2000). Along with race, an instructor's ability to speak English also has an impact on his or her credibility. This phenomenon has been demonstrated for African Americans (Hendrix, 1998), Asians (McLean, 2007), and international teaching assistants (Li et al., 2011).

As with sex, the effect of race on credibility remains somewhat ambiguous (Glascock & Ruggiero, 2006). Much of the existing research that examined the racial components of teacher credibility has occurred at institutions with largely homogenous populations (Glascock & Ruggiero, 2006). Glascock and Ruggiero (2006) found limited effects of sex, race, and sex/race interactions on perceptions. Specifically, no significant effects were observed for student sex, instructor sex, or student ethnicity, and only marginal effects were observed for instructor ethnicity. Patton (1999) found that students rated African American instructors as more credible than European-American instructors. Johnson and Miller (2002) report a relationship between

teacher credibility and learning for Kenyan students consistent with findings from studies of American students, which indicates that country of origin had no effect on perceptions of credibility.

### **Relationships among Immediacy, Credibility, and Clarity**

As shown above, a plethora of published research indicates that teacher immediacy, credibility, and clarity correlate with each other (Chesebro & McCroskey, 2001; Finn & Schrodt, 2012; Johnson & Miller, 2002; Powell & Harville, 1990; Schrodt et al., 2009; Sidelinger, 2010; Sidelinger & McCroskey, 1997). Additionally, evidence suggests that the interaction among these variables may produce even greater effects on student learning than the variables individually (Chesebro & McCroskey, 2001; Zhang et al., 2011). Zhang and colleagues' (Zhang, 2009; Zhang & Huang, 2008; Zhang & Oetzel, 2006b; Zhang et al., 2007a) recent efforts to model the relationship between teacher communication behaviors and learning posit that nonverbal immediacy, clarity, and credibility influence cognitive learning indirectly, as mediated by affective learning and motivation. The testing of these theories and variables individually reinforces these claims (Zhang, 2009; Zhang & Huang, 2008; Zhang & Oetzel, 2006b; Zhang et al., 2007a). Further, the first study to examine the three variables simultaneously in relation to the learning process provides additional support. Specifically, in an investigation of the impact of nonverbal immediacy, credibility, and clarity on student affective learning in Chinese classrooms, Zhang (2011) found that credibility and clarity significantly predicted affective learning, with credibility providing a better prediction. Furthermore, credibility mediated the relationship between affective learning, clarity, and immediacy (Zhang, 2011). As demonstrated by these findings, the study of the interrelation among these variables has merit to understand further the role of teacher communication in the students' learning.

### **Rationale**

Understanding the factors that contribute to the achievement gap has become imperative for ensuring equitable education for students of all races and socioeconomic statuses (Ladson-Billings, 1994, 1995; U.S. Department of Education, 2010). Theorists from education and sociology argue that differences in performance can be attributed to mismatches in the culture of students and that of their teachers and schools (Stephens, Fryberg, et al., 2012; Stephens, Townsend, et al., 2012). Specifically, working-class values conflict with the culture of individualism espoused by the education system (Fryberg et al., 2012; Stephens, Fryberg, et al., 2012; Stephens, Townsend, et al., 2012). Further, in many cases, students who grow up in poverty or in working-class families lack the social capital to develop the support systems necessary to succeed academically (Markle, 2010). Findings from education demonstrate that SES has a direct effect on academic performance (Baker & Johnston, 2010; Duncan et al., 2011; Humlum, 2011). Meanwhile in the field of communication, over thirty years of instructional communication research demonstrates the link between teacher behaviors and learning (Christophel, 1990; Frymier, 1994; McCroskey, Fayer, et al., 1996; Rodriguez et al., 1996). Moreover, there is evidence to suggest that culture (i.e., race, country of origin, and sex) impacts students' perceptions of instructional communication behavior (McCroskey, Fayer, et al., 1996; McCroskey, Sallinen, et al., 1996; Zhang & Huang, 2008; Zhang et al., 2007a). Unfortunately, as of this writing, no instructional communication research has examined SES in relation to perceptions of classroom communication behaviors. The lone SES-related instructional communication study found that SES has an effect on online ratings of instructors on [www.ratemyprofessor.com](http://www.ratemyprofessor.com) (Agnew, 2011). Given the relationship between online ratings and observable teacher behaviors (Edwards et al., 2007), Agnew's (2011) study provides a rationale



for a link between SES and instructional communication behaviors. In light of these findings, this study contributes to the existing literature by testing the effect of SES on teacher nonverbal immediacy, clarity, and credibility. Specific research questions are provided below:

RQ1: Does student socio-economic status (as measured by family income) affect perceptions of instructor clarity, credibility, and nonverbal immediacy?

RQ2: Does student socio-economic status (as measured by first-generation college student status) affect perceptions of instructor clarity, credibility, and nonverbal immediacy?

## CHAPTER 3

### METHOD

#### **Design**

The current descriptive study utilized quantitative data derived from student surveys. According to Clark (1991), descriptive research differs from experimental research because it observes the relationships between variables as they naturally occur as opposed to manipulating an independent variable under experimental conditions. Because the researcher does not manipulate variables, phenomena other than the variables studied may confound the observed relationship, and therefore, one cannot determine causation using descriptive methods. However, descriptive research demonstrates the differences in the test variable (e.g., income) more naturally than artificial variable manipulation (Clark, 1991). Given the exploratory nature of this study, descriptive methods were appropriate.

As described in the aforementioned research questions, the current study examined the effect of SES on student perceptions of instructor communication behaviors. To address these research questions, quantitative data were derived from student ratings of teacher credibility, nonverbal immediacy, and clarity. In addition to providing ratings related to the instructional communication behaviors, participants provided demographic information related to SES. Given the multidimensional nature of the research questions, multivariate methods were used (Huberty & Morris, 1989).

## **Participants**

### **Target Population**

The sample consisted of undergraduate students attending an entry level communication course at Indiana State University. Specifically, the study targeted freshmen students enrolled in Communication 101 – Introduction to Speech Communication, a three-credit hour course designed to teach the basic principles of oral communication. This course is required for all Indiana State undergraduate students, and advisors encourage students to take this class during their freshman year. During each semester, approximately 1,000 students enroll in this course (J. Clarkson, personal communication, November 12, 2012).

The researcher provided the invitation email (see Appendix B) and survey link to the Director of Foundational Studies in Communication who forwarded this information to the instructors of each individual Communication 101 section. Using Blackboard, Indiana State University's online educational platform, instructors sent the invitation email to the students enrolled in their sections, and therefore, each student who was enrolled in the course during the spring 2013 semester should have received a brief email that described the project, the process for completing the survey, and the incentive offered for participants (i.e., a chance to enter a drawing for a \$25 Wal-Mart gift card). A link to the online survey was also provided. The email concluded by thanking recipients for their consideration, as well as providing instructions for deleting the email and a statement that the recipient would receive no additional email communication.

### **Power Analysis**

A power analysis was conducted to determine the number of participants necessary for the study. According to Field (2009), *statistical power* refers to “the ability of a test to detect an

effect of a particular size” (p. 792). First, Cohen’s (1988) guidelines for  $f^2$  were employed to determine the preferred minimum effect size. At minimum, the analysis should detect medium effects, assuming that those effects exist in the data. Cohen (1988) defines medium effects as those with  $f^2$  greater than or equal to .15. A power analysis conducted via the G\*Power 3 software (Faul, Erdfelder, Lang, & Buchner, 2007) revealed that a total sample of 459 respondents was necessary to detect the intended minimum effect with a power ( $1 - \beta$ ) of .80 and an alpha of .05, two-tailed.

### **Sample**

A total of 15 students completed the survey. Most (87%;  $n = 13$ ) were freshman, and one (7%) was a sophomore. One (7%) participant did not report his or year of study. Of those completing the survey, 4 (26.7%) reported low annual income, 8 (53%) medium income, and 3 (20%) high income. Furthermore, seven (47%) participants were FGC students, while 8 (53%) participants’ parents had attended a college or university.

### **Instruments**

The project relied on existing, validated instruments to measure the variables in question. These measures were chosen because of acceptable levels of reliability and validity, previous use in education or instructional communication research, and appropriateness for the current study. Specifically, the investigation utilized the Nonverbal Immediacy Behaviors Instrument (Richmond, Gorham, & McCroskey, 1987), Source Credibility Measures (McCroskey & Teven, 1999), and Teacher Clarity Short Inventory (TCSI) (Chesebro & McCroskey, 1998a). These instruments have been used extensively in instructional communication studies and have been shown valid and reliable. The psychometric properties for each instrument are discussed below,

and copies of the instruments are included in Appendix E, Appendix F, and Appendix G. Finally, two demographic items were included to assess SES.

### **Nonverbal Immediacy Behaviors Instrument (Richmond, Gorham, et al., 1987)**

As noted in the review of literature, nonverbal immediacy has received extensive study from researchers in communication, and because of this, a number of instruments have been created to measure this construct (Richmond, McCroskey, & Johnson, 2003). The current study used the Nonverbal Immediacy Behaviors Instrument (NIBI) (Richmond, Gorham, et al., 1987). Based on Andersen's (Andersen, 1979; Andersen et al., 1979) original instrument for measuring immediacy, the NIBI is a 14-item, 4-point Likert-type scale that measures low-inference teacher immediacy behaviors (McCroskey et al., 1995; Rubin, Palmgreen, & Sypher, 1994). In prior research, reliability coefficients ranged from .73 to .89, with student reports of immediacy producing greater estimates of reliability than teacher self-reports (Gendrin & Rucker, 2007; Gorham, 1988; Rubin et al., 1994; Schrodt et al., 2009). In the current study, a Cronbach's alpha of .68 was observed. Additionally, evidence of the instrument's concurrent validity has been demonstrated due to the scale's correlation with measures of verbal immediacy and the correlation between student and teacher self-reports (Christophel, 1990; Gorham, 1988; Rubin et al., 1994). Further, when measured with verbal immediacy, the items from this scale cluster into a single-factor (Rubin et al., 1994). According to Rubin et al. (1994), evidence of construct validity comes from the relationship between nonverbal immediacy and learning. Finally, in response to uncertainty about the validity of student perceptions of nonverbal immediacy, Frymier and Thompson (1995) found that students' individual communication characteristics did not impact their reports of immediacy, which provides additional support for this type of measurement.

### **Source Credibility Measures (McCroskey & Teven, 1999)**

To measure credibility, the study utilized the Source Credibility Measures developed by McCroskey and Teven (1999). Using a three-factor conceptualization of credibility, this instrument utilizes the most recent findings from the field of communication and aligns with Aristotle's (2007) seminal writing on *ethos*. Specifically, the 18-item, 7-point semantic differential scale requires students to rate their instructors in relation to bipolar adjectives (e.g., informed vs. uninformed) (McCroskey & Teven, 1999; Rubin et al., 1994). Once completed, the instrument provides ratings of instructor competence, caring, and trustworthiness. In prior research, reliability coefficients for each domain suggested high reliability: competence .85 to .93, caring .85 to .97, and trustworthiness .79 to .92 (Brann et al., 2005; Edwards & Myers, 2007; McCroskey & Teven, 1999; Schrodtt et al., 2009; Teven, 2007b; Teven & Hanson, 2004; Wheelless et al., 2011). In the current study, a Cronbach's alpha of .89 was observed, indicating high levels of reliability. Evidence of validity comes from the scale's alignment with recent and historical definitions of credibility (Rubin et al., 1994). Further, correlations with other instructional communication behaviors (see the review of literature) provide evidence of concurrent validity (McCroskey & Teven, 1999; McCroskey & Young, 1981; Rubin et al., 1994).

### **Teacher Clarity Short Inventory (Chesebro & McCroskey, 1998a)**

To measure student perceptions of teacher clarity, the Teacher Clarity Short Inventory (TCSI) (Chesebro & McCroskey, 1998a) was used. In an effort to provide a short, reliable instrument to measure clarity, Chesebro and McCroskey (1998a) subjected the 22-item Sidelinger and McCroskey (1997) clarity instrument to a factor analysis to identify the most appropriate items for measuring clarity. This procedure revealed six low-inference and four high-

inference items that were highly reliable ( $\alpha = .92$ ). Items related to both process and content clarity were included. Recent research reports reliability coefficients from .84 to .93 (Avtgis, 2001; Finn & Schrodt, 2012; Schrodt et al., 2009; Zhang, 2011; Zhang & Huang, 2008; Zhang & Zhang, 2005). In the current study, a Cronbach's alpha of .79 was observed, indicating acceptable levels of reliability.

### **Measuring SES**

As described above, to examine the effect of SES (a latent variable), the current study utilized two observable variables commonly used in research of student outcomes: family income and parents' education level (Kiviruusu et al., 2012; Markle, 2010; Sirin, 2005). First, to measure family income, students were asked to choose the category that best represented their family's income for the most recent year. Based on procedures from epidemiological research (e.g., Alaimo et al., 2001; Ludwig et al., 2012), three income gradations were assessed: low income (less than or equal to 130% of the poverty line); middle income (131% to 300% of the poverty line); and high income (greater than 300% of the poverty line). Using the 2012 poverty guidelines for a family of four published by the U.S. Department of Health and Human Services (2012), specific categories included \$29,965 or less, \$29,966 to \$69,150, and \$69,151 or greater. Secondly, to assess parents' education level, students were asked to indicate their FGC student status.

### **Procedures**

Participants received a link to an electronic version of the instruments via their Indiana State email address. As noted above, the initial email thanked students for their consideration, briefly described the project, and described incentives for participation. By clicking the survey link, participants began the informed consent process. As required by the Indiana State

University Institutional Review Board, the informed consent form provided participants with the following information: a description of the study and the uses of data, instructions for completing the online survey, names of the student researcher and facility sponsors, contact information for the principle investigator and IRB, listing of potential risks and benefits, description of procedures to protect participant confidentiality, instructions to delete the initial email message, and statement indicating that no further email would be sent to the participant from the researcher.

Once they completed the informed consent process, participants were asked to complete each instrument and to provide demographic information related to their SES. Students completed all instruments at least three weeks into the semester to ensure that they had become acquainted with the course, subject matter, and instructor's communication behaviors (McCroskey, et al., 2004; Zhang & Oetzel, 2006). Students were instructed to rate the professors in their Communication 101 course.

### **Data Analysis**

Once collected, the researcher imported all data into the Statistical Package for the Social Sciences 21.0 (SPSS) for analysis. Using procedures described by their respective authors, scores were generated for the Source Credibility Measures (McCroskey & Teven, 1999), TCSI (Chesebro & McCroskey, 1998a), and NIBI (Richmond, Gorham, et al., 1987). Data analysis began with steps to test the reliability of the scores, followed by examinations of correlations among variables for evidence of validity and multicollinearity, and finally, multivariate analyses and appropriate post-hoc tests to answer the research questions. Specific analyses are described below, along with examples of their use from comparable research and rationale for use.



### **Reliability (Cronbach's $\alpha$ )**

Data analysis began with steps to ensure that the instruments yielded reliable scores. Broadly, reliability refers to the consistency of an instrument (Reinard, 2006) or the degree to which it produces “stable or replicable scores” (Clark, 1991, p. 81). Reinard (2006) states that Cronbach's “coefficient alpha is a highly regarded and efficient way to measure reliability” (p. 129). Moreover, coefficient alpha has shown utility when determining the reliability of scales designed to measure “attitudes, beliefs, or perceptions of communication behavior” (Reinard, 2006, p. 131). Therefore, this investigation used Cronbach's (1951) coefficient alpha to assess the internal consistency of instruments.

### **Multivariate Analysis of Variance (MANOVA)**

The current study required the examination of mean differences in clarity, credibility, and nonverbal immediacy by levels of SES as measured by two observable variables: family income and FGC student status. Due to multiple dependent variables, it was necessary to utilize a multivariate statistical test (Field, 2009; Huberty & Olejnik, 2006). Overall, multivariate analyses differ from univariate procedures in that they focus on multiple dependent variables (Borgen & Seling, 1978; Dillion & Goldstein, 1984). Specifically, two one-way MANOVAs were conducted to assess the research questions. To answer the first research question, a 3 (low income, middle income, or high income) X 3 (clarity, credibility, and nonverbal immediacy) MANOVA was conducted to assess mean differences in perceived teacher communication behaviors by students' family income group. To address the second research question, a 2 (FGC student/non FGC student) X 3 (clarity, credibility, and nonverbal immediacy) MANOVA examined the mean differences in perceived teacher communication behaviors by FGC student status. For the current study, the MANOVAs were used to identify statistically significant ( $\alpha$

*priori*  $\alpha = .05$ ) mean differences in clarity, credibility, and nonverbal immediacy. MANOVA detects group differences for multiple dependent variables (Borgen & Seling, 1978; Field, 2009). In other words, MANOVA examines mean differences of one or more independent variables on two or more continuous dependent variables (Wrench, Thomas-Maddox, Richmond, & McCroskey, 2008).

The literature contains numerous examples of the use of MANOVA in similar studies. For example, Shrodt and Truman (2005) employed MANOVA to assess the effect of technology use, sex, and classroom type on the three components of teacher clarity: competence, caring and trustworthiness; Teven and Hanson (2004) utilized the procedure to assess the impact of level of teacher immediacy on perceived trustworthiness and competence; and Schrodtt and Witt (2006) used MANOVA to examine mean differences in perceptions of trustworthiness, competence, and caring when students were exposed to various levels of technology use and nonverbal immediacy.

**Rationale for the use of MANOVA.** Due to the multivariate nature of the study (i.e., multiple dependent variables), the use of MANOVA was preferable to multiple univariate *F* tests (e.g., ANOVA) for a number of reasons (Borgen & Seling, 1978; Field, 2009; Huberty & Olejnik, 2006; Stevens, 1992; Weinfurt, 1995). First, the use of multiple univariate tests leads to inflated Type I error rate (i.e., detecting significant effects when they do not truly exist in nature) because the probability of a Type I error increases with each subsequent analysis (Borgen & Seling, 1978; Field, 2009; Grimm & Yarnold, 1995; Haase & Ellis, 1987; Huberty & Morris, 1989; Huberty & Olejnik, 2006; Stevens, 1992; Weinfurt, 1995). Additionally, Hasse and Ellis (1987) argue that because experiment-wise Type II error rates (i.e., the probability of failing to detect significant effects when they exist in nature) adhere to the same laws of probability as

Type I error rates, MANOVA controls for these errors in the same way that it controls Type I error. Secondly, univariate tests ignore the relationships among dependent variables, which limits their power (Haase & Ellis, 1987; Huberty & Olejnik, 2006; Stevens, 1992; Weinfurt, 1995). Because it considers the correlations among several dependent variables, MANOVA has greater power than ANOVA when correlations exist among dependent variables (Field, 2009; Huberty & Morris, 1989; Huberty & Olejnik, 2006; Weinfurt, 1995). Third, while groups may not differ significantly for any of the individual dependent variables, a multivariate effect may exist that univariate tests would fail to detect (Grimm & Yarnold, 1995; Stevens, 1992; Weinfurt, 1995). The MANOVA avoids these issues. Specifically, MANOVA, which tests for effects for multiple dependent variables, has greater power than ANOVA, which only tests for effects along one dependent variable (Field, 2009; Grimm & Yarnold, 1995; Weinfurt, 1995).

While multivariate analyses have benefits over multiple univariate procedures, Stevens (1992) and Field (2009) caution against combining all of one's dependent variables into a single analysis without sufficient empirical or theoretical rationale. Specifically, the failure to do so may cause trivial difference among unnecessary variables to obscure true differences among other variables (Field, 2009; Stevens, 1992). While the test results may prove statistically meaningful, the findings may have no empirical value (Field, 2009). As noted in the review of literature, sufficient theoretical and empirical evidence exists for the use of multivariate tests. Each of the dependent variables has a role in one or more theoretical models of learning (e.g., Frymier, 1994; Rodriguez et al., 1996; Schrodtt et al., 2009; Zhang, 2009; Zhang & Huang, 2008; Zhang & Oetzel, 2006b) as well as the McCroskey et al. (2004) general model of instructional communication. Furthermore, the relationships among nonverbal immediacy, credibility, and clarity demonstrated in the communication literature provide sufficient rationale for the use of

multivariate tests (Zhang, 2011). Huberty and Morris (1989) argue that one should employ multivariate methods when dependent variables “at least potentially determine one or more meaningful underlying... construct” (p. 304). Based on these factors, MANOVA proved the most appropriate method for assessing the research questions.

### **Discriminant Functions Analysis**

Like its univariate counterparts, MANOVA is a two-step process that requires 1) testing for an overall effect and 2) conducting follow-up tests to determine specific group differences if a significant overall effect exists (Borgen & Seling, 1978; Bray & Maxwell, 1982). The MANOVA (described above) tests for an omnibus effect across all dependent variables, thus completing the first step (Field, 2009). To determine the exact nature of group differences, a descriptive discriminant functions analysis (DFA) was employed as a follow up to MANOVA. Mathematically identical to the MANOVA, DFA determines the linear combination of dependent variables that separate the groups (i.e., independent variables) (Bray & Maxwell, 1982; Huberty & Olejnik, 2006). Simply, DFA allows a researcher to examine major differences in one or more groups with respect to multiple dependent variables (Klecka, 1980; Stevens, 1992).

In communication, researchers utilize DFA in several contexts. First, DFA has received extensive use in linguistics as a method to determine authorship of texts (e.g., Rico-Sulayes, 2011; Wendelberger, 2011). Additionally, instructional communication researchers have used DFA for instrument development and validity testing (Goodboy, 2011; Schrodtt & Finn, 2011). Finally, much of the early research on teacher clarity employed DFA to identify low-inference teacher behaviors that separated clear teachers from unclear teachers (Bush et al., 1977; Kennedy et al., 1978).

**Rationale for use of DFA.** In addition to DFA, researchers have also relied solely on univariate ANOVA to assess specific differences following a significant MANOVA; however, as noted above, univariate analyses ignore the relationship among the dependent variables, which prohibits them from explaining multivariate effects (Bray & Maxwell, 1982; Enders, 2003). The key benefit of DFA comes from its ability to retain the multidimensionality of the analysis and provide a more sophisticated method for extracting group differences (Bray & Maxwell, 1982). In fact, a number of scholars have suggested that only multivariate tests should be used in studies with more than one dependent variable and have rejected the use of univariate post-hoc tests following a significant MANOVA (Enders, 2003; Huberty & Morris, 1989). Therefore, as recommended by Huberty and Morris (1989) this study utilized multivariate post-hoc methods (i.e., DFA) as the primary method for answering multivariate research questions.

#### **Univariate Analysis of Variance (ANOVA)**

In addition to multivariate DFA, the current study also employed a series of univariate ANOVAs (with a Bonferroni correction to control for inflated type I error) to examine further the differences among the groups following the omnibus MANOVA. Historically, univariate ANOVA is the most common method for testing specific group differences following a significant MANOVA (Bray & Maxwell, 1982; Weinfurt, 1995). While scholars have largely rejected its use as the sole MANOVA follow-up procedure for reasons described above (e.g., Borgen & Seling, 1978; Bray & Maxwell, 1982; Enders, 2003; Huberty & Morris, 1989), ANOVA may detect contributions of individual variables to group separation that DFA overlooks, which makes it a useful univariate companion to DFA (Borgen & Seling, 1978; Bray & Maxwell, 1982). According to Field (2009), ANOVA tests group mean differences for

individual dependent variables. In other words, ANOVA determines if two or more groups differ significantly in relation to one continuous dependent variable (Wrench et al., 2008).

In similar studies, communication researchers have utilized univariate ANOVA almost exclusively when interpreting a significant MANOVA. For example, Schrodts and Turman (2005) utilized univariate ANOVA follow-up procedures in a multivariate study of the effects of technology use, course design, and student and instructor sex on the three dimensions of instructor credibility. Likewise, Teven and Hanson (2004) used ANOVA following significant MANOVAs in a study of the effect of instructor immediacy and caring on perceptions of instructor competence and trustworthiness.

**Rationale for use of ANOVA with a Bonferroni Correction.** As noted above, univariate ANOVAs provide useful information regarding individual variates when used with multivariate procedures such as DFA (Borgen & Seling, 1978; Bray & Maxwell, 1982). Specifically, separate ANOVAs describe the contribution of individual variates to group separation (Borgen & Seling, 1978). According to Borgen and Seling (1978), using DFA to “interpret the multidimensional structure of the data” (p. 696) and ANOVA to describe individual contributions to group separation enhances the “the quality of the interpretations” (p. 696) of multivariate data. Therefore, when appropriate, the current study utilized both ANOVA and DFA to present a more complete picture of the effect of SES on perceptions of teacher communication.

As noted above, early multivariate research relied heavily on univariate follow-ups, referred to as either the Least Significant Difference or the protected *F* test (Bray & Maxwell, 1982). Research employing these methods argued that the omnibus MANOVA protects against Type I and Type II errors (as described above), thereby shielding subsequent univariate

procedures from experiment-wise error (Bray & Maxwell, 1982; Weinfurt, 1995). However, more recent scholarship has uncovered flaws in this rationale (Bray & Maxwell, 1982; Huberty & Morris, 1989; Weinfurt, 1995). In fact, as described by Bray and Maxwell (1982), MANOVA provides protection from experiment-wise error only if the null hypothesis is true (i.e., significant multivariate effects are not observed). If the null is rejected, subsequent univariate tests still risk Type I errors. Fortunately, Bonferroni procedures exist for reducing the likelihood of a Type I error (Bray & Maxwell, 1982; Weinfurt, 1995). Specifically, Bonferroni corrections involve “dividing the nominal alpha by the number of variates in the study and comparing each individual *F* ratio to the critical *F* for this adjusted alpha level” (Bray & Maxwell, 1982, p. 343). In light of these findings, a Bonferroni correction was applied to shield the study from experiment-wise error, as appropriate. Given the use of a Bonferroni correction to reduce the likelihood of a Type I error, the Least Significant Difference approach (i.e., the use of multiple ANOVAs without control for Type I error) was not utilized in this study.

### **Effect Size**

The American Psychological Association (APA) (2010) suggests that authors include effect sizes wherever possible to help the reader to understand the magnitude of effects reported by the study. Field (2009) defines effect sizes as “objective and (usually) standardized measures of the magnitude of an observed effect” (p. 785). A number of effect sizes exist, and the analysis and data determine a researcher’s choice of effect sizes. For the omnibus MANOVA and DFA, eta-squared ( $\eta^2$ ) was utilized, as allowed by assumptions. It was calculated by subtracting the Wilks’  $\Lambda$  statistic, which is provided by SPSS, from a value of 1. This effect size provided the proportion of the variance explained by the model (Weinfurt, 1995). Cohen’s (1988) guidelines (.01 is small, .09 is medium, and .25 or greater is large) were utilized to interpret the magnitude

of effect (Weinfurt, 1995). For DFA, the percentage of variance explained and the squared canonical correlation coefficient for each function were reported (Field, 2009). Finally, as appropriate, univariate ANOVA effect sizes were reported using omega-squared ( $\omega^2$ ) for overall effects and Cohen's  $d$  for cell-specific effects (Field, 2009).

### **Missing Data Analysis**

Given the small sample size, maximizing the number of cases for which complete data were available (i.e. scores for each dependent variable) was paramount. Most data analysis software, including SPSS, utilize a matrix of rows and columns – referred to as cases and variables respectively in SPSS – to conduct analyses, and as such, require complete data for both rows and columns (i.e., rectangular data) to carry out these processes (Harel, Zimmerman, & Dekhtyar, 2008). As such, SPSS excludes any cases for which there are incomplete data, further decreasing the sample size. Methods for addressing missing data fall into two categories: unprincipled and principled (Harel et al., 2008). Each method is described briefly below, followed by a discussion of the specific methods selected for the current study.

Unprincipled methods address missing data by editing the matrix through the addition or removal of data. The most common types of unprincipled methods include case deletion (i.e., cases with missing data are removed from the analysis) and single imputation (e.g., missing data are generated by calculating and entering the participant or variable mean, entering the last observed value in longitudinal or repeated measures designs, using a regression model to predict the missing data, or substituting data from similar participants to complete the dataset) (Baraldi & Enders, 2010; Harel et al., 2008; Harrell, 2001; Wilkinson & American Psychological Association Task Force on Statistical Inference, 1999). Unfortunately, according to Harel et al. (2008), these methods have no basis in statistical theory and may “do more harm than good” (p.



353). Furthermore, the APA Taskforce on Statistical Inference has been critical of these methods and suggested that authors seek out alternative strategies for addressing missing values (Wilkinson & American Psychological Association Task Force on Statistical Inference, 1999).

Principled methods are based on statistical theory that allows missing values and in most cases, utilize efficient and unbiased estimators to generate data in place of missing values. Examples of principled methods include maximum likelihood, multiple imputation, and generalized estimating equations (Baraldi & Enders, 2010; Harel et al., 2008). Given the complexity of each of these methods, a full discussion of each principled method is beyond the scope of this paper; however, it should be noted these methods have been demonstrated to produce better estimates of missing data (e.g., Baraldi & Enders, 2010; Harel et al., 2008) and have been recommended by methodologists in the field of communication (e.g., Harel et al., 2008) and the APA (Wilkinson & American Psychological Association Task Force on Statistical Inference, 1999).

Based on these recommendations, a principled method was utilized to replace missing values. Specifically, the Estimation Maximization (EM) algorithm (Dempster, Laird, & Rubin, 1977), conducted using the SPSS Missing Values Analysis, was selected for the current study. Tabachnick and Fidell (2001) describe EM as a two-step, iterative process that first establishes the conditional expectation of the missing data, which are substituted for the missing values. It then performs a maximum likelihood estimation using the substituted data. Once the model has converged, a new dataset is created that includes substituted values. EM produces realistic estimates of variance and avoids impossible matrices and overfitting (Baraldi & Enders, 2010; Harel et al., 2008; Tabachnick & Fidell, 2001). Tabachnick and Fidell (2001) describe EM as

“the simplest and most reasonable approach to the imputation of missing data” (p. 66). As such, this method was utilized in the current study.

## CHAPTER 4

### RESULTS

#### **Missing Data Analysis**

As noted above, given the small sample size, maximizing the number of complete responses retained for the study was vital to maintaining statistical power and improving the generalizability of findings; therefore, steps were taken to assess and address missing data (i.e., survey items that participants skipped) prior to analyzing the data. Using the Missing Values Analysis in SPSS, a two-pronged approach was employed based on Tabachnick and Fidell's (2001) general recommendations for addressing missing data and the Harel et al. (2008) recommendations for communication research. First, the extent to which missing data occurred at random was examined, and secondly, based on the assumptions of the data, EM (described above) was selected to generate values in place of the missing data (Harel et al., 2008; Tabachnick & Fidell, 2001).

Principled missing data replacement methods assume that missing values are missing completely at random (MCAR) (Baraldi & Enders, 2010; Harel et al., 2008; Harrell, 2001; Tabachnick & Fidell, 2001). In other words, "data elements are missing for reasons that are unrelated to any characteristics or responses of the subjects, including the value of the missing data, were it to be known" (Harrell, 2001, p. 41). The accepted method for testing this assumption is Little's MCAR test, which tests the null hypothesis that data are missing

completely at random (Harel et al., 2008; Little, 1988; Tabachnick & Fidell, 2001) . For the current study, the null was not rejected,  $\chi^2(15, N = 39) = 0.00, p > .05$ , indicating that MCAR was assumed. Therefore, EM was an appropriate method for replacing missing values (Harel et al., 2008). Using EM estimation in the SPSS Missing Values Analysis, a second dataset was created that replaced missing values with those generated by the EM algorithm, and this file was used for all subsequent analyses.

### **Assumption Testing**

Testable assumptions associated with MANOVA, DFA, and ANOVA include multivariate normality, homogeneity of covariance matrices, and multicollinearity (Field, 2009; Stevens, 1992; Tabachnick & Fidell, 2007). Each is discussed in detail in the following sections.

#### **Multivariate Normality**

An extension of the normal distribution, multivariate normality refers to the normal distribution of the dependent variables within groups of the independent variable (Field, 2009). Unfortunately, methods for assessing multivariate normality are complex and none of the major statistical packages (including SPSS) contain a dedicated test (Field, 2009; Stevens, 1992). Additionally, in samples of fewer than 25, these tests are not recommended (Stevens, 1992). As such, Field (2009) recommends examining univariate normality for each of the dependent variables “because univariate normality is a necessary condition for multivariate normality” (p. 604). Additionally, there is evidence to suggest that except in rare cases, univariate tests of each dependent variable will identify concerns with this assumption (Gnanadesikan, 1977; Stevens, 1992). To assess univariate normality, histograms, P-P plots, skew, and kurtosis were examined for each dependent variable; however, because graphical tests of univariate normality (e.g.,

histograms and P-P plots) are difficult to interpret in small samples (Stevens, 1992), a greater reliance was placed on skew and kurtosis statistics, along with associated  $t$ -tests.

Histograms were examined for each of the dependent variables to assess normality. The histogram for Nonverbal Immediacy revealed nothing to indicate a skewed distribution; however, the plot appeared slightly peaked, which indicated the possibility of a leptokurtic distribution. A review of the histogram for Teacher Clarity revealed some evidence of a negative skew, with more low responses in the tail than expected by the normal distribution. Finally, the histogram for Teacher Credibility revealed some evidence of a leptokurtic distribution. While these deviations from the normal distribution were slight, additional analyses were examined to determine if the assumption was tenable.

As a second graphical examination of normality, P-P plots were run for each of the dependent variables. P-P plots graph the cumulative probability of a variable of interest against the cumulative probability of the normal distribution. Ideally, plots from the study variable should appear aligned with the diagonal line representing the normal distribution (Field, 2009). Examination of these plots revealed no trends or curves to indicate extreme violations of the normal distribution.

Finally, to assess normality using quantitative methods,  $t$ -tests for skewness and kurtosis were conducted for each of the dependent variable scale scores. Results and descriptive statistics for each scale are presented in Table 4.1. Working from an alpha of .01, none of the scale scores exceed the critical value of  $t$  (two-tailed), which indicated that scores fell along a relatively normal distribution.

Table 4.1

*Descriptives and t-Tests for the Assumption of Normal Distribution for Teacher Nonverbal Immediacy, Clarity, and Credibility Scores*

	<i>N</i>	Min.	Max.	Mean( <i>SD</i> )	Skew( <i>SE</i> )	<i>t</i>	Kurtosis( <i>SE</i> )	<i>t</i>
Nonverbal Immediacy	15	41	64	55.40(5.47)	-1.161(.580)	-2.00	2.593(1.121)	2.31
Clarity	15	32	50	42.20(5.20)	-.339(.580)	-.58	-.218(1.121)	-.19
Credibility	15	90	120	107.31(10.36)	-.257(.580)	-.44	-1.289(1.121)	-1.15

### Equality of Covariance Matrices

According to Field (2009), MANOVA and DFA assume homogeneity of variances and covariance matrices. In other words, each group's variances must be roughly equal for all dependent variables, and the correlation among dependent variables must be equal for all groups. To test these assumptions, two analyses were conducted. First, univariate Levene's tests were conducted individually for each dependent variable. Secondly, Box's *M* was utilized to test for homogeneity of covariance matrices among all dependent variables.

**Levene's test for univariate equality of variance for each group.** Equality of variance among the groups for each of the dependent variables is a necessary, but not sufficient condition for this assumption (Field, 2009); therefore, as a preliminary check, Levene's test was employed to examine univariate equality of variance for each of the groups. For the first research question (income), univariate equality of variance was assumed for all dependent variables: Teacher Nonverbal Immediacy ( $F(2, 12) = .87, p = .45$ ), Teacher Clarity ( $F(2, 12) = .63, p = .55$ ), and Teacher Credibility ( $F(2, 12) = .52, p = .61$ ). For the second research question (FGC student status), univariate equality of variance was assumed for Teacher Clarity ( $F(1, 13) = .07, p = .79$ ) and Teacher Credibility ( $F(1, 13) = 2.49, p = .14$ ) but not for Teacher Nonverbal Immediacy ( $F(1, 13) = 6.86, p = .02$ ). All tests were two-tailed. This test indicated that the assumption might not have been tenable for Nonverbal Immediacy.

**Box's *M* test of equality of covariance matrices.** To test for homogeneity of covariance matrices, Box's *M* was employed. Specifically, Box's *M* tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups (Field, 2009; Stevens, 1992; Tabachnick & Fidell, 2007). Based on Box's *M*, equal covariance matrices were assumed for both the income ( $F(6, 219.52) = .31, p = .93$ ) and FGC student status ( $F(6, 1150.75) = 1.39, p = .22$ ) analyses. All tests were two-tailed. Given the small sample size and subsequent lack of statistical power, the log determinants were examined to assess this assumption further. Differences in the log determinants indicated that the homogeneity of covariance assumption may have been violated. When cell sizes differ and the smallest groups have the greatest variance and covariance, Tabachnick and Fidell (2007) state that *p*-values are liberal and should be interpreted with caution. To address these concerns, they have suggested using a smaller *a priori* alpha (e.g., .03), while nonsignificant results can be trusted (Tabachnick & Fidell, 2007). These recommendations were applied throughout the following analyses.

### **Multicollinearity**

To test for multicollinearity among the dependent variables, bivariate correlations were examined between the variables. Results are presented in Table 4.2. All three of the dependent variables were at least moderately correlated, indicating the possibility of multicollinearity; however, given the theoretical rationale for the current study, all dependent variables were maintained for the final analysis.

Table 4.2

#### *Intercorrelations Among Variables Related to Teacher Communication*

Variable	Teacher Nonverbal Immediacy	Teacher Clarity	Teacher Credibility
Teacher Nonverbal Immediacy	--	--	--
Teacher Clarity	.68**	--	--
Teacher Credibility	.72**	.63*	--

Note. \*  $p < .05$ , \*\*  $p < .01$ , two-tailed.

## Main Analyses

### Income

To answer the first research question, a 3 (low income, middle income, or high income) X 3 (clarity, credibility, and nonverbal immediacy) MANOVA was conducted to assess mean differences in perceived teacher communication behaviors by students' family income group. No significant multivariate effect was observed,  $\Lambda = .46$ ,  $F(6, 20) = 1.58$ ,  $p = .20$ ,  $\eta^2 = .56$ , two-tailed. This finding indicates that there are no statistically significant differences in perceptions of Teacher Nonverbal Immediacy, Teacher Credibility, and Teacher Clarity among the levels of income; however, the  $\eta^2$  statistic indicates that 56% of the variance in student perceptions of teacher communication behaviors is explained by income. Therefore, it is quite possible that the nonsignificant finding might be an artifact of the small sample size and the subsequent loss of power. In other words, because sample size (and as a result statistical power) plays such a large role in determining statistical significance, it is possible that test failed to detect effects that exist in the population (i.e., a Type II error may have occurred). Should actual effects exist in the population, the data suggest that ratings of instructional communication behaviors differ among income levels. To examine the multivariate relationship among these variables, follow-up analyses were conducted. These analyses are described in the following sections.

Table 4.3

*Mean Scores and Standard Deviations for Measures of Teacher Communication Behaviors as a Function of Income*

Income Group	Teacher Nonverbal Immediacy		Teacher Clarity		Teacher Credibility	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
\$29,965 or less	51.00	7.16	40.75	6.40	100.16	11.08
\$29,966 to \$69,150	56.63	4.50	41.25	4.83	110.00	8.59
\$69,151 or more	58.00	2.65	46.67	2.89	109.67	13.05



**Follow-up DFA.** Because effect sizes are minimally impacted by the size of the study, Kramer and Rosenthal (1999) argue that in small-sample research, one should place a greater emphasis on effect size estimates than statistical significance; therefore, while not significant, the large effect size observed suggested the merit of follow-up analyses. To determine the nature of the multivariate relationship between income and perceptions of teacher communication, a DFA was performed with Teacher Nonverbal Immediacy, Teacher Clarity, and Teacher Credibility predicting income. As noted above, while Box's  $M$  was nonsignificant ( $F(6, 219.52) = .81, p = .57$ ), differences in the log determinants indicated that the homogeneity of covariance assumption may have been violated; therefore, the *a priori* alpha was adjusted as recommended by Tabachnick and Fidell (2001). Neither the first function ( $\Lambda = .46, \chi^2(6, N = 15) = 8.55, p = .20$ ) nor the second function ( $\Lambda = .78, \chi^2(2, N = 15) = 2.61, p = .27$ ) were significant. The canonical correlation for Function 1 was .65, and the canonical correlation for Function 2 was .46. While not significant, the Wilk's lambda statistic indicated that full model (i.e., Function 1 and Function 2 combined) explained 54% of the variance in discriminant functions scores. Moreover, Function 2 explained 21% of the variance. While not significant, the canonical correlations and Wilk's lambda statistics suggested that the dependent variables were discriminating among the three income groups.

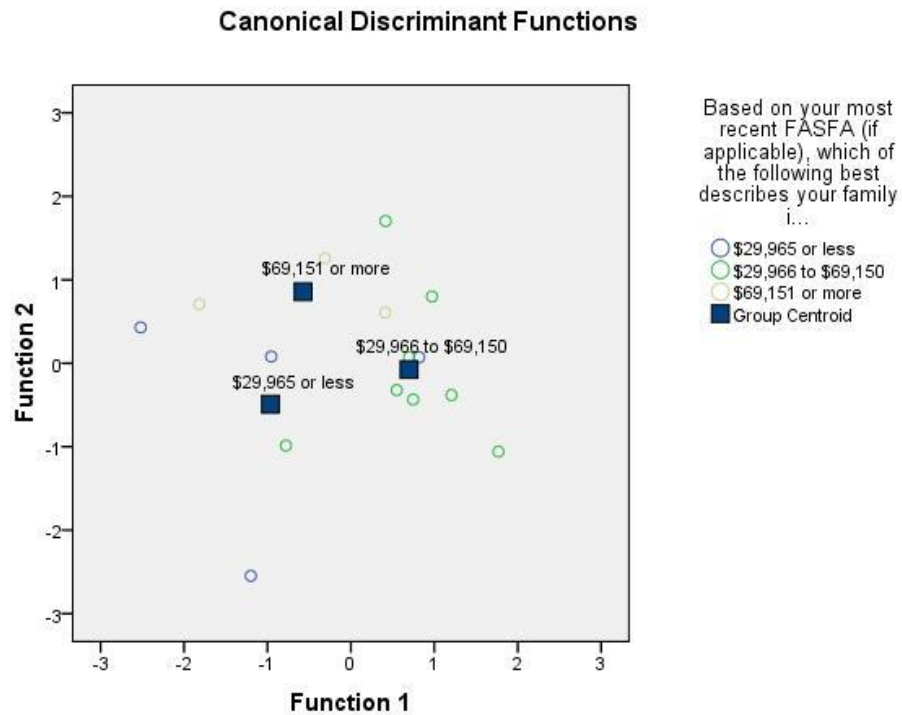
Table 4.4 lists the function and structure coefficients for the two functions, and Figure 4.1 provides a graphical representation of the income group centroids on the two discriminant functions. A clustered bar chart presenting the means for each dependent variable by income group is presented in Figure 4.2. Teacher Clarity (.443) and Teacher Credibility (.444) appeared to make the greatest contribution to Function 1, while in Function 2, Teacher Nonverbal Immediacy (.923) appeared to make the largest contribution, with an secondary contribution

from Teacher Clarity (.893). Based on the functions at group centroids, Function 1 appeared to discriminant between the middle income group from the low and high income groups, and Function 2 appeared to discriminant between the high income group and the low and medium income groups. The means on the discriminant functions were consistent with the above interpretation. Specifically, the middle income group ( $M = .70$ ) had the highest mean on the first function, while the low income ( $M = -.96$ ) and high income ( $M = -.57$ ) groups had lower means. Conversely, on the second function, the high income group ( $M = .86$ ) had the greatest mean, while the low income ( $M = -.49$ ) and the middle income ( $M = -.08$ ) groups had lower means.

Table 4.4

*Correlation of Predictor Variables with Discriminant Functions (Function Structure Matrix) and Standardized Discriminant Function Coefficients*

Predictor Variable	Correlations With Discriminant Functions		Standardized Discriminant Function Coefficients	
	Function 1	Function 2	Function 1	Function 2
Teacher Nonverbal Immediacy	-.171	.923	.923	.566
Teacher Clarity	.443	.893	-1.385	.714
Teacher Credibility	.444	.569	.798	-.290



*Figure 4.1.* Graphical representation of income group centroids on the two discriminant functions.

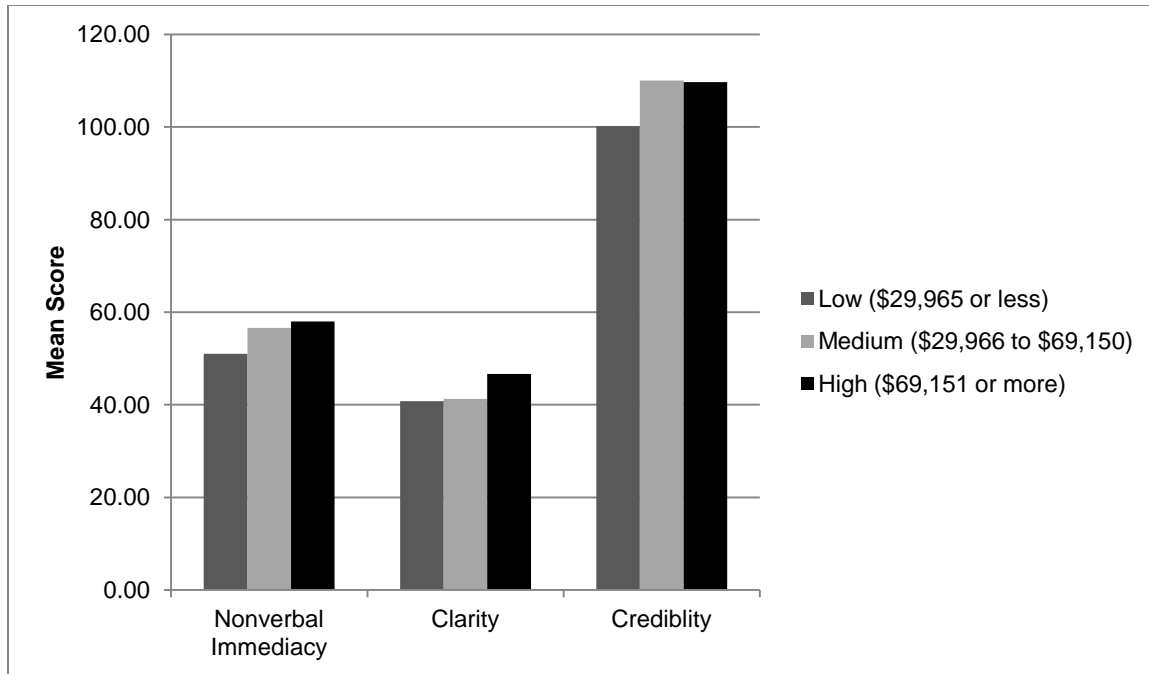


Figure 4.2. Mean ratings of communication behaviors by income group.

**Follow-up ANOVAs.** Along with DFA, ANOVAs (with a Bonferroni correction) was completed to examine further the effect of family income on perceptions of instructional communication behaviors. With the Bonferroni correction, a  $p$ -value less than .02 was necessary to reject the null hypothesis. No significant effects were observed for the three dependent variables: Nonverbal Immediacy ( $F(2,12) = 2.13, p = .16, \omega^2 = .13$ ), Clarity ( $F(2,12) = 1.50, p = .26, \omega^2 = .06$ ), and Credibility ( $F(2,12) = 1.37, p = .05, \omega^2 = .05$ ). Table 4.5 presents Cohen's (1988)  $d$  effect sizes for mean comparisons among levels of income by each dependent variable. A number of large effects, as defined by Cohen (1988), were observed. The greatest effects for Nonverbal Immediacy were observed between low ( $M = 51.00, SD = 7.16$ ) and high income students ( $M = 58.00, SD = 2.65$ ), with high income students rating their instructor's immediacy 1.34 standard deviations higher than low income students. High income student's ( $M = 46.67, SD = 2.89$ ) ratings of Teacher Clarity were 1.41 standard deviations higher than medium income students ( $M = 41.25, SD = 4.83$ ) and 1.23 standard deviations greater than low income students

( $M = 40.75$ ,  $SD = 6.40$ ). Finally, low income students' ( $M = 100.16$ ,  $SD = 11.08$ ) ratings of Teacher Credibility were 1.03 standard deviations lower than medium income students ( $M = 110.00$ ,  $SD = 8.59$ ) and .81 standard deviations lower than high income students ( $M = 109.67$ ,  $SD = 13.05$ ).

Table 4.5

*Cohen's  $d$  Comparisons for Measures of Teacher Communication Behaviors as a Function of Income*

Income Group Comparison	Teacher Nonverbal Immediacy	Teacher Clarity	Teacher Credibility
	$d$	$d$	$d$
Low & Medium	.97	.09	1.03
Low & High	1.34	1.23	.81
Medium & High	.38	1.41	.03

### FGC Student Status

To address the second research question, a 2 (FGC student/non FGC student) X 3 (clarity, credibility, and nonverbal immediacy) MANOVA examined the mean differences in perceived teacher communication behaviors by FGC student status. No significant multivariate effect was observed,  $\Lambda = .96$ ,  $F(3, 11) = .14$ ,  $p = .94$ ,  $\eta^2 = .04$ , two-tailed. Based on this finding, there were no systematic differences in students' perceptions of teacher communication behaviors between FGC students and those whose parents attended college. The small effect size ( $\eta^2 = .04$ ) reinforces this finding, indicating that participants' FGC student status explained only 4% of the variance in their perceptions of instructor communication behaviors; therefore follow-up analyses were not completed. Means, standard deviations, and Cohen's (1988)  $d$  are presented in Table 4.6.

Table 4.6

*Mean Scores, Standard Deviations, and Cohen's d for Measures of Teacher Communication Behaviors as a Function of First-Generation College Student Status*

FGC Student Status	Teacher Nonverbal Immediacy			Teacher Clarity			Teacher Credibility		
	<i>M</i>	<i>SD</i>	<i>d</i>	<i>M</i>	<i>SD</i>	<i>d</i>	<i>M</i>	<i>SD</i>	<i>d</i>
FGC Student	54.43	7.81		41.86	5.81		106.38	12.76	
Non FGC Student	56.25	2.43	.35	42.50	4.99	.13	108.13	8.58	.17

## CHAPTER 5

### DISCUSSION

#### **Overview of Findings**

The purpose of this study was to determine if students' socio-economic status (as measured by family income and FGC student status) affected their perceptions of instructor clarity, credibility, and nonverbal immediacy. No statistically significant effects on perceptions of teacher communication behaviors were observed for family income or FGC student status; however, based on the observed effect sizes, some findings may have some merit. One should note that the sample size was very small ( $N = 15$ ), which severely limits the generalizability of these findings and may call into question the use of multivariate analyses (Tabachnick & Fidell, 2007). Moreover, the absence of statistical significance indicates that the observed effects may result entirely from chance, so all findings should be interpreted with caution. However, as noted above, Kramer and Rosenthal (1999) argue that when conducting research using small samples, researchers should place a greater emphasis on effect size than statistical significance because they are "unaffected by the size of the study and are essential to determining the practical importance of the study" (p. 76). Based on these recommendations and the exploratory nature of this study, findings of interest are discussed as a means to guide future research.

A review of the first main analysis suggested that income may have some relationship with the linear combination of Teacher Nonverbal Immediacy, Teacher Clarity, and Teacher

Credibility. Specifically, the analysis showed that income explained 56% of the variance in the dependent variables, and a follow-up DFA revealed two functions that, while not significant, appeared to discriminate among the three income groups. Teacher Clarity and Credibility made the greatest contribution to Function 1, while Teacher Nonverbal Immediacy and Teacher Clarity made the greatest contributions to Function 2. Function 1 appeared to discriminate between the middle income group from the low and high income groups, and Function 2 appeared to discriminate between the high income group and the low and medium income groups. In other words, differences in clarity and credibility separated middle income students from high and low income students, and differences in nonverbal immediacy and to a slightly lesser degree, clarity separated high income students from middle income and low income students.

Of initial importance, these findings may suggest that income has a similar role in the instructional communication process as what has been observed for other cultural variables in prior research. For instance, country of origin (Myers, Zhong, & Guan, 1998; Zhang, 2009), race (Gendrin & Rucker, 2007; Hendrix, 1998; Neuliep, 1995), sex (Glascock & Ruggiero, 2006; Hargett & Strohkirch, 1999; Schrodtt & Turman, 2005), and gender (Pope & Chapa, 2008) have all been shown to influence perceptions of instructor communication behaviors. Scholars in communication and other fields have argued that differences in culture manifest themselves in the ways in which human beings communicate, and these differences create challenges when individuals of different cultures interact (Kim, 1988, 1991; Turner, 2003). Of most interest to this study are mismatches between students and their teachers, which the education literature suggests may negatively impact academic achievement for impoverished (Fryberg et al., 2012; Gill & Reynolds, 1999; Stephens, Fryberg, et al., 2012). Based on evidence that these mismatches disconnect low-income students from the school or the teacher, decrease feelings of



belonging, and undermine potential for academic achievement (Fryberg et al., 2012; Stephens, Fryberg, et al., 2012; Stephens, Townsend, et al., 2012), this study sought to determine the relationship between student income and their perceptions of instructor communication behaviors. To this end, this study may provide some empirical evidence that income, as a cultural factor, has some impact on both the way in which students communicate and their communication expectations. Specifically, students occupying different SES varied in the ratings of nonverbal immediacy, clarity, and credibility, which may provide evidence that the study of income has merit in instructional communication.

Along with providing further rationale for the study of income by instructional communication researchers, this study provides some evidence regarding the nature of the multivariate relationship between income and nonverbal immediacy, clarity, and credibility. To date, only one instructional communication study has focus on income (Agnew, 2011), and none has done so in a multivariate context, making the current study largely exploratory. As described above, differences in clarity and credibility may differentiate middle income students from high and low income students, and differences in nonverbal immediacy and clarity separated high income students from middle income and low income students. A review of the means confirms some of these findings. Students in the low income group had the lowest ratings of their instructors in each of the three dependent variables, while high income students had the highest ratings for nonverbal immediacy and clarity. Middle income students' ratings were similar to low income students for clarity, and they were similar to high income students for credibility and nonverbal immediacy.

From a practical standpoint, these findings could suggest that low income students perceive their instructors as less immediate, clear, and credible than middle income and high

income students. Given the relationship between these teacher behaviors and academic achievement (e.g., Allen et al., 2006; Andersen, 1979; Andersen et al., 1981; McCroskey, Fayer, et al., 1996; McCroskey, Sallinen, et al., 1996; Witt & Wheelless, 2001), the instructional communication-income relationship suggested by the aforementioned data aligns with the basic claims made by cultural mismatch theory (Fryberg et al., 2012; Stephens, Fryberg, et al., 2012) and may provide some explanation in relation to the recent findings on the positive relationship between income and academic achievement (Baker & Johnston, 2010; Duncan et al., 2011; Humlum, 2011).

When compared to income, FGC student status had little or no observed effect on perceptions of instructional communication behaviors. This could suggest that the education level of one's parents has smaller effect on his or her perception of nonverbal immediacy, clarity, and credibility. According to the Bureau of Labor Statistics (2012), there are a plethora of jobs that do not require a college education, yet still provide a yearly income that would place a family in the study's middle or high income groups. For instance, jobs in the skilled trades and the oil industry provide salaries over \$50,000 per year to those without a college education (Bureau of Labor Statistics, 2012). Furthermore, FGC students often receive high levels of support from their families and communities (Holley & Gardner, 2012). As a result, one could argue that in spite of their education, parents with higher incomes have the means to buy their way into resource-rich networks that have greater influence and access to information, thereby providing their children with the resources necessary to succeed academically (Lin, 2000; Markle, 2010). As such, this may explain the lack of influence observed for parents' education.

## **Implications**

### **Implications for Future Research**

As noted above, this study sought to understand the relationship between students' socioeconomic status (as measured by family income and first generation college student status) and their perceptions of nonverbal immediacy, clarity, and credibility, but it lacked a sufficient sample from which strong conclusions could be drawn. The combination of the theoretical rationale for the study and the moderate to large effects observed provided evidence for the ongoing study in this area, especially in instructional communication and education. Given the inequalities in educational outcomes for low income students, it behooves the research community to expand efforts to understand and ultimately, correct this phenomenon. As such, ongoing research in the relationship between SES and perceptions of teacher communication behaviors should focus on larger, more varied samples. At minimum, future efforts should include samples with adequate power to detect effects in the data. Moreover, much of the research in the instructional communication discipline has focused on college students, which has raised questions regarding the extent to which one may generalize findings. As such, efforts should be made to expand research in this tradition into K-12 education, which has been the focus of much of the achievement gap literature (e.g., Armor, 2006; Ladson-Billings, 1994, 1995).

In addition to the independent variables used in the current study, future research should include parents' occupation in addition to income and FGC status or consider more advanced multidimensional measures of SES (for discussion, see Markle, 2010). Utilizing advanced measurement of SES will incorporate a greater number of the factors have been theorized to comprise SES and will allow greater alignment with research in other fields, including

economics, demography, and epidemiology. Moreover, using these measurement strategies will provide opportunities to identify smaller variations in SES – beyond the three income groups and two parental education groups employed here – that may foster a more precise explanation of the relationship between SES and perceptions of instructional communication behaviors.

Finally, as college faculty members become more diversified, further attention should be given to the measurement of instructor attributes, especially SES. Much of the existing instructional communication research (e.g., Allen & Shaw, 1990; McCroskey, 1994; McCroskey, Fayer, et al., 1996; Richmond et al., 1986; Rodriguez et al., 1996; Sidelinger & McCroskey, 1997; Zhang, Oetzel, Gao, Wilcox, & Takai, 2007b) relies on an assumed population of homogenous college instructors, and as described in the review of literature, it has long been assumed that instructors differ from their students in specific ways. This ‘static’ instructor population has been used to examine differences among student groups (e.g., race, country of origin, and sex), and cultural effects have been established using these studies. Furthermore, the cultural mismatch theory describes mismatched values between lower SES students and the educational system, including both universities and individual instructors (Fryberg et al., 2012; Stephens, Fryberg, et al., 2012; Stephens, Townsend, et al., 2012); however, it does not address the increasing diversity among college instructors. As the instructor population shifts to align with student population, scholars must continue to refine efforts to understand cultural mismatches. Given the implications of mismatches on student performance (Fryberg et al., 2012; Stephens, Fryberg, et al., 2012; Stephens, Townsend, et al., 2012), it is imperative that scholars work to understand when and how these issues emerge. Future study would benefit from efforts to examine SES on ‘both sides of the desk’ both through direct measure of instructor SES and measurement of student perceptions of instructor SES.

## **Practical Implications**

A wealth of instructional communication research has established the direct and indirect link between instructional communication behaviors and students' academic achievement (Andersen, 1979; Frymier, 1994; Zhang & Oetzel, 2006b; Zhang et al., 2007a). As such, scholars have a social responsibility to foster improvements to classroom communication. If one assumes that SES has the similar impact on communication as race or other cultural variables (as these findings may suggest), efforts should be made to expand theory into practice by establishing practical communication strategies for teachers that make the classroom more inclusive to all students, regardless of their SES. Education advocates and researchers (e.g., Delgado-Gaitan & Trueba, 1991; Ladson-Billings, 1994; Ladson-Billings, 1995) have established successful strategies for differentiating education among students of varying racial backgrounds, and through their *Power in the Classroom* series, instructional communication researchers (e.g., McCroskey & Richmond, 1992; McCroskey, Richmond, & McCroskey, 2002; Plax et al., 1986; Richmond, McCroskey, et al., 1987) have provided strategies for teachers based on findings from prior research. Using these successful publications as a guide, efforts should be made to develop materials for teachers that focus on classroom communication in the presence of diverse SES.

## **Limitations**

### **Sample**

Complete data were only available for 15 participants, and the size of the sample produced a number of limitations for the current study. First, the small sample size severely weakened the statistical power in the aforementioned analyses. An *a priori* power analysis revealed that a sample of 459 students was necessary to detect medium effects, but the current

sample fell far below that threshold. This lack of power increases the likelihood of a Type II error and limits the ability of conventional assumption tests (e.g., Levene's test and Box's *M*) to detect problems in the data, which increased the likelihood that analyses were conducted when assumptions were not tenable. Secondly, and perhaps more importantly, small samples limit the extent to which one can generalize findings from a given study to the greater population. Based on the small sample, these findings have little or no generalizability. Finally, given the small sample and the nature in which participants were provided access to the survey, it is possible that the majority of participants had the same instructor, which could indicate a violation of the independence assumption.

### **Statistical Significance**

Based on guidance from Kramer and Rosenthal (1999), a number of nonsignificant findings were interpreted due to their effect sizes; however, the lack of statistical significance indicated that the probability that the observed effects occurred as a result of chance was greater than 5%, which limits the extent to which one may generalize these findings. (Field, 2009). A related concern is stability. Given that the findings were nonsignificant, one could argue that they are not stable across multiple tests and populations or even within the current sample. However, in light the overwhelming number of moderate to large effect sizes (as defined by Cohen (1988)) and the magnitude of those effects, one could attribute the lack of statistical significance to weak statistical power caused by the small sample (Field, 2009; Kramer & Rosenthal, 1999). Furthermore, the presence of moderate to large – and in some cases very large – effect sizes across multiple dependent variables suggests that the findings are stable and likely to exist in the population.

### **Conclusions**

Based on the number of moderate to large effect sizes and the magnitude of observed effects, one could argue that students' SES has some relationship with perceptions of teacher communication behaviors. Of the two SES variables, income seemed to have the strongest effect, with moderate to large effects sizes observed. As demonstrated by both the test statistics and effect sizes, FGC student status seemed to have no effect on perceptions of nonverbal immediacy, clarity, and credibility in this sample. Further research is recommended to establish a greater understanding of these phenomena. While no significant effects were observed, the current study provides some rationale for future study in the area, as well as further support for the theory that provides a framework for the selection of variables.

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## APPENDIX A: INSTITUTIONAL REVIEW BOARD APPROVAL



## Institutional Review Board

Terre Haute, Indiana 47809  
812-237-3092  
Fax 812-237-3092

DATE: February 7, 2013

TO: Sam Crecelius

FROM: Indiana State University Institutional Review Board

STUDY TITLE: [395463-2] The Effect of Socioeconomic Status on Student Perceptions of Instructional Communication Behaviors

SUBMISSION TYPE: Revision

ACTION: DETERMINATION OF EXEMPT STATUS

DECISION DATE: February 7, 2013

REVIEW CATEGORY: Exemption category # 2

Thank you for your submission of Revision materials for this research study. The Indiana State University Institutional Review Board has determined this project is EXEMPT FROM IRB REVIEW according to federal regulations (45 CFR 46). You do not need to submit continuation requests or a completion report. Should you need to make modifications to your protocol or informed consent forms that do not fall within the exempt categories, you will have to reapply to the IRB for review of your modified study.

**Internet Research:** Although your study is exempt from IRB review, if you are using an internet platform to collect data on human subjects, ISU has specific policies about internet research that you should follow to the best of your ability and capability. Please review Section L. on Internet Research in the IRB Policy Manual.

**Informed Consent:** All ISU faculty, staff, and students conducting human subjects research within the "exempt" category are still ethically bound to follow the basic ethical principles of the Belmont Report: a) respect for persons; 2) beneficence; and 3) justice. These three principles are best reflected in the practice of obtaining informed consent. **\*\*Use the informed consent document uploaded into IRBNet.**

If you have any questions, please contact Dr. Vicki Hammen, IRB Chair, within IRBNet by clicking on the study title on the "My Projects" screen and the "Send Project Mail" button on the left side of the "New Project Message" screen. I wish you well in completing your study.

## APPENDIX B: INVITATION EMAIL

Dear Student:

My name is Sam Crecelius, and I am graduate student in the Department of Communication at Indiana State University. I am conducting a survey of students enrolled in Communication 101 – Intro to Speech Communication to determine how differences in socioeconomic status affect their perceptions of their teacher’s communication behaviors. Data from this study will be used to complete a thesis project. Your email address was provided by the Department of Communication. Findings from this project will help to increase the knowledge related to classroom communication and may have implications on instructional practices in communication courses.

Your participation in this survey is voluntary. I estimate that it will take about **20 minutes** of your time to complete the questionnaire. You may decline to answer any question, and you have the right to withdraw from participation at any time without penalty. All students completing the survey will be eligible to enter a drawing for a \$25 Wal-Mart gift card. For your answers to be of the greatest value, I would appreciate you completing the survey by February 22, 2013.

To complete the survey, please click on this link  
([https://indstate.qualtrics.com/SE/?SID=SV\\_0v2bn3ceqJCorgV](https://indstate.qualtrics.com/SE/?SID=SV_0v2bn3ceqJCorgV)).

Thank you for helping me to better understand the role of socioeconomic status in the classroom communication process. I am grateful for your time and cooperation.

Sincerely,  
Sam Crecelius  
Graduate Student  
Department of Communication  
Indiana State University

## APPENDIX C: INFORMED CONSENT

November 20, 2012

### The Effect of Socioeconomic Status on Perceptions of Instructional Communication Behaviors

You are being invited to participate in a research study examining how students' socioeconomic status affects their perceptions of their instructors' communication behaviors. This study is being conducted by Sam Crecelius under the direction of co-chairs Dr. Jay Clarkson from the Department of Communication and Dr. Kand McQueen from the Department of Communication Disorders and Counseling, School, and Educational Psychology. Data from this study will be used as part of a master's thesis.

You were selected as a possible participant in this study because of your enrollment in Communication 101 – Intro to Speech Communication, and your contact information was provided by the Department of Communication. You may delete the email message from the researcher by clicking on it and striking the delete key. You will receive no additional communication from the researcher.

There are no costs to you for participating in the study. The questionnaire will take about 20 minutes to complete. The information collected may not benefit you directly, but the information learned in this study should provide more general benefits. Specifically, the information you provide will offer information regarding how differences in socioeconomic status may impact students' perceptions of their instructors' communication behaviors. These findings may contribute to existing knowledge related to communication in the classroom.

Although highly unlikely, there is always a possibility that minimal risks could occur if you decide to participate in this research study. Specifically, it is possible that you may field some psychological distress or anxiety when completing the questionnaire. Should you experience any of these issues when participating in the study, contact the Student Counseling Center by phone at (812) 237-3939 or in person on the 3rd floor of the Student Services Building, just above the Student Health Center. More information regarding the Counseling Center may be obtained at [www.indstate.edu/cns/](http://www.indstate.edu/cns/). Additionally, in the event of more serious emergency, you may seek treatment in the Emergency Room or by dialing 911.

Because this is an online survey, absolute anonymity cannot be guaranteed, but processes have been established to protect your confidentiality. First, no identifying information (e.g., name, date of birth, student id number) will be asked of participants. Additionally, because each participant will access the survey via an open survey link, no log of IP address will be kept. Further, any other potentially identifying information (e.g., time of survey completion) will be deleted from

any exported files. Finally, safeguards have been built into the Qualtrics Online Survey Software including password protection and real-time data replication. No one will be able to identify you or your answers, and no one will know whether or not you participated in the study. Individuals from the Institutional Review Board may inspect these records. Should the data be published, no individual information will be disclosed.

Your participation in this study is voluntary. There are no repercussions for not participating; however, those who complete the survey will be eligible to enter a drawing for a \$25 Wal-Mart gift card. By completing and electronically submitting your online survey, you are voluntarily agreeing to participate. You are free to decline to answer any particular question you do not wish to answer for any reason. By checking the box you are indicating that you have read and understand the informed consent form, printed a copy for your files, and agreed to participate in the study. To answer the survey items, please click on the responses that most closely align with your perception.

If you have any questions about the study, please contact Sam Crecelius by mail at Department of Communication, Gillum Hall, Terre Haute, IN 47809, by telephone at (812) 267-6243, or by email at [screcelius@sycamores.indstate.edu](mailto:screcelius@sycamores.indstate.edu) or Dr. Jay Clarkson, by mail at Gillum Hall 327, Terre Haute, IN 47809, by telephone at (812) 237-3253, or by email at [Jay.Clarkson@indstate.edu](mailto:Jay.Clarkson@indstate.edu).

If you have any questions about your rights as a research subject or if you feel you've been placed at risk, you may contact the Indiana State University Institutional Review Board (IRB) by mail at Indiana State University, Office of Sponsored Programs, Terre Haute, IN 47809, by phone at (812) 237-8217, or by e-mail at [irb@indstate.edu](mailto:irb@indstate.edu).

Please check the appropriate box:

- ☐ I have read and understand the informed consent form and agree to participate in this study.
- ☐ I do not wish to participate.

## APPENDIX D: DEMOGRAPHIC SHEET

1. Based on your most recent FASFA (if applicable), which of the following best describes your family income?

- ☐ \$29,965 or less
- ☐ \$29,966 to \$69,150
- ☐ \$69,151 or more

2. First generation college students are those whose parents have not attended a college or university.

Do you consider yourself a first generation college student?

- ☐ Yes
- ☐ No

3. Which of the following best describes your year of study?

- ☐ Freshman
- ☐ Sophomore
- ☐ Junior
- ☐ Senior



## APPENDIX E: NONVERBAL IMMEDIACY BEHAVIORS INSTRUMENT

Instructions: Below are a series of descriptions of teacher behaviors. Please respond to the items *in terms of the instructor in your Communication 101 course*. For each item, please indicate on a scale of 0-4 how often your teacher in that class engages in those behaviors.

Use this scale: never = 0, rarely = 1, occasionally = 2, often = 3, and very often = 4.

- \_\_1. Sits behind desk while teaching
- \_\_2. Gestures while talking to the class
- \_\_3. Uses monotone/dull voice when talking to the class
- \_\_4. Looks at the class while talking
- \_\_5. Smiles at the class while talking
- \_\_6. Has a very tense body position while talking to class
- \_\_7. Moves around the classroom while teaching
- \_\_7. Sits on a desk or in a chair while teaching
- \_\_9. Looks at board or notes while talking to the class
- \_\_10. Stands behind podium or desk while teaching
- \_\_11. Has a very relaxed body position while talking to the class
- \_\_12. Smiles at individual students in the class
- \_\_13. Uses a variety of vocal expressions when talking to the class

## APPENDIX F: SOURCE CREDIBILITY MEASURES

**Instructions:** On the scales below, indicate your feelings about your instructor *in your Communication 101 course*. Numbers 1 and 7 indicate a very strong feeling. Numbers 2 and 6 indicate a strong feeling. Numbers 3 and 5 indicate a fairly weak feeling. Number 4 indicates you are undecided.

- 1) Intelligent 1 2 3 4 5 6 7 Unintelligent
- 2) Untrained 1 2 3 4 5 6 7 Trained
- 3) Cares about me 1 2 3 4 5 6 7 Doesn't care about me
- 4) Honest 1 2 3 4 5 6 7 Dishonest
- 5) Has my interests at heart 1 2 3 4 5 6 7 Doesn't have my interests at heart
- 6) Untrustworthy 1 2 3 4 5 6 7 Trustworthy
- 7) Inexpert 1 2 3 4 5 6 7 Expert
- 8) Self-centered 1 2 3 4 5 6 7 Not self-centered
- 9) Concerned with me 1 2 3 4 5 6 7 Not concerned with me
- 10) Honorable 1 2 3 4 5 6 7 Dishonorable
- 11) Informed 1 2 3 4 5 6 7 Uninformed
- 12) Moral 1 2 3 4 5 6 7 Immoral
- 13) Incompetent 1 2 3 4 5 6 7 Competent
- 14) Unethical 1 2 3 4 5 6 7 Ethical
- 15) Insensitive 1 2 3 4 5 6 7 Sensitive
- 16) Bright 1 2 3 4 5 6 7 Stupid
- 17) Phony 1 2 3 4 5 6 7 Genuine
- 18) Not understanding 1 2 3 4 5 6 7 Understanding

## APPENDIX G: TEACHER CLARITY SHORT INVENTORY

Instructions: On the scale below, indicate your feelings about your instructor *in your Communication 101 course*.

Strongly Disagree = 1; Disagree = 2; Neutral = 3; Agree = 4; Strongly Agree = 5

- \_\_1. My teacher clearly defines major concepts (Explicitly states definitions, corrects partial or incorrect student responses, refines terms to make definitions more clear).
- \_\_2. My teacher's answers to student questions are unclear.
- \_\_3. In general, I understand my teacher.
- \_\_4. Projects assigned for the class have unclear guidelines.
- \_\_5. My teacher's objectives for the course are clear.
- \_\_6. My teacher is straightforward in her or his lecture.
- \_\_7. My teacher is not clear when defining guidelines for out of class assignments.
- \_\_8. My teacher uses clear and relevant examples (He/she uses interesting, challenging examples that clearly illustrate the point. He/she refines unclear student examples. He/she does not accept incorrect student examples).
- \_\_9. In general, I would say that my teacher's classroom communication is unclear.
- \_\_10. My teacher is explicit in her or his instruction.