WAYS OF KNOWING AND CULTURAL AWARENESS

A Thesis by

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WAYS OF KNOWING AND CULTURAL AWARENESS

The following faculty members have examined the final copy of this thesis for form and content, and recommend that it be accepted in partial fulfillment of the requirement for the degree of Master of Education with a major in Educational Psychology.

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DEDICATION

To my husband, Mario A. Vásquez, for his support, understanding, and most importantly, his unconditional love. To my parents, Ricardo E. Bustamante and Jenny E. Bustamante, for always bending over backwards to help me achieve my goals and for always trying to understand me in my decisions. To my grandparents, Esteban Jaramillo and Esther Jaramillo, for pushing me to be an excellent student and for all their love and prayers. To my parents-in-law, Patricia Sarmiento and Mario Vásquez for all their love and encouragement. To my friends, Dajana Komadina, Prajjwal Bista, and Manita Dhungel for their caring and genuine friendship.
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ABSTRACT

This study explored the relationship between ways of knowing and attitudes toward diversity awareness and acceptance. The purpose was to determine whether there was a link between individuals with a higher propensity for either of the two epistemological orientations, connected knowing or separate knowing, and their ability to be accepting and understanding of others who are different from them. Important to this study was also the investigation of the potential factors that predict diversity awareness the most. Connected knowing, separate knowing, gender, age, and ethnic status were the five predictor variables used during exploration. There were a total of 211 undergraduate and graduate participants from two Midwest universities, between the ages of 18 and 58. Participants completed the Attitudes Toward Thinking and Learning Survey (Galotti, Clinchy, Ainsworth, Lavin, & Mansfield, 1999), the Miami University Diversity Awareness Scale (MUDAS) (Mosley-Howard, Witte, & Wang, 2011), a vocabulary test, and demographic questions. Main analyses revealed a significant positive correlation between ways of knowing and all of the MUDAS subscales. Contrary to what was expected, analyses also revealed a significant positive correlation between separate knowing and four MUDAS subscales. Among the significant predictor variables found were: connected knowing, separate knowing, and gender. Exploratory ancillary analyses revealed three significant differences between men and women. Specifically, differences in means were found for separate knowing, value/appreciation, and intercultural interaction.
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CHAPTER 1

INTRODUCTION

Rationale

Epistemological beliefs are beliefs about the nature of knowledge and learning. Literature in this area has explored the many theoretical and practical implications. Perry (1968) began research in this area by exploring students’ understanding of the origin and nature of knowledge through interviews with undergraduate students. He found that students progress from naïve epistemologies to more sophisticated epistemologies over time. Throughout the years, inconsistencies were found in his original conception of epistemological beliefs. Schommer (1990) discovered a flaw in Perry’s theory. She presented the idea that epistemological beliefs do not develop in a fixed manner, as initially proposed by Perry. Instead, Schommer (1990) suggested that personal epistemology is a system of more-or-less independent belief dimensions.

In the late 1980’s, followers of Perry (Belenky, Clinchy, Goldberger, & Tarule, 1986) noticed that his theory was based on interviews with male participants. Therefore, Belenky et al. began research with female participants. They focused on the exploration of women’s ability to interpret reality and draw conclusions about knowledge, truth, and authority. Research in this area revealed two epistemological orientations, connected knowing (CK) and separate knowing (SK).

Literature on ways of knowing has consistently found a propensity for women to score higher on CK when compared to men and, in turn, for men to score higher in SK when compared to women (Galotti et al., 1999; Knight, Elfenbein, & Martin, 1997; Marrs & Benton, 2009). Although this relationship governs most of the time, it also has been clearly supported that ways of knowing are gender related, not gender specific (Galotti et al., 1999; Schommer-Aikins &
Easter, 2011). This implies that both men and women have the capacity to engage in either perspective.

Schommer-Aikins and Easter (2011) provide the literature with a thought provoking study in which ways of knowing are found to be malleable and context dependent. Analyses revealed an interaction between ways of knowing and priming condition for both men and women. More specifically, it was found that both men and women increased their propensity toward CK when they were primed with the in-group condition. Yet, when the out-group was in mind, there was no significant difference between CK and SK. The implications of this finding are very powerful, given that they suggest individuals can switch between both ways of knowing depending on the context of the situation.

Schommer-Aikins and Easter (2011) also provide stimulating ideas for future research. Relevant to this study is the suggestion to investigate the relationship between ways of knowing and those who are different from us (i.e., out-group members).

**Purpose**

The purpose of this research was to investigate the relationship between ways of knowing and cultural awareness and acceptance. Given Schommer-Aikins and Easter’s (2011) powerful finding regarding participants’ decrease in CK when presented with the out-group priming condition, this study set out to investigate whether participants would display a higher tendency to score low on diversity awareness and acceptance if they had a higher propensity toward SK. Further, an exploration of the variables that predict diversity awareness the most was also an integral goal for this research.
Overview

This study involves an exploration of the plausible, yet subtle, relationship between ways of knowing and cultural diversity and acceptance. Factors that predict diversity awareness were also an essential component in this exploratory study. Chapter two provides an overview of the research regarding epistemological beliefs. Beginning with Perry (1968), who initiated research on this topic, to his followers (e.g., Belenky et al., 1986; Schommer, 1990; 1994), who nonetheless improved his epistemological framework through time. The chapter develops into a more detailed explanation of two epistemological orientations discovered by Belenky et al. (1986). Chapter two continues with definitions of stereotype and prejudice, and relevant research on in-group and out-groups. The last part of this chapter underscores the importance of diversity awareness and cultural competence among individuals in today’s modern society. Specifically, the section covers the development and validation of a diversity awareness scale constructed by Mosley-Howard, Witte, and Wang (2011). Finally, the chapter concludes with a brief explanation of the purpose of the study and the proposed research questions.

Chapter three covers the methodology utilized in this research. Descriptions of the participant sample and all instruments and procedures for gathering and analyzing data are presented. Chapter four includes the descriptive and quantitative results of the study. Finally, Chapter five contains the discussion of the results, theoretical and practical implications, as well as limitations and future research thoughts and suggestions.

Research Problem

The purpose of this research was to explore the relationship between ways of knowing and diversity awareness and acceptance. This study addressed the following questions:

1) Is there a correlation between CK and SK scores and the five MUDAS subsets?
2) Is a higher CK score associated with a higher score on any of the MUDAS subsets?
3) Is a higher SK score associated with a lower score on any of the MUDAS subsets?
4) What variables (i.e., CK, SK, gender, age, ethnic status) predict diversity awareness the most?
CHAPTER 2
LITERATURE REVIEW

Epistemological Beliefs

Research on epistemology, the beliefs about the nature of knowledge and learning, has proven to be a fruitful area of study, given its insightful findings in relation to study strategies, comprehension, academic performance, etc. (Schommer, 1990, 1993; Schommer, Crouse, & Rhodes, 1992; Schommer-Aikins & Easter, 2008). Research in this area began when Perry (1968) interviewed Harvard undergraduates and found that students’ understanding of the origin and nature of knowledge evolves and changes over time. More specifically, he found that freshmen undergraduate students demonstrated naïve epistemologies, whereas upperclassmen exhibited more sophisticated epistemologies. In other words, freshmen students tended to believe that knowledge was certain, unchanging, and handed down by omniscient authority. On the other hand, senior students seemed to understand that knowledge was not characterized by isolated pieces of information. They were aware that knowledge was not simple but instead, complex, and that it derived from reasoning and careful analysis (Perry, 1968).

Many researchers have followed in Perry’s footsteps by investigating epistemology through interviews or questionnaires (Belenky, Clinchy, Goldberger, & Tarule, 1986; Cano, 2005; Kardash & Scholes, 1996; Schommer, 1990; 1993; Schommer, Calvert, Gariglietti, & Bajaj, 1997; Schommer, Crouse, & Rhodes, 1992; Schommer & Walker, 1995; 1997; Schommer-Aikins & Easter, 2008). However, it was found that there were inconsistencies in the results of Perry’s followers. The complications arose from Perry’s original conception of epistemological beliefs (Schommer, 1990); in other words, the way that Perry structured his theory. Perry’s model was based on the notion that “personal epistemology is unidimensional
and develops in a fixed progression of stages” (Schommer, 1990, p. 498). It was later discovered why this was not so.

Schommer (1990) became a major pioneer in this area of study. She presented a more arguable idea of personal epistemology in which epistemic beliefs were not assumed to develop in a fixed manner. Instead, she suggested that personal epistemology should be looked at as a system of more-or-less independent belief dimensions. The reason why she refers to them as independent is because these beliefs do not need to mature at the same rate, as previously proposed by Perry.

*Ways of Knowing.* Another breakthrough, which occurred before Schommer’s redefined and more plausible conception of epistemological beliefs, came about when other followers of Perry noted that his theory was mostly based on interviews with male participants. Belenky, Clinchy, Goldberger, and Tarule (1986) were aware that, at the time of Perry’s work, women were not included in analysis of scientific studies. In an attempt to eliminate the gender bias — and most importantly, to truly understand the possible difference in development of the minds of women—Belenky et al. (1986) conducted in-depth interviews with 135 women. These female participants were recent alumnae or current students at an academic institution, as well as agencies in which women were attending for support in parenting their children. Belenky et al. (1986) focused on trying to understand how women “view reality and draw conclusions about truth, knowledge and authority” (p. 3). In their work, they identify two epistemological orientations: Connected and separate knowing. These are two types of procedural knowledge that are commonly referred to as ways of knowing. Ways of knowing refers to the type of process that an individual makes use of when trying to obtain, reflect on, evaluate, and communicate knowledge. According to Belenky et al. (1986), Connected and Separate Knowing perspectives
can be learned and are purposely used by individuals when trying to maximize their understanding of others’ thoughts and ideas.

Those who adopt a CK approach are often understanding of the ideas of others. Whether or not they agree with the idea, they try to leave their personal opinion behind and attempt to understand why others believe or feel the way they do. Connected knowers purposely place themselves in the other person’s shoe in order to understand the other person’s point of view. Connected knowers make a strong effort to understand the perspective of others rather than evaluate or be critical (Belenky et al., 1986; Galotti, Clinchy, Ainsworth, Lavin, & Mansfield, 1999; Knight, Elfenbein, & Martin, 1997).

Individuals who adopt a Separate Knowing (SK) approach, on the other hand, are known to step back and distance themselves and their feelings from the other person’s point of view. Instead of understanding others’ perspective, separate knowers would rather become the devil’s advocate and doubt or challenge the other person’s ideas. Separate knowers would prefer to evaluate an argument through an objective and critical lens in order to discover any potential errors with the other person’s argument (Belenky et al., 1986; Galotti et al., 1999; Knight et al., 1997).

Much research on this topic has supported the notion that, in general, women tend to score higher on CK than men and, in turn, men seem to score higher in SK than women (Galotti et al., 1999; Knight et al., 1997; Marrs & Benton, 2009). Research on gender differences has revealed a difference in thinking patterns and behaviors of men and women. Studies have found males to be more assertive than women, as well as displaying a greater interest in justice, while females tend to be higher than males in trust, nurturance, and compassion (Feingold, 1994;
Gilligan, 1982). Hence, a pattern that shows males scoring higher on SK and women scoring higher on CK is further supported.

Although gender seems to be a predictor of ways of knowing, it has been found that CK and SK are not gender specific but only gender related (Galotti et al., 1999; Schommer-Aikins & Easter, 2011). This is a very important distinction because it underscores the fact that both men and women have the ability to understand knowledge with either a SK or a CK perspective. Of equal importance is the understanding that SK and CK are not opposites of each other, nor is one better than the other (as seen in Galotti et al., 1999). Even though it has been found that these two ways of knowing are uncorrelated, independent, and orthogonal dimensions (Galotti et al., 1999; Knight et al., 1997), any individual is capable of utilizing both (Clinchy, 1996).

**Formal Reasoning and Ways of Knowing.** Some researchers set out to investigate whether there was a relationship between ways of knowing and formal reasoning. After a theoretical analysis of the CK and SK dimensions by Knight et al. (1997), they noticed the existence of some similarities between two of the four learning styles of Kolb (1984, 1985). The first was what Kolb calls Concrete Experience, which refers to “a style in which individuals have an open-minded approach to issues, deal with experiences in a social and personal way, and emphasize feeling rather than thinking” (p. 402). This learning style has similar characteristics to those found in a CK approach. The other learning style that seemed related to ways of knowing was what Kolb called Abstract Conceptualization, which refers to “a style that emphasizes objective thinking and theory and theory construction rather than feelings” (p. 402). The premise of Knight et al.’s work was to provide further validation of their Knowing Styles Inventory (KSI) scale by examining the relationship between the KSI components (ways of knowing) and
the two relevant learning styles of Kolb, as well as investigating whether there existed a link between CK and SK and formal reasoning ability (Knight et al., 1997).

Interesting results arose. A significant correlation was found between CK and Concrete Experience but when correlations were looked at separately by gender, analysis revealed that the relationship did not hold for females but only for males. On the other hand, they found that SK was not correlated with Abstract Conceptualization, as it was initially hypothesized. In addition, their results suggested that CK and SK were not related to intellectual ability, critical thinking, or vocabulary capability. Galotti et al. (1999) also support this notion through results that revealed that neither epistemological orientation showed any significant correlation with any of the cognitive measures that they administered to their participants (e.g. recall, reasoning, distortion). The authors suggest that CK and SK “appear to represent different kinds of cognitive or learning styles, not intellectual abilities or capacities” (Galotti et al., 1999, p. 762).

Ways of Knowing Malleability. Schommer-Aikins and Easter’s (2011) within-subject design study revealed that ways of knowing are malleable. There were over 200 college students who participated in their study (mean age was 26.06, \( SD = 7.42 \)). These students participated in two priming conditions. One scenario primed them to think about their in-group. The same participants were then asked to come back two weeks later to take part of the remaining condition which primed the participant to think about his or her out-group. The experimental design allowed the authors to investigate whether ways of knowing changes depending on the context of the situation. It is already clearly stated in the literature that women tend to score higher on CK and men, instead, seem to score higher on SK. However, is there a specific situation in which this pattern might reverse or change? In what circumstances would women score higher in SK? Schommer-Aikins and Easter’s study answered that question. Their results
revealed an interaction between ways of knowing and priming condition. These results suggested that when participants were primed to think of their in-group, their CK scores were significantly higher than their SK scores. This was true for both men and women. Conversely, when the same participants were presented with a different scenario which, in a subtle way, primed them to think about their out-group, as opposed to their in-group, their SK and CK scores revealed no significant difference. The implications of this finding are very powerful for they suggest that perhaps individuals will unconsciously adopt a greater tendency to be understanding—but only with those who are considered their in-group. Whereas, the mere fact that a person, group, or idea is part of their out-group might automatically trigger a propensity to become critical or less understanding, therefore, promoting a decrease in CK. This also provides evidence to support the notion that ways of knowing are gender related not gender specific. If the situation calls for it, men can increase their CK and women are also capable of increasing their SK.

Schommer-Aikins and Easter (2011) pointed out that, although their study revealed important implications given that ways of knowing seem to be malleable, there is also “an ironic twist” (Schommer-Aikins & Easter, 2011, p. 15). They provide a different interpretation of the findings, in which they advise that future research should investigate whether the interaction between ways of knowing and in-group/out-group condition might be related to prejudice or a form of unconscious discrimination or whether there are other factors that contribute to this phenomenon. They raise a very interesting question, given that there is a possibility that ways of knowing might be unconsciously influenced by stereotypical or prejudicial pre-conceived notions toward out-groups. This finding hints toward the possibility of hidden prejudice, a lack of understanding toward those who are not part of the ‘inner circle’, an immediate lack of empathy and understanding toward those who are not part of the in-group, etc. Perhaps the
feeling of “they are not part of our group” will trigger the unconscious withdrawal of empathy, therefore, decreasing communication and understanding toward those who are different. Unfortunately this mindset—whether it is conscious or unconscious—possibly perpetuates stereotypes and prejudice. By withdrawing empathy from others who hold different beliefs, represent a different culture, or have different physical characteristics, individuals possibly decrease cognitive efforts which, in turn, can increase the use of mental shortcuts that bring about stereotypes.

**Stereotypes and Prejudice**

*Stereotype Definition.* Stereotypes “serve to simplify perception, judgment, and action” (Macrae, Milne, & Bodenhausen, 1994, p. 37). According to Whitley Jr. and Kite (2006), stereotypes arise from people’s experiences and perspectives that make up their beliefs and allow them to navigate the social world they live in. They continue to describe stereotypes more specifically and they define it as: “beliefs and opinions about the characteristics, attributes, and behaviors of members of various groups” (p. 6).

There are four key characteristics that further explain stereotypes. Stereotypes:

1. can be accurate or inaccurate.
2. are culturally shared beliefs that are often learned from parents, media, peers, and classic or modern literature.
3. can describe or prescribe the characteristics of group members. For example, a stereotype can describe that women are good at certain careers and, at the same time, it prescribes that men should not pursue the careers that women are good at (Whitley Jr. & Kite, 2006).
Stereotypes are referred to as “energy saving devices” (Macrae, Milne, & Bodenhausen, 1994, p. 37) which serve an invaluable purpose in regards to economizing cognition by sparing time and energy of perceivers who must respond to a social world that is full of complexity. Macrae et al. (1994), hypothesized that providing participants with stereotype labels (which they believed would increase memorability of information presented) during a task would significantly reduce the imposed demands exerted upon the individuals’ processing resources. Consequently, the authors predicted that subjects who received a stereotypic label would have an increased capacity to demonstrate superior learning of the material presented to them in a passage. Results from this study provide support for the conception that “stereotypes, in demanding processing contexts, function as simplifying themes in long-term memory, facilitating the representation of schema-consistent information” (p. 40).

_Cognitive Theory Perspective of Stereotype._ Many theories are available to explain why individuals engage in behaviors that are stereotypical or prejudicial. Such theories are: psychodynamic theories, sociocultural theories, intergroup relations theories, evolutionary theories, and cognitive theories. For the purposes of this research, this paper will only cover the perspective of cognitive theories. Cognitive theory places an emphasis on how behavior is affected by thought processes and on information being stored and retrieved from memory, for example. Those who adopt a cognitive theory perspective view stereotypes as a “normal process for reducing a complex stimulus world to a manageable level” (Whitley Jr. & Kite, 2006, p. 20). It is viewed as an important mechanism used to make sense and most accurately comprehend the tremendous amount of information that overcasts everyday life by allowing individuals to distinguish one category from another (Lepore & Brown, 1999; Whitley Jr. & Kite, 2006).
Experts in this area would also agree that stereotypes should not be necessarily thought of as being negative or “bad.” In fact, it is known that perception by humans cannot be accomplished without some form of categorization process (Lepore & Brown, 1999). In fact, it is very well understood that the application of stereotypes can effectively aid individuals in their attempt to increase the speed of distribution of resources while handling the intricacies that take part in a person’s mental world (Macrae et al. 1994).

Yet at the same time, experts would still agree that there is a possibility that the repercussions of utilizing an efficient information process such as stereotypes can lead to negative social consequences, such as prejudice (Lepore & Brown, 1999; Whitley Jr. & Kite, 2006). As early as 1954, beginning with the work of Allport (1954), a vast amount of literature on this topic has supported the notion that “stereotype activation automatically and inevitably follows when one comes in contact with a member of the stereotyped group” (Devine & Monteith, 1999, p. 340). This, of course, suggests that stereotype activation can easily result in behaviors that are prejudiced and biased toward a certain group (see Hamilton & Sherman, 1994, for a review).

*Categorization and Stereotypes.* Some researchers believe that there is an ambiguous distinction between categorization and stereotypes (Lepore & Brown, 1999). In order to make sense of the world, mental schemas are activated through the use of categorization (Bruning, Schraw, Norby, & Ronning, 2004; Macrae et al., 1994; Whitley Jr. & Kite, 2006). The process of categorization aids individuals in their attempt to identify similarities and differences between and within groups. According to certain researchers (e.g. Hamilton & Sherman, 1994), this process is the same as the stereotyping process, which therefore, implies that stereotyping is inevitable. Furthermore, according to Lepore & Brown (1999), “there is a need to maintain and
enhance a positive social identity,” which consequently “accentuates differences between groups in a way which favors the in-group not only at the perceptual but also at the attitudinal and behavioral levels” (p. 142). This notion comes from a perspective associated with the social identity theory (for a review, see Tajfel & Turner, 1979). Through the social identity theory perspective, stereotyping and categorization are viewed as unavoidable and equivalent processes (Lepore & Brown, 1999). However, Lepore and Brown (1999) decided to, in addition, carefully examine other studies with opposing viewpoints regarding stereotypes and categorization and learned that, contrary to popular belief, category and stereotype activation are not as ambiguous as thought.

Research by Gilbert and Hixon (1991) supports this notion. In their first experiment, they found that when participants engaged in what they called “cognitive busyness” (in other words, cognitive overload, for example, rehearsing an 8-digit number) while performing a word fragment completion test, participants did not show evidence of stereotype activation when exposed to a female Asian assistant. On the other hand, participants in the “not busy” condition (meaning they were not cognitively overloaded with the rehearsal of an 8-digit number) showed evidence of stereotypic activation. Participants were more likely to generate stereotypic word fragment completions when the assistant was of an Asian ethnicity rather than Caucasian. Task performance on the word completion test was not imparted among “cognitively busy” participants yet what is most important is the evidence that supports that activation of stereotypes could be inhibited.

In addition, a continuation of their first experiment revealed evidence supporting the possibility that “cognitive busyness” could also increase the probability that a currently activated stereotype will be applied. Gilbert and Hixon (1991) designed two phases in their second
experiment. The first phase was the “activation phase” and the second was the “application phase.” In the “activation phase,” the stereotypes about Asians were either activated or not activated. They found that when stereotypes were activated, “cognitive busyness” facilitated the application of those stereotypes. Their results support the notion that stereotype activation is conditional and not merely automatic, which suggests that stereotyping does not occur just because one has engaged in categorical thinking.

Prejudice Definition. A component that differentiates prejudice from stereotypes is affect or emotion. “Once stereotypes are activated they affect judgment and behavior” (Lepore & Brown, 1999, p. 143). Prejudice is often broadly defined as unfavorable or negative beliefs, emotions, or attitudes directed toward an individual because of that person’s characteristics or social group status (Binder et al., 2009). Like stereotypes, prejudice is said to be socially learned and, in addition, Tajfel (2001) notes that prejudice could also be due to “tendencies to conform” (Tajfel, 2001, p. 179). According to Whitley Jr. and Kite (2006), the social science perspective states that the emotion felt by the person interacting with individuals from other groups is what classifies it as prejudice. Prejudice has been an intriguing topic among sociologists and psychologists for decades. Researchers have long been investigating the roots of prejudice and the factors that can perhaps foster the development of prejudice more in some individuals than in others. Cognitive theorists have focused on the relationships between cognitive processes—such as stereotypes—and emotion and how they work together to produce prejudicial thoughts and behaviors (Whitley Jr. & Kite, 2006).

Prejudice is a phenomenon that can be found in all societies and it is apparent among minority and majority groups. The degree of psychological damage or social consequences of prejudice is perhaps the most intense when members of the majority group act against members
of the minority group given their position of power over the minority status individuals (Gonzales, 2003). Stereotypes and prejudice are phenomena that are socially shared. Therefore, stereotypes and prejudice become part of a shared understanding of who “‘we’ and ‘they’ are” (Wright & Taylor, 2007, p. 363). In fact, in his work on in-group relations, Tajfel (2001) supports the “we” versus “they” paradigm. He suggests that, given the complex social environment, individuals create their own “web of social affiliations” (p. 181) that simplify and organize their social world. He states that the ability to classify groups as “we” and “they” is an important principle in an individual’s construction of his or her own social order.

In-group/ Out-group

Like stereotypes and prejudices, the phenomenon of in-group/out-group is always present. Further, these concepts appear to be intertwined and mutually related. It is known that beliefs that are stereotypic in nature soon enough become schemas developed by an individual’s unconscious behavior of classification into social groups (Whitley Jr. & Kite, 2006). Being able to classify people, ideas, or things into two different categories (e.g. those that are like us or those that are not like us) allows individuals to understand the world around them in a quicker, more simplified way (see Bruning, Schraw, Norby, & Ronning, 2004). Research on in-group – out-group relationships dates back to the 1980s and it is a well-studied construct in social psychology and sociology (Matsumoto & Juang, 2004). In-group relationships are marked by a degree of intimacy and familiarity. An in-group would be composed of people or things that one feels comfortable with, that are similar in its degree of behavior, interests, and physical or emotional characteristics, for example. On the other hand, out-group relationships lack a feeling of intimacy and closeness. Out-group relationships tend to lack the positive feelings that are found in in-group relationships. Instead, feelings involved in out-group relationships may be
negative such as aggression, superiority, or indifference (Matsumoto & Juang, 2004). It is said that from birth, individuals build relationships with those around them, and whether it is implicitly or explicitly, individuals categorize relationships according to whether they classify into their definition of in-group or out-group (Matsumoto & Juang, 2004).

The Minimal Group Paradigm. “People thrive on dividing themselves into groups” (Whitley Jr. & Kite, 2006, p. 79). Surprisingly, in-groups and out-groups can be created very easily. Henri Tajfel is very well known for his work in this area of study. In 1970, his goal was to investigate what were the minimum conditions necessary for a person to engage in the distinction between an in-group and an out-group (Tajfel, 2001). In his experiment regarding intergroup discrimination, “groups were created based on an unimportant variable, rather than an existing social group about which people had beliefs and feelings” (Whitley Jr. & Kite, 2006, p. 79). This was done in order to demonstrate the minimum conditions necessary for a person to engage in in-group/ out-group behaviors.

The experiment involved randomly assigning a participant as part of a group (“overestimator” or “underestimator” depending on their estimation on the number of dots they believed to have observed flashed on a screen). After participants were informed about whether they were an “overestimator” or an “underestimator,” they were then asked to award or penalize members from each group with real money. Results revealed that participants favored members of their own group by awarding them with more money when compared to members of the other group. Results from his study pointed to the phenomenon of in-group favoritism (Tajfel, 2001). Through his experiments, Tajfel gathered evidence to support his minimal group paradigm. This paradigm exhibits the notion that individuals can quickly engage in behaviors that create an “us” versus “them” group (Tajfel, 2001).
Relationship to Stereotypes. What is most important to this study is the close relationship between stereotypes and the in-group/out-group phenomenon. It is important to keep in mind that stereotypic beliefs become part of people’s schemas about social groups and some of the explanations about how these beliefs are acquired involve research on the out-group homogeneity effect and the social role theory. Research shows that people perceive in-groups and out-groups differently. The out-group homogeneity effect refers to the notion that people can perceive members of their own group as being different yet differences between out-group members are underestimated (Whitley Jr. & Kite, 2006). This, therefore, leads to a cognitive bias in which out-group members are viewed as all having the same traits. This is where stereotypes come in. Due to limited social encounters and meaningful interactions with out-group members and the nature of such encounters when these are actually obtainable, in-group members have no real life experiences or a very limited amount of background knowledge available to associate whether out-group individuals are actually that much different than their own group. Because of this gap in knowledge, mental shortcuts are utilized in order to make sense of this information.

As mentioned before, stereotypes are usually acquired or passed on by parents, the media, and other personal encounters or observations with out-group members (Lepore & Brown, 1999). This suggests a greater probability that members of other social groups will most likely be treated differently due to the readily available pool of stereotypes and biased information against out-groups (Whitley Jr. & Kite, 2006).

Another explanation of how stereotypic beliefs can easily become part of people’s schemas is the social role theory. As the name implies, this theory proposes that individuals tend to pay close attention to the social roles people occupy. This behavior then leads to the association between the characteristics of the role and the person that occupies it. Therefore,
given that women are usually involved in caregiver roles, they are stereotypically seen as nurturers. Men, who are usually in managing and high status roles, will most likely be seen as leaders. In such a little amount of time, individuals can quickly form impressions about others. They can categorize people based on these impressions. In addition, depending on these categorizations, people could quite possibly instantly decide whether that group will be part of their in-group and whether or not they will provide increased understanding and empathy or instead withdraw from them based on the status of the group.

**Diversity Awareness and Cultural Competence**

Culture and diversity are two simple words that, in their simplicity, manage to hold a wealth of importance and meaning when describing individuals and groups. Culture encompasses a complexity of concepts related to so many aspects of life, such as individual behaviors, organized activities, beliefs, religion, food and clothing, individual and family activities, housing and technology, etc. (Matsumoto & Juang, 2004). Culture is a construct that is difficult to define in merely a couple of paragraphs or pages. Scholars and social psychologists throughout the years have placed a variation of definitions to the word, making this a term with a variety of descriptions. For the purposes of this paper, a definition taken from Matsumoto and Juang (2004) will be utilized. Culture is:

- a dynamic system of rules, explicit and implicit, established by groups in order to ensure their survival, involving attitudes, values, beliefs, norms, and behaviors, shared by a group but harbored differently by each specific unit within the group, communicated across generations, relatively stable but with the potential to change across time. (p. 10)
Social identity and social cognition experts embrace the “notion that culture directs how human agents think, feel, and act—both individually and collectively” (Operario & Friske, 1999, p. 33). To be culturally competent refers to the ability of an individual to develop awareness and an acceptance of the differences that exist between different cultural groups (McManus, 1988). In addition, it is of importance to develop a self-awareness of one’s own culture and the impact on one’s thoughts and actions in order to fully appreciate other groups’ cultural differences (McManus, 1988).

A special characteristic of the United States is that it is a nation composed of immigrants. It is only natural that, given differences in nationalities, there will be a tremendous variation in the cultures that are held important within these many groups of people. Among these differing cultural groups, there lies another important complexity that is of essential consideration in this research and, therefore, it must be operationally defined. Diversity, according to Sheets (2005), refers to:

dissimilarities in traits, qualities, characteristics, beliefs, values, and mannerisms present in self and others. It is displayed through (a) predetermined factors such as race, ethnicity, gender, age, ability, national origin, and sexual orientation; and (b) changeable features, such as citizenship, worldviews, language, schooling, religious beliefs, marital, parental, and socioeconomic status, and work experience. (p. 15)

Diversity is not a term that is merely used to describe an individual’s difference in regards to ethnic, racial, or cultural identity. In fact, diversity is present in various forms and in all aspects of life. Mehaffy (1994) makes an important case in regards to the importance of celebrating and committing to diversity. In his article, he states that the diversity of attitudes, people, and ideas
should not be considered a weakness. He argues that diversity in our society is a strength that allows us to come up with new and varied ideas as well as the possibility to approach problems through a different lens (Mehaffy, 1994). Petrovitch and Lowe (2005) state that “Diversity awareness is variously described as the ability to identify, understand and celebrate differences among individuals and to intervene sensitively with respect to these differences” (p.158).

Given that diversity is a defining characteristic of our modern society, it is of much importance that individuals in our society be well equipped to tolerate and celebrate diversity and the customs and ideas of various different cultures. In fact, many colleges and universities are aware of how invaluable it is to be culturally sensitive and open to diversity. Researchers at Miami University conducted a study that tested the development and validation of an awareness scale constructed by them. They called the instrument Miami University Diversity Awareness Scale (MUDAS) and it is designed to measure students’ level of knowledge about culture, intergroup interaction, appreciation of diversity, and social justice (Mosley-Howard, Witte, & Wang, 2011). Research by Mosley-Howard et al. (2011) was established to support the notion that college students should be prepared to face the global environment that they live in. The authors’ purpose for creating the MUDAS was driven by their desire to obtain reliable and accurate data that could carefully reveal the degree of student awareness on issues of diversity. The empirical data obtained from this scale would allow educators to identify whether colleges are providing sufficient opportunities that will allow their students to be well-equipped to work well and collaborate with individuals of varied backgrounds and diverse populations.

Cultural diversity is on the rise in the U.S.A. In her book about cultural competence, Moule (2012) reveals projections that suggest that by the year 2050, the White population will become the minority. Therefore, it is critical that higher education provide opportunities to
students that will allow them to explore, experience, and learn about diversity. Furthermore, due to a similar projection in population shift, other proponents of this notion have also underscored the importance of preparing and guiding leaders in presenting students in higher education with learning opportunities that may introduce environments that engage diversity (Bok, 2006; Clayton-Pedersen, Parker, Smith, Moreno & Terahuch, 2007). Bok (2006) highlights the advantage that comes from being able to work together with individuals of varied backgrounds. He cites research that has found that being exposed to diversity (such as being exposed to different perspectives and values) increases peoples’ experience and, in addition, enhances their ability to think critically. According to Mosley-Howard et al. (2011), diversity awareness is defined as “a person’s acknowledgement of culture and social context variables like class, race, ethnicity, gender, sexual orientation, physical ability, and religion (socially constructed variables)” (p. 66). They also recognize several important factors in terms of awareness, such as value and appreciation of others, intercultural connection and interaction, and a social justice mindset, among others. Their definition of diversity awareness is supported by many theorists that have an understanding of diversity awareness or cultural competency as being a variable that encompasses multiple dimensions, such as cognition, behavior, and affect. The MUDAS was carefully designed to assess students’ knowledge (cognitive dimension), beliefs and appreciation (affective dimension), behaviors and interactions with cultural groups, and advocacy (behavioral dimension). More specifically, through the use of self-report, the MUDAS discreetly measures students’ knowledge about ethnicity and culture, their appreciation toward diversity, interaction between groups, and level of social justice (Mosley-Howard, et al., 2011).

Five interconnected phases were part of this study. This paper will only review the first three phases. The first phase was a pilot study; its purpose was to determine factor models.
The second phase served to validate constructs and examine that the items measured diversity awareness accurately. During this phase, their initial survey increased from a 29-item to a 37-item survey with a strong five-factor model. The statistically verified factors are the following: “Factor 1 (Value/Appreciation), Factor 2 (Learning/Knowledge), Factor 3 (Intercultural Interaction), Factor 4 (Social Justice), and Factor 5 (Discipline Practice)” (Mosley-Howard et al., 2011, p. 68). The Value/Appreciation factor examines participants’ appreciation of diversity and their willingness to share that appreciation with others. The Learning/Knowledge factor taps into the participants’ acknowledgement of their personal culture. The Intercultural Interaction factor investigates how comfortable the participants feel to discuss their own culture with others and how interested they are in seeking interactions with members of other cultures. The Social Justice factor deals with the participants’ level of interest in supporting and promoting diversity, as well as their willingness to speak up during a situation of social injustice. The last factor, Discipline Practice, deals with the participants’ desire to expose and teach cultural awareness to others.

Phase three was later performed to revise the 37–item survey through the use of an exploratory factor analysis. The instrument was circulated to the entire population of first-year students at a Midwestern public liberal arts university ($N = 3,450$). The sample of participants resulted in 983 first-year students. Results revealed significant differences between female and male participants relative to their total MUDAS score. It was found that female students tended to rate themselves higher than male students. This implies that generally women are more aware and appreciative of diversity than their male counterparts. Women scored higher on all factors except for factor 4, social justice. In terms of differences in ethnicity, it was found that, in general, Latino, African American, and Asian American students scored significantly higher on
value and intergroup scores than their White student counterparts. Results revealed that Latino and African American participants value diversity more when compared to the other participants. In addition, these two ethnic groups scored higher on the social justice factor and were more likely to seek interactions with intercultural groups.

For the purposes of this research, the MUDAS will assess participants’ level of diversity awareness and acceptance. It is hypothesized that individuals with a low MUDAS score will also score low on CK. There is a plausible, yet less obvious, link between ways of knowing and diversity awareness. A conceivable hypothesis is: Those who are less willing to embrace and appreciate diversity are also more likely to withdraw empathy from those who are not part of their in-group, or vice versa. Although there is no evidence to support causation, Schommer-Aikins and Easter (2011) found a relationship between ways of knowing and in-group/out-group conditions. Participants with an in-group in mind displayed a greater tendency to be understanding. In other words, the participants seemed to engage in CK much more than SK. It is believed that when having an out-group in mind, individuals may potentially decrease their mental efforts to understand the out-group member’s perspective (see Schommer-Aikins & Easter, 2011).

Therefore, this study will attempt to investigate the following questions:

5) Is there a correlation between CK and SK scores and the five MUDAS subsets?
6) Is a higher CK score associated with a higher score on any of the MUDAS subsets?
7) Is a higher SK score associated with a lower score on any of the MUDAS subsets?
8) What variables (i.e., CK, SK, gender, age, ethnic status) predict diversity awareness the most?
Investigation of this subject area is imperative, given the rapidly increasing diverse population throughout the United States, as well as the need to collaborate personally and professionally with members of diverse groups.
Participants

Professors from a large public university and a small private Catholic university in the Midwest were selected based on their area of teaching. They were then contacted and asked whether they would be willing to sponsor this study. Interested professors were from various courses, such as, but not limited to: business, information technology, engineering, and biology. Sponsoring professors then promoted this study by providing their students with the consent form and the online survey link. There were a total of 211 participants. However, 18 of them were removed due to noncooperation, reducing the sample size to 193 participants (Male = 64, Female = 129). Participants were enrolled in undergraduate and graduate courses and were between the ages of 18 and 58 ($M = 26.08; SD = 7.82$). Ethnic status was as follows: African American ($n = 5$); Asian American ($n = 9$); Caucasian (White) ($n = 156$); Hispanic ($n = 5$); Middle Eastern ($n = 1$); and Other ($n = 18$).

Instruments

*Ways of knowing survey.* Participants were asked to complete the Attitude Toward Thinking and Learning (ATTLS) survey (Gallotti et al., 1999). This is a 20-item instrument that measures ways of knowing. This instrument was used to assess individuals’ answers to questions regarding CK and SK. Two scores were generated, in which the higher of the two suggests a participant’s preferred epistemological orientation. According to epistemological research, CK and SK are efforts that are learned and intentionally utilized to gain, reflect on, and communicate knowledge (Belenky et al. 1986; Clinchy, 1996; Galotti et al., 1999; Knight et al., 1997). Some examples of the statements in this instrument are: “I like playing devil’s advocate-arguing the
opposite of what someone is saying” and “When I encounter people whose opinions seem alien
to me, I make a deliberate effort to extend myself into that person, to try to see how they could
have those opinions” (See Galotti et al. 1999 for a review and psychometric data). The ATTLS
can be found in Appendix A. Participants were asked to use a 6-point Likert scale, ranging from
strongly disagree to strongly agree with higher scores indicating agreement with the statement.
The instrument generated two scores—one for CK and one for SK. Galotti et al. (1999) reported
reasonable internal reliability scores for the subsets of the ATTLS. Analysis revealed a .83 for
the connected knowing scale and .77 for the separate knowing scale.

**Diversity Awareness Scale.** The instrument used to assess the students’ diversity
awareness and acceptance was the Miami University Diversity Awareness Scale (MUDAS).
Exploratory factor analysis generated a five factor model in Phase 1 of the development of this
instrument. The five factor model was refined in Phase 2 with evaluation of the instrument by the
faculty learning community. Items were also examined for readability and content accuracy. In
the third phase, almost 1,000 first year students completed the scale and correlations between
each item were calculated for construct validity (for more details see Mosley-Howard et al.,
2011). The MUDAS scale consists of 37 items, which include the following statistically verified
factors:

1) **Value and Appreciation:** examines the participants’ perception of the importance of
diversity and their degree of willingness to share that appreciation with others. An
example of an item from this factor is: “I appreciate and welcome the challenges and
opportunities that diversity brings.”

2) **Learning and Knowledge:** examines a participant’s knowledge of his or her own
personal culture. For example: “I consider cultural issues in my daily life.”
3) Intercultural Interaction: examines the participants’ willingness to discuss their personal cultures and interest in learning about other cultures. For example: “I seek opportunities to interact with people from different cultures.”

4) Social Justice: examines the participants’ desire to support diversity. An example item for this factor is: “I realize that if I commit to promoting social justice, I too must change.”

5) Discipline Practice: examines the participants’ willingness to educate others in regards to cultural awareness. For example: “Teachers should develop conflict management skills to solve cultural clashes.”

According to Mosley-Howard et al. (2011), the five factor model has an “emphasis on discipline practice and separation of affective and cognitive variables” and it is equivalent “with literature that measures professional disposition relative to cultural competence” (p. 68; for further information see Ambe, 2006; Davis, 2009).

*Vocabulary Test.* Items on the ATTLS and MUDAS were analyzed for reading level through the use of the Flesch-Kincaid Readability Index test. This test utilizes U.S. school grade levels to rate the reading level of a document. Therefore, a score of 7.0 suggests that the document consists of a seventh grade reading level. It was found that the reading level for the surveys was 13.2. This implies that the two scales can be read and understood by the typical college freshman. Given this finding, a precautionary step was taken. A vocabulary test was added in between the ATTLS and the MUDAS and it was referred to as a “vocabulary break.” Scores on this vocabulary test, if needed, might provide insight regarding whether or not the participant had a high enough reading level ability. The vocabulary test can be found in Appendix C.
Demographics. Information about age, sex, academic major, and ethnic background was also collected in order to explore any possible links or interactions. In addition, it was also of importance to inquire about whether or not English was the primary language spoken by the participants and whether they were raised in the United States. The demographics questionnaire can be found in Appendix D.

Procedures

Materials and procedures for this research were submitted and approved by the Internal Review Board (IRB) from both universities. Upon approval, an online consent form with links to the online surveys was provided to sponsoring professors (consent form can be found in Appendix E). Professors from several courses at two different universities in the Midwest received all pertaining information that needed to be disseminated to their students. Professors promoted the research opportunity to their students and a few of them offered one or two extra credit points to those who participated. Interested students were given a small video clip created by the researcher in order to persuade them to participate in this study. Students then read the informed consent and, if in agreement with the description on the consent, they were then asked to continue to the online survey by clicking on one of the two links (survey A or survey B).

The order in which the participants took the surveys was of a different sequence, in order to counterbalance and reduce the possibility of any unknown confounds or order effects on participants’ responses. In other words, students were divided into groups based on an unrelated variable to the study (i.e. month of birth). In other words, students who were born in January, March, May, July, September, or November were asked to take survey A. This survey was organized in the following order: MUDAS questions, vocabulary test, ATTLS questions, demographics questions, and diversity training questions. Students born in February, April, June,
August, October, or December were asked to take survey B. This survey differed compared to survey A in that the ATTLS items were presented prior to the MUDAS items. Scores of those students who completed the MUDAS prior to the ATTLS were analyzed carefully, given that participants may have been primed to think about diversity through questions in the MUDAS. It was suspected that having the MUDAS questions in mind might perhaps lead to different SK and CK scores.

Scores on the ATTLS determined whether a student displayed a CK or SK tendency. The scores on the MUDAS provided information regarding the participants’ awareness and acceptance of diversity. These two factors were analyzed in order to determine whether there is a link between ways of knowing and diversity awareness. Further, data were used to explore any other correlations or connections between variables. In addition, essential to this study was the investigation of what variables predict diversity awareness the most.

**Data Analysis**

In order to determine what variables predict diversity awareness the most, a series of step-wise regressions were conducted. Each of the five diversity awareness factors was regressed on five predictor variables including: connected knowing, separate knowing, gender, age, and ethnic status. The variable accounting for the most variance entered the equation first; the next variable accounting for the next most variance entered the equation next, and so on until all significant predictors had entered the equation. The order of the entry indicated the rank of which predictors had the strongest effect on participants’ diversity awareness score.
CHAPTER 4
RESULTS

The objective of this study was to explore the possible, yet less obvious, association between ways of knowing and openness to cultural diversity. Some researchers have found imperative evidence supporting the notion that ways of knowing are malleable and context dependent (Schommer-Aikins & Easter, 2011). Most intriguing is the idea that perhaps individuals have the ability to increase their CK propensity in certain situations. At the same time, this would imply that a person could also have the ability to decrease CK in certain situations as well. With this in mind, this study is an attempt to investigate whether there is evidence to suggest that ways of knowing might predict or be related to low or high diversity awareness. It is important to note that the findings in this study do not imply causation. They are merely correlations and predictions based on exploratory analyses and should be interpreted with caution. Further research is needed to explore causation.

In order to begin exploration on this matter, four main questions were addressed: (a) Is there a correlation between CK and SK scores and the five MUDAS subsets?; (b) Is a higher CK score associated with a higher score on any of the MUDAS subsets?; (c) is a higher SK score associated with a lower score on any of the MUDAS subsets?; and (d) what variables (i.e., CK, SK, gender, age, ethnic status) predict diversity awareness the most?

Descriptive Statistics and Psychometric Properties

Descriptive statistics were generated for all items in order to attain a general overview of the data. All items were within range and no extreme skewness was found. A descriptive statistics table can be found in Appendix F. Items for each major variable were examined for inter item reliability; hence, Cronbach’s alphas were run for CK, SK, and all five subsets of the
MUDAS. The reliability coefficients for items measuring CK and SK were .80 and .72, respectively. These results, as well as Cronbach’s alphas for the remaining variables, can be found in Appendix G. As can be seen in Appendix G, Cronbach’s alpha scores for the subsets on the MUDAS ranged from .52 to .82. Only one subset from the MUDAS, Factor 3 (Intercultural Interaction), was modified to improve reliability. In other words, one item from this subset was deleted in order to increase the reliability score.

After descriptive statistics and reliability measures were examined, CK, SK, and MUDAS subset scores were calculated. Out of the 20 items in the ATTLS, 10 were identified as CK items and 10 were identified as SK items (Gallotti et al., 1999). As previously described, the MUDAS contains five subsets, which Mosley-Howard et al. (2011) refer to as Factors. Factor 1 (Value/Appreciation) has 10 items represented in the scale; Factor 2 (Learning/Knowledge) has eight items; Factor 3 (Intercultural Interaction) has seven; Factor 4 (Social Justice) has four; and Factor 5 (Discipline Practice) has six items. Scores for each major subset were calculated by summing the appropriate items.

**Main Analyses Addressing Major Questions**

*Correlation between CK, SK, and MUDAS.* In order to address the first three research questions, a zero order correlation was run. These results can be seen in Appendix H. Connected knowing has a significant positive correlation with all of the MUDAS factors. Separate knowing, contrary to what was expected, has a positive significant correlation with four out of the five MUDAS factors. However, only three of the SK correlations are meaningful based on effect size (i.e. although value/appreciation correlated significantly at the .05 level, a correlation of .17 does not account for a meaningful amount of variance). Specifically, SK is significantly
positively correlated with the following MUDAS subsets: Learning/Knowledge, Intercultural Interaction, and Social Justice.

**Predictors of MUDAS Scores.** In order to determine what variables predict MUDAS subsets the most, stepwise regressions were conducted for each of the five MUDAS subsets. Hence, for each analysis, one of the MUDAS subsets was the criterion variable while five other variables such as CK, SK, gender, age, and ethnic status competed for entry as predictor variables. Alpha level was set at .05 and only significant variables were allowed to enter into the equation.

Using Value/ Appreciation as the criterion variable, the following two predictor variables were significant: CK and gender. Connected knowing accounted for 30% of the variance while gender accounted for an additional 2% of the variance. The more participants had a propensity towards CK, the more they valued and appreciated diversity. Women valued and appreciated diversity more than men. A summary of the details of this regression and all the remaining regressions are shown in Appendix I.

The next regression used Learning/Knowledge as the criterion variable. In this case, the two significant predictor variables were: CK and SK. Connected knowing accounted for 19% of the variance and SK provided an additional 4%. The higher the participants’ tendency toward CK and SK, the more knowledgeable they were about their own personal culture.

The third regression analysis was with Intercultural/Interaction as the criterion variable. With this third factor as the dependent variable, three predictor variables were significant: CK, SK, and gender. Connected knowing accounted for 32% of the variance, SK accounted for 4% of the variance, and gender accounted for 3% of the variance. The more the participants adhered to CK and SK, and if they were female, the more the participants were willing to talk about their
culture and, at the same time, the more they were interested in learning about others’ cultural backgrounds.

The next regression analysis utilized the Social Justice subset as the criterion variable. The three significant predictor variables were: CK, SK, and gender. In this case, CK accounted for 21% of the variance, SK accounted for 3%, and gender accounted for 2% of the variance. The more participants adhered to CK and SK, and if they were female, the more they agreed to support social justice. This implies that if participants had a higher tendency toward CK, SK, and if they were female, the more they had a desire to support diversity.

In the final regression analysis, Discipline Practice was used as the criterion variable, in which case only one significant predictor variable was found. CK accounted for 14% of the variance. Hence, when the participant’s inclination toward CK was higher, the more he or she displayed a willingness to educate others about cultural awareness.

**Exploratory Ancillary Analyses**

A one-way multivariate ANOVA was conducted with gender as the independent variable and ways of knowing and MUDAS subset scores as the dependent variables. The multivariate statistic was significant for gender: Wilks’ $\lambda$, $F(7, 185) = 6.10, p < .001, \eta^2 = .19$. Given the significance of the overall test, the univariate main effects were examined. Significant univariate main effects for gender were obtained for separate knowing, $F(1, 191) = 19.92, p < .001, \eta^2 = .09$; value/appreciation, $F(1, 191) = 6.36, p < .05, \eta^2 = .03$; and intercultural interaction, $F(1, 191) = 5.00, p < .05, \eta^2 = .03$. These results suggest that there are three significant differences between men and women. Men had higher SK score ($M = 41.64, SD = 6.49$) compared to women ($M = 37.27, SD = 6.36$); women had a higher value/appreciation score ($M = 45.16, SD = 7.31$) compared to men ($M = 42.17, SD = 8.58$); and women had a higher intercultural interaction score
($M = 26.23, SD = 4.43$) compared to men ($M = 24.63, SD = 5.21$). Other independent variables of interest were education level, ethnic group, and English as a second language; however, analyses revealed no significance for either. Due to unequal sample sizes, no further analyses were conducted.
CHAPTER 5
DISCUSSION

Summary of the Study

The purpose of this study was to explore participants’ level of diversity awareness and acceptance and its relationship to ways of knowing. Research by Schommer-Aikins and Easter (2011) supported the notion that ways of knowing are malleable and context dependent. Evidence supporting the fact that participants’ ways of knowing scores changed depending on the priming condition (i.e., in-group or out-group) was of great interest to this research (Schommer-Aikins & Easter, 2011). Given that participants’ CK scores increased from out-group to in-group priming condition, it was speculated that, perhaps, individuals have a tendency to withdraw understanding (i.e., decrease their CK) when interacting with individuals who are different from them (Schommer-Aikins & Easter, 2011). Therefore, this study was an attempt to investigate the subtle link between ways of knowing and diversity awareness, as well as an exploration of what variables predict diversity awareness the most.

Exploring the relationship between these topics is crucial given the imperative need to closely collaborate—personally and professionally—with the rapidly growing diverse groups in our society. In order to begin exploration, participants were asked to complete an online survey in which they chose the degree of agreement for statements on scales assessing their tendency toward CK, SK, and diversity awareness and acceptance.

The 20-item Attitudes Toward Thinking and Learning Survey (ATTLS) developed by Galotti et al. (1999) that has been widely utilized in ways of knowing literature (e.g., Marrs & Benton, 2009; Ryan & David, 2003; Schommer-Aikins & Easter, 2009; 2011) measured
participants’ ways of knowing tendency. The 37-item Miami University Diversity Awareness Scale (MUDAS) was recently developed and was used in this study to assess participants’ diversity acceptance and awareness (Mosley et al., 2011).

Through the use of participants’ scores on the two above mentioned instruments, the following questions were addressed: (a) Is there a correlation between CK and SK scores and the five MUDAS subsets?; (b) Is a higher CK score associated with a higher score on any of the MUDAS subsets?; (c) is a higher SK score associated with a lower score on any of the MUDAS subsets?; and (d) what variables (i.e., CK, SK, gender, age, ethnic status) predict diversity awareness the most? A zero order correlation analysis was run in order to answer the first three questions. A one-way multivariate ANOVA was conducted to explore question four.

Findings and Their Implications

Two significant positive correlations were found between CK and SK scores and the five MUDAS subsets. The first significant finding revealed that participants who had a higher tendency toward CK also tended to score higher on all five MUDAS factors. This, therefore, supports the notion that CK is present among individuals who have an open mind toward those who are different from them, or vice versa. Contrary to what was expected, yet interestingly enough, results also suggested that participants who had a higher tendency toward SK also scored higher on certain MUDAS factors such as Learning/Knowledge, Intercultural Interaction, and Social Justice. It is important to remember that being a separate knower is also an essential component in the way that individuals understand the world and it does not necessarily mean that just because one engages in separate knowing, one is not able to be open towards others. Instead, it has been suggested that a balance between the two ways of knowing can, and perhaps should, be achieved when the context cues it (Schommer-Aikins & Easter, 2011).
The variables that predicted MUDAS subsets the most were CK, SK, and gender. Connected knowing was the main predictor for all five MUDAS subsets. Among items that dealt with the participants’ value and appreciation of diversity, it was found that CK and gender were the two predictors. As was expected, those participants who had a propensity towards CK seemed to value and appreciate diversity the most. In addition, and consistent with research by Mosley-Howard et al. (2011), female participants were also more inclined to value and appreciate diversity when compared to the men in this sample.

From the set of items that dealt with the participant’s knowledge of his or her own personal culture, it was found that, once again, CK was the main predictor. This suggests that those who had a higher tendency toward CK rated themselves higher in terms of being knowledgeable about their personal culture. This finding was also consistent with what was expected, given that connected knowers tend to engage in openness and understanding. It is important to note that SK was the second predictor variable, therefore suggesting that separate knowers are also aware and knowledgeable about their own personal culture.

Items that dealt with intercultural interaction revealed three predictor variables: CK, SK, and gender. It was expected that those with a higher tendency toward CK and those who were female would have a higher tendency toward interest in others’ cultural backgrounds. Again, this is due to the nature of females and connected knowers who are more willing to listen and learn from others’ perspectives and ideas. Mosley-Howard et al. (2011) also found significant differences in intercultural interaction among gender, with females rating themselves higher than their male counterparts. In this study, SK was also a predictor variable which, once again, suggests that those adopting a SK perspective can also engage in CK tendencies in order to become interested and engage in the details of others’ cultural backgrounds.
The social justice items consisted of questions that assessed the participant’s desire to support diversity. The predictor variables found for this subset were: CK, SK, and gender. CK was once again the variable that predicted the subset the most. Participants with a higher tendency toward CK supported social justice the most. Participants with a higher propensity toward SK and females also were more likely to agree to support social justice.

Items in the discipline practice subset assessed the participant’s willingness to teach others about cultural awareness. In this case, CK was the only predictor variable. It was found that if the participant had a higher inclination toward CK then the more willing they were to teach others about cultural awareness.

These results provide evidence to support the idea that connected knowers are more likely than separate knowers to support diversity awareness and acceptance. At the same time, however, evidence also suggests that separate knowers are capable of, and can in fact, be aware and accepting of diversity.

Further explorations revealed significant differences between men and women. Consistent with the literature (Gallotti et al., 1999), it was found that men tended to score higher on SK when compared to women. In addition, more women than men scored higher in value and appreciation of diversity and more women scored higher than men in their willingness to talk about their personal culture and their interest in exploring and learning about others’ culture.

Given the descriptive nature of this research study, any significant findings should be interpreted with caution. Findings are correlational and do not indicate causality. In other words, being a separate or connected knower can influence the degree of diversity awareness or tolerance of a person. On the other hand, the degree of diversity awareness could also influence a person’s score on separate or connected knowing. Lastly, there could be an unknown variable(s),
influencing both scores on connected and separate knowing, as well as scores on diversity awareness. Future research is needed to investigate causality.

**Practical Implications**

This research has many practical implications for society as a whole. Living in a country that is rapidly increasing in diversity requires individuals to learn how to adapt, appreciate, and embrace cultural differences. Being able to understand the relationship between ways of knowing and openness to diversity can provide us with great insight, improved communication, and a head start when interacting on a personal or professional level with others who are different from us. Being successful requires many factors but, among all, good communication and understanding of those who surround us—whether different or not—is a necessity.

**Limitations of the Study**

This study had several limitations. The sample size was not as large as was initially expected, therefore creating unequal sample sizes among the different categories. For example, the women’s sample size was double that of the men’s. The majority of the sample was predominantly Caucasian (white) and there were several small sample sizes for the rest of the ethnic groups. In addition, there was a wide range in the age of the participants.

Another very important limitation is found in the nature of self-report surveys. Participants were asked to read carefully and answer truthfully. Yet, other than cooperation items, there was no other way of determining whether their answers were thought-out and truthful.

Finally, the analyses conducted are correlational and do not imply causation. Findings should be interpreted with caution, given that there is no evidence for directionality and the possibility of the influence of an unknown variable could be present.
**Future Research**

This study provides several implications for future research. A bigger sample size in which categories would consist of a more homogeneous number of participants might reveal significances among different age or ethnic groups. Next, a research design that might allow the investigation of causality would be greatly beneficial. Lastly, and most importantly, is the investigation on how individuals can learn or become aware of their ability to find a balance between CK and SK. How can a person develop his or her ability to consciously switch between SK and CK, depending on the present situation?


APPENDIX A

ATTITUDES TOWARD THINKING AND LEARNING SURVEY (ATTLS)

DIRECTIONS: In this survey we are asking for your opinion about thinking and learning and how this relates to human interaction. Answer the questions based on your own opinion. Simply select the degree of agreement you have to each statement based on the following scale. Give the first response that comes to your mind.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Somewhat Disagree</th>
<th>Somewhat Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I like playing devil’s advocate—arguing the opposite of what someone is saying.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>It’s important for me to remain as objective as possible when I analyze something.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>*When I encounter people whose opinions seem alien to me, I make a deliberate effort to extend myself into that person, to try to see how they could have those opinions.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>*I can obtain insight into opinions that differ from mine through empathy.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>*I tend to put myself in other people’s shoes when discussing controversial issues, to see why they think the way they do.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>In evaluating what someone says, I focus on the quality of their argument, not on the person who’s presenting it.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>*I’m more likely to try to understand someone else’s opinion than to try to evaluate it.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>*I try to think with people instead of against them.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>*I feel that the best way for me to achieve my own identity is to interact with a variety of other people.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>One could call my way of analyzing things putting them on trial, because of how careful I am to consider all of the evidence.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>I often find myself arguing with the authors of books I read, trying to logically figure out why they’re wrong.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>I have certain criteria I use in evaluating arguments.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>*I always am interested in knowing why people say and believe the things they do.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>*I enjoy hearing the opinions of people who come from backgrounds different from mine - it helps me understand how the same things can be seen in such different ways.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>This item is predetermined for the purpose of data analysis, please respond to this item by marking “Disagree.”</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>I try to point out weaknesses in other people’s thinking to help them clarify their arguments.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>*The most important part of my education has been learning to understand people who are very different from me.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>*I like to understand where other people are coming from, what experiences have led them to feel the way they do.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>I value the use of logic and reason over the incorporation of my own concerns when solving problems.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>I’ll look for something in a literary interpretation that isn’t argued well enough.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX B

MIAMI UNIVERSITY DIVERSITY AWARENESS SCALE (MUDAS)

Directions: In this survey we are asking for your opinion about diversity. Answer the questions based on your own opinion. Simply select the degree of agreement you have to each statement based on the following scale. Give the first response that comes to your mind.

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Somewhat Disagree</th>
<th>Somewhat Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

___01 I am aware of my own culture and ethnicity.
___02 I am NOT comfortable talking about my culture and ethnicity.
___03 I seek to learn about different cultures.
___04 I seek opportunities to interact with people from different cultures.
___05 I appreciate and welcome the challenges and opportunities that diversity brings.
___06 I do NOT share my appreciation of diversity with my friends.
___07 A conscious effort should be made to teach cultural expectations in schools and/or classrooms.
___08 Teachers should develop conflict management skills to solve cultural clashes.
___09 I recognize the privileges I might enjoy because of my race, class, gender, sexual orientation, lack of disability, etc.
___10 I consider cultural issues in my daily life.
___11 This item is predetermined for the purpose of data analysis, please respond to this item by marking “Agree.”
___12 I do NOT speak up when I witness instances of social injustice.
___13 I do NOT have close friends from different cultures.
___14 It is NOT important for me to learn a second language.
___15 People from different nationalities should NOT be encouraged to retain their various customs traditions and language.
___16 A wide variety of religious diversity is good for our country.
___17 I would welcome the opportunity to study abroad.
___18 Addressing economic class differences tends to be divisive in everyday life.
___19 Although individuality is important in the United States, excessive differences in beliefs can hurt our society.
___20 Stressing different cultural customs and traditions tends to reduce learning the basics (reading, writing, mathematics) in schools today.
___21 The American public school system’s curriculum should concentrate more on our common American identity rather than on specific ethnic groups.
___22 I am aware of the effects that my culture has on those whose culture is different from mine.
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>__23</td>
<td>I check myself to see if an assumption I am making about a person(s) is based on facts, not stereotypes about a group.</td>
</tr>
<tr>
<td>__24</td>
<td>I realize that if I commit to promoting social justice, I too must change.</td>
</tr>
<tr>
<td>__25</td>
<td>This item is predetermined for the purpose of data analysis, please respond to this item by marking “Disagree.”</td>
</tr>
<tr>
<td>__26</td>
<td>I do NOT know how to learn about people and cultures unfamiliar to me without being offensive.</td>
</tr>
<tr>
<td>__27</td>
<td>I would welcome the opportunity to work in an urban community.</td>
</tr>
<tr>
<td>__28</td>
<td>It is NOT important to value different sexual orientations.</td>
</tr>
<tr>
<td>__29</td>
<td>Students with special learning needs should NOT be included in regular K-12 and college classrooms.</td>
</tr>
<tr>
<td>__30</td>
<td>I will be comfortable working with individuals who have a variety of learning needs.</td>
</tr>
<tr>
<td>__31</td>
<td>I believe that all individuals are capable of learning at a high level no matter what their personal background or culture might be.</td>
</tr>
<tr>
<td>__32</td>
<td>Teachers (K-12) should be trained to effectively introduce issues of diversity in the classroom.</td>
</tr>
<tr>
<td>__33</td>
<td>Teachers (K-12) should receive training in working with students that have diverse needs.</td>
</tr>
<tr>
<td>__34</td>
<td>Professors should be trained to effectively introduce issues of diversity in the classroom.</td>
</tr>
<tr>
<td>__35</td>
<td>Professors should receive training in working with students that have diverse needs.</td>
</tr>
<tr>
<td>__36</td>
<td>I view promoting diversity wherever I can as an essential part of my role as a student.</td>
</tr>
<tr>
<td>__37</td>
<td>I appreciate the range of cultural experiences that people bring to relationships or situations.</td>
</tr>
</tbody>
</table>
DIRECTIONS: For each item, choose the answer that most closely matches the definition of the numbered word. Please DO NOT guess. If you do not know the answer, mark "I don't know."

1. Emergence
   a. Laziness  
   b. Identity  
   c. Contrast  
   d. Coming forth  
   e. I don’t know

2. Resistant
   a. Confusing  
   b. Opposing  
   c. Systematic  
   d. Assisting  
   e. I don’t know

3. Consultative
   a. Monitory  
   b. Conservative  
   c. Advisory  
   d. Narrative  
   e. I don’t know

4. Blithesome
   a. Morbid  
   b. Cheery  
   c. Blessed  
   d. Venturesome  
   e. I don’t know

5. Calamitous
   a. Clamorous  
   b. Discontented  
   c. Disastrous  
   d. Uncouth  
   e. I don’t know

6. Masticate
   a. Chew  
   b. Massage  
   c. Manufacture  
   d. Create  
   e. I don’t know

7. Listless
   a. Aggressive  
   b. Adaptable  
   c. Indifferent  
   d. Sorrowful  
   e. I don’t know

8. Clashes
   a. Restorations  
   b. Explosions  
   c. Reformations  
   d. Arguments  
   e. I don’t know

9. Divisive
   a. Disruptive  
   b. Important  
   c. Betrayal  
   d. Inclination  
   e. I don’t know

10. Alien
    a. Spy  
    b. Compatible  
    c. Contrary  
    d. Distant  
    e. I don’t know

11. Deliberate
    a. Intentional  
    b. Irrational  
    c. Inclination  
    d. Conservative  
    e. I don’t know

12. The phrase “put yourself in their shoes” means?
    a. Meandering in the wilderness  
    b. Understanding other’s perspective  
    c. Looking through binoculars  
    d. Finding prospects in people  
    e. I don’t know

13. Handicraft
    a. Cunning  
    b. Fast boat  
    c. Utility  
    d. Manual skill  
    e. I don’t know

14. Ungainly
    a. Cheap  
    b. Stupid  
    c. Clumsy  
    d. Hazardous  
    e. I don’t know

15. Ignoramus
    a. Monster  
    b. Gossip  
    c. Dandy  
    d. Dunce  
    e. I don’t know

16. The phrase “playing the devil’s advocate” means
    a. A game adults like to play  
    b. Someone who is not religious  
    c. Arguing against a thought or idea  
    d. Someone who is hopeless  
    e. I don’t know
APPENDIX D

DEMOGRAPHICS QUESTIONNAIRE

DIRECTIONS: Please answer every question in order for the analysis to be as accurate as possible. These questions will help us classify and generalize the responses to our study. All responses will be kept confidential, therefore, please answer honestly and completely.

Notice that some questions must be answered with a number. Find the answer that applies to you and type in the corresponding number.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
</table>
| 1. What is your major? | 1= Engineering  
                       | 2= Math  
                       | 3= Psychology  
                       | 4= Biology  
                       | 5= Information Technology  
                       | 6= Business  
                       | 7= Other  |
| 2. What is your gender? | 1= Male  
                       | 2= Female  |
| 3. What year were you born? |   |
| 4. What month were you born? |   |
| 5. How many languages do you speak fluently? |   |
| 6. Is English your native language? | 1= Yes  
                                            | 2= No  |
| 7. What is your ethnicity? | 1= African American  
                             | 2= Asian American  
                             | 3= Caucasian (White)  
                             | 4= Hispanic  
                             | 5= Middle Eastern  
                             | 6= Native American  
                             | 7= Other  |
| 8. Currently, what is your highest level of education? | 1= GED  
                                                        | 2= High School Diploma  
                                                        | 3= Some college  
                                                        | 4= Bachelor’s Degree  
                                                        | 5= Some graduate work  
                                                        | 6= Master’s Degree  
                                                        | 7= Doctoral Degree  |
| 9. In what country were you born and raised? |   |
APPENDIX E

INFORMED CONSENT

You are invited to participate in a study on epistemological beliefs and diverse situations. As educational psychologists, we conduct research that may provide insight and that may further explain the different ways people understand others. You were randomly selected as a possible participant in this study.

If you decide to participate, you will be asked to complete three (3) surveys that will take approximately a total of 15-20 minutes. One of the surveys inquires about the type of process that an individual makes use of when trying to obtain, reflect on, evaluate, and communicate knowledge. Another contains questions about culture, and the last one will ask some demographic questions. Your responses will always be anonymous and confidential. Through your responses you will help us understand how students obtain and evaluate knowledge with a diverse group of people.

We do not anticipate that you will experience any risk if you decide to take part of this study. Careful consideration to always separate personal identifying information (e.g., name, institution) from the data once we have linked the surveys together will always be our priority. In other words, all of your information will remain completely confidential and anonymous. Participation in this study is entirely voluntary. Your decision whether or not to participate will not affect your future relations with your institution. If you decide to participate, you may withdraw from the study at any time without affecting your status as a student.

If you have any questions about this research, please ask us. If you have additional questions during the study, we will be glad to answer them. You can contact us, Marlene Schommer-Aikins or Stephanie Bustamante at Wichita State University, Wichita, KS (316) 978-3326. If you have questions pertaining to your rights as a research subject, or about research-related injury, you can contact the Office of Research Administration at Wichita State University, Wichita, KS 67260 - 0007, telephone (316) 978-3285.

You will be offered a copy of this consent form to keep. You are making a decision whether or not to participate. Your signature indicates that you have read the information provided above and have voluntarily decided to participate.

________________________________________________  _____________________
Signature of Research Participant                 Date

________________________________________________   _________________________
Signature of Investigator         (Marlene Schommer-Aikins)              Date

________________________________________________   _________________________
Signature of Investigator    (Stephanie Bustamante Vasquez)              Date
APPENDIX F

Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>SD</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education Level</td>
<td>2</td>
<td>7</td>
<td>3.56</td>
<td>.99</td>
<td>1.10</td>
</tr>
<tr>
<td>Age</td>
<td>18</td>
<td>58</td>
<td>26.08</td>
<td>7.82</td>
<td>1.79</td>
</tr>
<tr>
<td>CK Score</td>
<td>23</td>
<td>60</td>
<td>45.08</td>
<td>6.87</td>
<td>-.41</td>
</tr>
<tr>
<td>SK Score</td>
<td>18</td>
<td>58</td>
<td>38.72</td>
<td>6.71</td>
<td>.14</td>
</tr>
<tr>
<td>Value/Appreciation</td>
<td>16</td>
<td>60</td>
<td>44.17</td>
<td>7.86</td>
<td>-.59</td>
</tr>
<tr>
<td>Learning/Knowledge</td>
<td>27</td>
<td>48</td>
<td>38.84</td>
<td>4.40</td>
<td>-.16</td>
</tr>
<tr>
<td>Intercultural Interaction</td>
<td>10</td>
<td>36</td>
<td>25.70</td>
<td>4.75</td>
<td>-.38</td>
</tr>
<tr>
<td>Social Justice</td>
<td>8</td>
<td>24</td>
<td>18.79</td>
<td>3.27</td>
<td>-.48</td>
</tr>
<tr>
<td>Discipline Practice</td>
<td>10</td>
<td>36</td>
<td>29</td>
<td>4.37</td>
<td>-.79</td>
</tr>
</tbody>
</table>
APPENDIX G

Internal Reliability for ATTLS and MUDAS

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Cronbach’s alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connected Knowing</td>
<td>.80</td>
</tr>
<tr>
<td>Separate Knowing</td>
<td>.72</td>
</tr>
<tr>
<td>Value/ Appreciation</td>
<td>.81</td>
</tr>
<tr>
<td>Learning/ Knowledge</td>
<td>.52</td>
</tr>
<tr>
<td>Intercultural Interaction</td>
<td>.67</td>
</tr>
<tr>
<td>Social Justice</td>
<td>.56</td>
</tr>
<tr>
<td>Discipline Practice</td>
<td>.69</td>
</tr>
</tbody>
</table>
### APPENDIX H

**Zero-Order Correlations between CK, SK, and MUDAS**

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. CK Score</td>
<td>___</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. SK Score</td>
<td>.31**</td>
<td>___</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Value/ Appreciation</td>
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<td>.17*</td>
<td>___</td>
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<td>.44**</td>
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<td>5. Intercultural/ Interaction</td>
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<td>.36**</td>
<td>.72**</td>
<td>.57**</td>
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<td>.58**</td>
<td>.47**</td>
<td>.67**</td>
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<tr>
<td>7. Discipline Practice</td>
<td>.38**</td>
<td>.03</td>
<td>.65**</td>
<td>.38**</td>
<td>.49**</td>
<td>.37**</td>
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</tbody>
</table>

**Correlation is significant at the .01 level.**

*Correlation is significant at the .05 level.
## APPENDIX I

Summary of Significant Regression Analyses: CK, SK, Gender, Age, and Ethnic Status as Predictors of MUDAS Subsets

<table>
<thead>
<tr>
<th>Criterion variable</th>
<th>Predictor variable</th>
<th>$F$ change</th>
<th>$b$ weight</th>
<th>$R^2$ change</th>
<th>Sig.</th>
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<td>Gender</td>
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<td>2.07</td>
<td>.02</td>
<td>.05</td>
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<td>43.41</td>
<td>.28</td>
<td>.19</td>
<td>.001</td>
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<td>.04</td>
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