# DEVELOPMENT OF THE KSIAZAK ADULT GIFTEDNESS SCALE

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TRACY M. KSIAZAK

DISSERTATION ADVISOR: DR. KRISTIN PERRONE

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TABLE OF CONTENTS


ACKNOWLEDGEMENTS ii
LIST OF TABLES v
LIST OF FIGURES vi
CHAPTER ONE – Introduction 1
Statement of the Study 10
Hypotheses 11
CHAPTER TWO - Literature Review 13
Renzulli's Three-Ring Conception of Giftedness 14
Dabrowski's Theory of Overexcitabilities 15
Existing Measures of Giftedness 21
Scale for Rating Behavioral Characteristics of Superior Students-Revised (SRBCSS-R) 21
Gifted Evaluation Scale-2nd Edition (GES-2) 22
Gifted and Talented Evaluation Scales (GATES) 23
Scale for Identifying Gifted Students (SIGS) 24
Silverman's Adult Giftedness Scale 26
Conclusions and Implications 27
CHAPTER THREE - Method 29
Research Questions 29
Hypotheses 31
Study 1 32
Participants 32
Procedures 33
Measures 33
Ksiazak Adult Giftedness Scale 33
Silverman's Adult Giftedness Scale 34
Satisfaction with Life Scale 35
Data Analyses 36
Study 2 38
Participants 38
Procedures 39
Measures 39
Ksiazak Adult Giftedness Scale 39
Multigroup Ethnic Identity Measure 40
Scale of Creative Attributes and Behaviors 41
CHAPTER FOUR - Results 42
Study 1 Data Analyses and Results 42
Study 2 Data Analyses and Results 43
Internal Consistency and Scale Reliability 46
CHAPTER FIVE – Discussion 61
Summary of Major Findings 61
Theoretical Implications 62
Implications for Practice 66
Limitations 70

Directions for Future Research 71
References 74
Appendix A: Ksiazak Adult Giftedness Scale 80
Appendix B: Scale of Creative Attributes and Behaviors 82
Appendix C: Multigroup Ethnic Identity Measure 84

LIST OF TABLES

Table 1: *Scree Plot for Principal Components Analysis With a One-Factor Solution* 45
Table 2: *Means and Standard Deviations for KAGS Items in Initial Principal Components Analysis* 47
Table 3: *Principal Components Analysis 1 for the KAGS* 49
Table 4: *Components Matrix for Principal Components Analysis 1* 50
Table 5: *Cronbach's Alpha Coefficients If Items Deleted* 52
Table 6: *Principal Components Analysis for the KAGS With a One-Factor Solution* 54
Table 7: *Components Matrix for Principal Components Analysis with a One-Factor Solution* 55
Table 8: *Principal Components Analysis for the KAGS With a Two-Factor Solution* 58
Table 9: *Components Matrix for Principal Components Analysis with a Two-Factor Solution* 59
Table 10: *Rotated Components Matrix for Principal Components Analysis with a Two-Factor Solution and Direct Oblimin Rotation* 60

LIST OF FIGURES

*Figure 1.* Scree Plot for Initial Principal Components Analysis 51
*Figure 2.* Scree Plot for Principal Components Analysis with a One-Factor Solution 56

# CHAPTER 1 – Introduction

Nearly a century of research into the lives of gifted individuals has shown that gifted people may face unique challenges as a result of their giftedness. For example, studies have found that gifted individuals are more likely to be perfectionists than members of the general population, are likely to be perceived by others as emotionally intense (Lewis & Kitano, 1992), and are likely to have difficulty in making career decisions due to having multiple talent areas (Kerr & Claiborn, 1991). Many psychologists have suggested that gifted people would benefit from specialized counseling and educational services to deal with these issues. There currently exist a variety of means – IQ tests, achievement tests, and behavior checklists – for identifying gifted children in order to provide them with such services. However, while instruments such as the Scales for Rating the Behavioral Characteristics of Superior Students – Revised Edition (SRBCSS-R, Renzulli, Smith, White, Callahan, Hartman, & Westberg, 2002) measure gifted behaviors in children, no such instrument exists to measure characteristics associated with giftedness in adults. Only one scale for adult giftedness, Silverman's (1997) Adult Giftedness Scale, has been located by the author, and Silverman did not collect any psychometric information on her scale. The only psychometric data that exists is from a recent study, which reports the scale's Cronbach's alpha reliability as .88 in a sample of identified gifted adults. The same study also found

that Silverman's Adult Giftedness Scale was moderately positively correlated with the Adult Self Perception Survey (Messer & Harter, 1986; $r = .23$, $p = .05$), which measures perceptions of abilities (Perrone, Perrone, Ksiazak, Wright, & Jackson, 2007).

The lack of a valid and reliable published measure of adult gifted characteristics is perplexing given that gifted children typically grow up to become gifted adults. In some situations, such as work, counseling, and postsecondary education, identifying giftedness may be the first step in helping gifted adults to be more satisfied and productive. For example, therapists may be able to use information from a measure of adult gifted characteristics to tailor treatment interventions in order to achieve maximum benefit for their gifted adult clients. Neihart (1999) conducted a review of the research literature on psychological health of gifted individuals and found that, overall, gifted children, adolescents, and adults have average or better than average adjustment in comparison to the general population. Additionally, she noted that the rates of depression, anxiety, and suicide for gifted individuals are comparable to the occurrence of these problems in the general population. However, Neihart and others (Jacobsen, 1999; Kerr & Claiborn, 1991; Lewis & Kitano, 1992; Lovecky, 1986; Rocamora, 1992; Tolan, 1994; Willings, 1985) argued that gifted individuals may have specific mental health concerns and difficulties related to the interaction of their giftedness and their environments.

Neihart (1999) proposed that the mental health of a gifted person of any age is influenced by the interaction of his or her type and degree of giftedness, personality characteristics, and educational or environmental fit or lack thereof. On the basis of their

clinical work with gifted adult clients, Jacobsen (1999) and Lovecky (1986) stated that gifted adults who find themselves in social environments that do not support their traits of giftedness, such as asynchronous development (significant variation in levels of emotional, intellectual, physical, social, and language development) and divergent thinking, have an increased risk of depression, social isolation, unsuccessful relationships, low self-esteem, and other problems. Rocamora (1992) also highlighted the notion that gifted adults who have previously not been identified as gifted may feel alienated from others or believe that there is something "wrong" with them. In such cases, accurate identification of giftedness by a therapist can be the first step in helping the gifted adult to develop greater self-understanding, greater self-acceptance, and a more authentic lifestyle. Additionally, Kerr and Claiborn (1991) stated that gifted adults often have many unique career concerns related to their giftedness. For gifted adults, one's career is a major facet of one's identity. Adults who are gifted often deal with the issue of multipotentiality, or having significant talents in many areas, and have difficulty finding a career that allows them to express all of these talents. Gifted adults may also lose confidence or become depressed if they are underemployed, working in unfulfilling jobs that do not allow them to use their talents. Gifted adults can also become depressed or lose confidence if their work is repetitive, does not offer opportunities for creativity, or seems meaningless.

A final area in which the interaction of gifted adults' giftedness and environments may result in problems is relationships. Gifted adults who are perfectionists may find that relationships do not live up to their ideals or drive away potential romantic partners (Kerr & Claiborn, 1991). Lovecky (1986) noted that gifted adults' sensitivity may overwhelm

prospective partners and that gifted adults may have difficulty forming mutually nurturing relationships. Willings (1985) stated that gifted individuals of all ages may struggle with taking an inordinate amount of responsibility for the happiness of others, especially their parents. They may have learned a pattern of this responsibility because parents often put a great deal of pressure on gifted children's achievements from an early age, and gifted individuals also often feel a significant general innate sense of responsibility. Other gifted adults may experience isolation because others do not understand their divergent thinking and other unusual personality traits (Jacobsen, 1999; Lovecky, 1986).

If therapists could easily identify giftedness in adult clients who may present with these concerns, they could help adult gifted clients to better understand and accept themselves, in addition to more accurately conceptualizing and providing interventions specifically tailored to meet the needs of gifted individuals. Clients who are accurately identified as gifted may be able to make meaning of their experiences and struggles through this identification, as well as to develop more positive views of themselves. Additionally, once a therapist has identified an adult client as gifted, the therapist can draw from one of several models of counseling gifted individuals that have been proposed on the basis of successful clinical experiences (Mendaglio & Peterson, 2007) to more fully meet the client's needs.

Both counselors who work with adults who may be gifted and researchers who study the psychological characteristics of gifted adults would benefit from the existence of a measure for adult giftedness. Currently, the only available means for identifying adult giftedness are IQ tests, which are time-consuming and costly. Silverman's (1997)

Adult Giftedness Scale shows promise for the identification of gifted adults, but lacks a theoretical foundation, has only received empirical support from one study, and was not designed for use in research. In contrast, there exist four commonly used rating scales for gifted behaviors in children: the Gifted and Talented Evaluation Scales (GATES; Gilliam, Carpenter, & Christensen, 1996), the Gifted Evaluation Scales-2nd Edition (GES-2; McCarney & Anderson, 1988), the Scales for Identifying Gifted Students (SIGS; Ryser & McConnell, 2004), and the Scales for Rating Behavioral Characteristics of Superior Students-Revised (SRBCSS-R; Renzulli, Smith, White, Callahan, Hartman, & Westberg, 2002). Although each scale's development was informed by a slightly different definition of giftedness, these four scales have in common the inclusion of an intellectual ability or learning factor. Generally, theorists on the nature of giftedness have agreed that intellectual ability is a major component of this phenomenon.

One of the most well-known theories of giftedness was proposed by Joseph Renzulli (1986). Renzulli asserted that for giftedness to be present, three attributes must interact. A gifted individual, according to his definition, is one who possesses: (1) above-average ability; (2) task commitment, and (3) creativity. Renzulli described persons with above-average ability as those who have either general intellectual abilities that are within the top 15-20% of the population or high abilities in specific academic subjects such as language, math, or science. Renzulli's second factor, task commitment, includes characteristics such as persistence, extraordinary motivation and striving in a particular area of interest, and allocation of a great deal of one's time to projects in one's area of interest. Renzulli conceptualized his third factor, creativity, as original thinking, divergency, and ability to develop novel and effective solutions to problems.

However, some potential problems exist with Renzulli's (1986) three-ring definition of giftedness. First, Renzulli's definition excludes gifted underachievers, who may not display the task commitment factor of giftedness. Second, some gifted individuals may not display the construct of creativity if they have been raised and educated in environments in which divergency was punished. For these reasons, Renzulli's definition is problematic in that it may fail to identify individuals who are gifted and could benefit from special services, such as educational and counseling interventions.

Renzulli, Smith, White, Callahan, Hartman, and Westberg (2002) developed the Scales for Rating Behavioral Characteristics of Superior Students-Revised (SRBCSS-R) on the basis of this three-ring conception of giftedness. The SRBCSS-R has 13 subscales, the first three of which – Learning, Motivation, and Creativity – were designed to measure characteristics general intellectual ability, task commitment, and creativity respectively. The remaining ten subscales measure characteristics of above-average ability in 10 specific areas: Leadership, Art, Music, Dramatics, Planning, Communication, Mathematics, Reading, Science, and Technology. The SRBCSS-R is frequently used by school systems as a part of comprehensive identification procedures for gifted children. Its psychometric properties will be discussed in greater detail in Chapter 2 of this dissertation.

Another well-known definition of giftedness comes from the work of Kazimierz Dabrowski (1964; 1972; Dabrowski & Piechowski, 1977), a Polish psychologist and psychiatrist who developed the Theory of Positive Disintegration, a personality theory in which individuals achieve higher levels of personal development through the experience

of conflicts and neuroses. This theory was inspired by Dabrowski's own therapeutic work with gifted children and adults, a population whom he found to be characterized by "overexcitabilities" or heightened abilities to respond to stimuli, which are expressed through high levels of intensity, sensitivity, and awareness. Dabrowski (1972, p. 303) defined overexcitability as "higher than average responsiveness to stimuli, manifested either by psychomotor, sensual, emotional (affective), imaginational, or intellectual ability, or the combination thereof" (Dabrowski, 1972, p. 303). Individuals who possess one or more of these overexcitabilities, Dabrowski argued, experience life in a qualitatively different manner from those who do not.

Dabrowski identified five types of overexcitability: intellectual, emotional, imaginational, sensual, and psychomotor (Dabrowski & Piechowski, 1977). In his own research with gifted individuals of all ages, Dabrowski found all of these overexcitabilities to be present in the population. Intellectual overexcitability is characterized by a motivation to learn for the sake of learning, cognitive processes of analysis and synthesis, and a strong desire to understand (Dabrowski & Piechowski, 1977). People who have this overexcitability are curious, have advanced problem-solving abilities, enjoy theoretical and philosophical discussions, and care deeply about moral and ethical issues (Lind, 2001). They strive for understanding, ask probing questions, search for the truth, and think quickly (Tucker & Hafenstein, 1997). Individuals with emotional overexcitability are frequently described by others as intense. They form strong attachments, experience extreme emotions, and have profound empathy for others (Dabrowski & Piechowski, 1977; Lind, 2001). Imaginational overexcitability is characterized by thinking that involves a great deal of imagery, elaborate daydreaming,

creativity, and the use of metaphors in speaking (Dabrowski & Piechowski, 1977). Individuals who possess imaginational overexcitability may be nonconformists, develop unusual solutions for problems, enjoy fiction or fantasy stories, and have a highly visual imagination (Piechowski & Colangelo, 1984). Individuals with sensual overexcitability experience their five senses intensely. They tend to have a high aesthetic sensitivity and may find themselves intensely moved by beauty in art, music, or nature (Dabrowski & Piechowski, 1977). Finally, psychomotor overexcitability is characterized by intense physical energy or nervousness (Tucker & Hafenstein, 1997). People with this overexcitability may find it important to be active, may need less sleep than others do to function at their best, may talk rapidly or frequently, or may always need to be moving in some way (Dabrowski & Piechowski, 1977).

Dabrowski's (1972) own research on the Theory of Positive Disintegration used a population of gifted adults and children in Poland, who possessed overexcitabilities in addition to special abilities and talents. Many other researchers and theorists (Lind, 2001; Silverman, 1994; Tolan, 1994) have suggested a link between overexcitabilities and giftedness, and the majority of research on overexcitabilities to date has focused on whether these traits are related, and if so, which overexcitabilities are most strongly linked to giftedness. Studies of overexcitabilities and giftedness have made use of instruments designed to measure overexcitabilities, including the Overexcitabilities Questionnaire-I (OEQ-I, Lysy & Piechowski, 1983), the Overexcitabilities Questionnaire-II (OEQ-II, Falk, Lind, Miller, Piechowski, & Silverman, 1999), the Overexcitabilities Questionnaire Interview (OEQ-Interview, Piechowski & Miller, 1995), and the ElemOE (Bouchard, 2004). In six studies comparing the overexcitability levels

of gifted and non-gifted individuals, gifted individuals displayed significantly more intellectual overexcitability than non-gifted individuals (Ackerman & Paulus, 1997; Bouchet & Falk, 2001; Gallagher, 1986; Piechowski & Colangelo, 1984; Tieso, 2007; Yakmaci-Guzel & Akarsu, 2006). This relationship appears to be quite strong, as it appeared in studies using six different operational definitions of giftedness. However, none of Dabrowski's other overexcitabilities were found to be consistently related to giftedness. A more in-depth review of this line of research will be presented in Chapter 2 of this proposal. The results of these studies of overexcitabilities and giftedness suggest that intellectual overexcitability is a constellation of characteristics found in gifted individuals, who may display some other overexcitabilities but are not always destined to do so.

Thus, it appears that Dabrowski's definition of gifted individuals as those who possess five types of overexcitability is not viable. A relationship between emotional, imaginational, sensual, and psychomotor overexcitabilities and giftedness is not consistently supported in the research literature. However, gifted individuals of varying ages do appear to consistently show intellectual overexcitability. Thus, they possess a piece of Dabrowski's definition of giftedness, just as it appears that gifted individuals consistently possess the above-average ability piece of Renzulli's definition of giftedness. Renzulli's model is also flawed because gifted individuals who underachieve may not show task commitment, and those who were raised to conform may not show creativity.

It appears that both intellectual overexcitability and above-average ability are major components of giftedness. Additionally, studies of the validity and reliability of behavioral measures of giftedness in children suggest that these constructs can be

measured through rating scales. This author proposes that a valid measure of gifted characteristics for the adult population should include items that measure both intellectual overexcitability and above-average ability, as these factors are consistent hallmarks of giftedness in children.

## Statement of the Study

The present study explored the phenomenon of adult giftedness. The aim of the present investigation is to develop a measure of adult gifted characteristics. This measure will be based upon the notions of intellectual overexcitability as described by Dabrowski (1964; 1972; Dabrowski & Piechowski, 1977) and above-average ability as described by Renzulli (1986). The creation of the Ksiazak Adult Giftedness Scale will be useful in both counseling applications and future research on gifted adults. Mental health professionals could use a measure of adult gifted characteristics as a way to test hypotheses regarding client giftedness, determine the extent of a client's giftedness, and discuss previously unidentified giftedness and its implications with clients. Future researchers could use a measure of adult gifted characteristics to identify samples of gifted adults, to explore differences in various subgroups of gifted adults, and to determine whether other characteristics are related to giftedness in adults.

This dissertation involved two separate studies. The first study investigated the construct validity of the Ksiazak Adult Giftedness Scale in a sample of adults identified as gifted. Cronbach's alpha reliability analysis and one year test-retest reliability analysis was performed. The second and main study further developed the Ksiazak Adult Giftedness Scale by conducting an exploratory factor analysis of undergraduate honors college students' responses to the scale's items. Construct validity was investigated, and

Cronbach's alpha reliability analysis was performed. Together, these studies addressed three research questions:

1. Can a reliable measure of characteristics of adult giftedness be developed?
2. Can a valid measure of characteristics of adult giftedness be developed?
3. What is the factor structure of a measure of characteristics of adult giftedness?

## Hypotheses

This investigation examined the following hypotheses:

1. **A reliable measure of characteristics of adult giftedness can be developed.** An attempt was made to demonstrate internal reliability on the factors emerging from the Ksiazak Adult Giftedness Scale.
2. **A valid measure of characteristics of adult giftedness can be developed through factor analysis and analysis of construct validity.** Through the use of factor analysis, the internal construct validity of the Ksiazak Adult Giftedness Scale can be evaluated. Regarding analysis of construct validity, the author expected that the Ksiazak Adult Giftedness Scale would have strong positive correlations with Silverman's (1997) Adult Giftedness Scale, and undergraduate honors college students' grade point averages. It was also expected that that Ksiazak Adult Giftedness Scale would have a moderate positive correlation with the Scale of Creative Attributes and Behaviors (Kelly, 2004), a self-report measure of creative characteristics. These analyses were designed to determine the convergent validity of the Ksiazak Adult Giftedness Scale. It was also expected that the Ksiazak

Adult Giftedness Scale would have low positive correlations with the Satisfaction With Life Scale (Diener, Emmons, Larsen, & Griffin, 1985) and the Multigroup Ethnic Identity Measure (Phinney, 1992), demonstrating divergent validity through comparison with two scales that measure constructs that are theoretically unrelated to adult giftedness.

3. **A measure of characteristics of adult giftedness will have two factors: one factor that measures above-average ability and one factor that measures intellectual overexcitability.** It was expected that exploratory factor analysis of responses to the Ksiazak Adult Giftedness Scale would reveal a two-factor structure. It was further expected that the items that load on the first factor would reflect traits of above-average ability, and that the items that load on the second factor would reflect traits of intellectual overexcitability.

# CHAPTER 2 – Literature Review

Many different definitions of giftedness currently exist, and a theme of these definitions is that they tend to focus on characteristics or achievements that are most evident in childhood. Several measures of gifted characteristics in children have been developed on the basis of these various definitions; however, no valid and reliable measure of adult gifted characteristics currently exists. Such an instrument would be useful to counselors who wish to test hypotheses related to client giftedness and to researchers investigating adult giftedness. This literature review will first address two well-known theories of giftedness, Renzulli's (1986) Three Ring Conception of Giftedness and Dabrowski's (1964; 1972; Dabrowski & Piechowski, 1977) definition of giftedness as marked by possession of five types of overexcitabilities. These theories and related research studies will be described, and the author will recommend a new definition of adult giftedness. Then, existing measures of gifted characteristics in children and one measure of adult giftedness that lacks validation studies will be reviewed. Finally, the author will propose the development of a new measure of adult gifted characteristics that incorporates factors based upon Dabrowski's (1964; 1972; Dabrowski & Piechowski, 1977) factor of intellectual overexcitability and Renzulli's (1986) factor of above-average ability.

## Renzulli's Three Ring Conception of Giftedness

Renzulli (1986) developed one of the most well-accepted definitions of giftedness, the Three Ring Conception of Giftedness. According to Renzulli, gifted individuals are those who display three interacting traits: above-average ability, task commitment, and creativity. By this definition, all three attributes must interact for giftedness to be present. A gifted individual, according to Renzulli, is one who possesses and displays above-average ability, task commitment, and creativity. Renzulli described persons with above-average ability as those who have either general intellectual abilities that are within the top 15-20% of the population or high abilities in specific academic subjects such as language, math, or science. Renzulli (1998) described general abilities as "… the capacity to process information, to integrate experiences that result in appropriate and adaptive responses in new situations, and the capacity to engage in abstract thinking." He stated that specific abilities "consist of the capacity to acquire knowledge, skill, or the ability to perform in one or more activities of a specialized kind and within a restricted range". Renzulli's (1986) second factor, task commitment, includes characteristics such as persistence, extraordinary motivation and striving in a particular area of interest, and allocation of a great deal of one's time to projects in one's area of interest. Renzulli conceptualized his third factor, creativity, as original thinking, divergency, and ability to develop novel and effective solutions to problems.

However, two potential problems exist with Renzulli's (1986) three-ring conception of giftedness. First, Renzulli's definition excludes gifted underachievers, who may not display the task commitment factor of giftedness. Second, some gifted

individuals may not display the construct of creativity if they have been raised and educated in environments in which divergency was punished. For these reasons, Renzulli's definition is problematic in that it may fail to identify individuals who are gifted and could benefit from special services, such as educational and counseling interventions.

Despite these problems, Renzulli's (1986) factor of above-average ability is widely accepted and is a component of the majority of state, federal, and school district definitions of giftedness. This factor can be viewed as incorporating high IQ definitions of giftedness, as well as definitions that focus on achievement test scores.

## Dabrowski's Theory of Overexcitabilities

Polish psychologist and psychiatrist Kazimierz Dabrowski (1964; 1972; Dabrowski & Piechowski, 1977) developed the Theory of Positive Disintegration, a personality theory in which individuals achieve higher levels of personal development through the experience of conflicts and neuroses. This theory was inspired by Dabrowski's own therapeutic work with gifted children and adults. Dabrowski believed that in order to reach the highest possible levels of personal development, people must experience a variety of developmental conflicts (Dabrowski, 1972). According to Dabrowski, gifted individuals have greater potential for personality development because they possess overexcitabilities, or heightened abilities to respond to stimuli, which are expressed through high levels of intensity, sensitivity, and awareness (Dabrowski, 1964, 1972; Dabrowski & Piechowski, 1977). He defined overexcitability as "higher than average responsiveness to stimuli, manifested either by psychomotor, sensual, emotional

(affective), imaginational, or intellectual ability, or the combination thereof" (Dabrowski, 1972, p. 303).

Individuals who possess one or more of these overexcitabilities, Dabrowski (1964; 1972; Dabrowski & Piechowski, 1977) argued, experience life in a qualitatively different manner from those who do not. This qualitatively different way of experiencing the world can bring both great joy and great difficulty to the lives of those who possess it, and Dabrowski believed that overexcitabilities contribute to individuals' experiences of neuroses and conflicts, which propel them to further personal development. Dabrowski identified five types of overexcitability: intellectual, emotional, imaginational, sensual, and psychomotor (Dabrowski & Piechowski, 1977). Overexcitabilities may be manifested through such traits as profound empathy, high aesthetic sensitivity, persistence, creativity, a love of learning, a sense of the universal, intuition, high levels of energy, and a need for meaning or purpose in one's life. In his research with intellectually and creatively gifted children, adolescents, and adults, Dabrowski (1964; 1972; Dabrowski & Piechowski, 1977) found that gifted people possessed all five types of overexcitability to a greater degree than did members of the general population. In the following paragraphs, each of the five overexcitabilities will be described in greater detail.

Intellectual overexcitability is characterized by a motivation to learn for the sake of learning, cognitive processes of analysis and synthesis, and a strong desire to understand (Dabrowski & Piechowski, 1977). People who have this overexcitability are curious, have advanced problem-solving abilities, enjoy theoretical and philosophical discussions, and care deeply about moral and ethical issues (Lind, 2001). They strive for

understanding, ask probing questions, search for the truth, and think quickly (Tucker & Hafenstein, 1997).

Individuals with emotional overexcitability are frequently described by others as intense. They form strong attachments, experience extreme emotions, and have profound empathy for others (Dabrowski & Piechowski, 1977; Lind, 2001). They may also be highly self-aware and sensitive to the feelings of others. People with emotional overexcitability may also experience somatic expressions of intense emotions, have a strong affective memory, be concerned about existential issues, and be predisposed to depression and anxiety (Tucker & Hafenstein, 1997). Silverman (1994) argued that traits of individuals with emotional overexcitability are desirable and will motivate those individuals to work toward positive social changes.

Imaginational overexcitability is characterized by thinking that involves a great deal of imagery, elaborate daydreaming, creativity, and the use of metaphors in speaking (Dabrowski & Piechowski, 1977). Individuals who possess imaginational overexcitability may be nonconformists, develop unusual solutions for problems, enjoy fiction or fantasy stories, and have a highly visual imagination (Piechowski & Colangelo, 1984). They may often become bored doing routine tasks and engage in daydreaming if they are not able to use their creativity at work or school.

Individuals with sensual overexcitability experience their five senses intensely. They tend to have a high aesthetic sensitivity and may find themselves intensely moved by beauty in art, music, or nature (Dabrowski & Piechowski, 1977). They may forget about the world around them when listening to music or viewing a favorite piece of art. They may also become so distracted by environmental stimuli such as noise, harsh light,

or odors that they are unable to focus on a task at hand. Individuals with sensual overexcitability are also likely to seek sensual outlets for their emotions and inner tension (Tucker & Hafenstein, 1997).

Finally, psychomotor overexcitability is characterized by intense physical energy or nervousness (Tucker & Hafenstein, 1997). People with this overexcitability may find it important to be active, may need less sleep than others do to function at their best, may talk rapidly or frequently, or may always need to be moving in some way (Dabrowski & Piechowski, 1977). Individuals with psychomotor overexcitability may be experienced as exhausting by others who do not share their energy level.

Dabrowski's (1972) own research on the Theory of Positive Disintegration used a population of gifted adults and children in Poland, who possessed overexcitabilities in all five areas in addition to special abilities and talents. Many other researchers and theorists (Lind, 2001; Silverman, 1994; Tolan, 1994) have suggested a link between overexcitabilities and giftedness, and the majority of research on overexcitabilities to date has focused on whether these traits are related, and if so, which overexcitabilities are most strongly linked to giftedness. To date, six studies beyond Dabrowski's own work have investigated whether gifted individuals possess overexcitabilities to a greater degree than do non-gifted individuals. Dabrowski (1972) used a highly comprehensive procedure to assess for the presence and degree of overexcitabilities using case studies, interviews, physical examinations, a questionnaire to assess for the presence of neurotic traits and behaviors, the Thematic Apperception Test, the Rorschach Test, and the Wechsler-Bellevue Intelligence Test. No other researchers have used such extensive overexcitability assessment procedures. Instead, researchers have developed four

measures of overexcitabilities that are more quickly administered and scored. These measures include the Overexcitabilities Questionnaire-I (OEQ-I, Lysy & Piechowski, 1983), the Overexcitabilities Questionnaire-II (OEQ-II, Falk, Lind, Miller, Piechowski, & Silverman, 1999), the Overexcitabilities Questionnaire Interview (OEQ-Interview, Piechowski & Miller, 1995), and the ElemOE (Bouchard, 2004).

A review of research using these instruments to determine whether gifted individuals possess the five types of overexcitability to a greater degree than do non-gifted individuals found that in all of six studies, gifted individuals displayed significantly more intellectual overexcitability than non-gifted individuals (Ackerman & Paulus, 1997; Bouchet & Falk, 2001; Gallagher, 1986; Piechowski & Colangelo, 1984; Tieso, 2007; Yakmaci-Guzel & Akarsu, 2006). This finding occurred consistently, even when individuals of different ages were tested and all four measures of overexcitabilities were used. Additionally, this relationship appears to be quite strong because it appeared in studies that used six different operational definitions of giftedness to select the gifted sample (some studies explored overexcitabilities in creatively gifted artists while others explored overexcitabilities in children of school age who met various criteria for admission to gifted programs, such as IQ scores greater than or equal to 125). However, none of Dabrowski's other overexcitabilities were found to be consistently related to giftedness. Both emotional overexcitability (Ackerman & Paulus, 1997; Bouchet & Falk, 2001; Gallagher, 1986; Piechowski & Colangelo, 1984) and imaginational overexcitability (Gallagher, 1986; Piechowski & Colangelo, 1984; Tieso, 2007; Yakmaci-Guzel & Akarsu, 2006) levels were higher in gifted than non-gifted individuals in four of six studies. Only one study (Ackerman & Paulus, 1997) supported Dabrowski's

hypothesized relationship between psychomotor overexcitability and giftedness, and no studies found sensual overexcitability to be related to giftedness. The results of these studies of overexcitabilities and giftedness suggest that intellectual overexcitability is a constellation of characteristics found in gifted individuals, who may display some other overexcitabilities but do not always do so.

Thus, it appears that Dabrowski's definition of gifted individuals as those who possess all five types of overexcitability is not viable. A relationship between emotional, imaginational, sensual, and psychomotor overexcitabilities and giftedness is not consistently supported in the research literature. However, gifted individuals of varying ages do appear to consistently show intellectual overexcitability. Thus, they possess a piece of Dabrowski's definition of giftedness, just as it appears that gifted individuals consistently possess the above-average ability piece of Renzulli's definition of giftedness. Renzulli's model is also flawed because gifted individuals who underachieve may not show task commitment, and those who were raised to conform may not show creativity. Therefore, the present author proposes that gifted adults are those who possess both intellectual overexcitability and above-average ability.

It appears that both intellectual overexcitability and above-average ability are major components of giftedness. Additionally, studies of the validity and reliability of behavioral measures of giftedness in children suggest that these constructs can be measured through rating scales. This author proposes that a valid measure of gifted characteristics for the adult population should include items that measure both intellectual overexcitability and above-average ability, as these factors are consistent hallmarks of giftedness in children.

## Existing Measures of Giftedness

### *Scales for Rating Behavioral Characteristics of Superior Students-Revised (SRBCSS-R)*

Renzulli, Smith, White, Callahan, Hartman, and Westberg (2002) developed the Scales for Rating Behavioral Characteristics of Superior Students-Revised (SRBCSS-R) on the basis of Renzulli's (1986) three-ring conception of giftedness. The SRBCSS-R has 13 subscales, the first three of which – Learning, Motivation, and Creativity – were designed to measure characteristics general intellectual ability, task commitment, and creativity respectively. The remaining ten subscales measure characteristics of above-average ability in 10 specific areas: Leadership, Art, Music, Dramatics, Planning, Communication, Mathematics, Reading, Science, and Technology. The SRBCSS-R is frequently used by school systems as a part of comprehensive identification procedures for gifted children.

Using the SRBCSS-R, teachers rate students' behaviors on a seven-point Likert-type scale ranging from 1=Never to 7=Always. Some example items are "The student demonstrates the ability to deal with abstractions" and "The student demonstrates imaginative thinking ability." Teachers can select specific subscales to examine students' abilities in specific areas. Renzulli et al. (2002) examined construct validity of the SRBCSS-R by examining correlations between the SRBCSS-R and student grade point averages, scores on the Wechsler Intelligence Scale for Children-III, and current gifted program participation. The various subscales of the SRBCSS-R were found to have positive correlations with all of those measures. Additionally, Renzulli et al. found that each of the 13 subscales of the SRBCSS-R had Cronbach's alpha internal consistency reliability coefficients greater than or equal to .74. The SRBCSS-R was normed on a

sample of over 2,000 children ages 5 through18 years and is intended for use by parents and teachers to rate the abilities of children ages 5 through 18.

One of the greatest strengths of the SRBCSS-R (Renzulli et al., 2002) is its provision of subscales to measure such a wide range of general and specific abilities. Additional strengths of this instrument include good evidence of convergent validity and ease of administration.

*Gifted Evaluation Scale-2nd Edition (GES-2)*

The Gifted Evaluation Scale-2nd Edition (GES-2, McCarney & Anderson, 1988) is a 48-item scale of giftedness with subscales that measure giftedness in the following areas: Intellectual Ability, Creativity, Specific Academic Aptitude, Leadership Ability, Performing and Visual Arts, and Motivation. This scale was designed to be an "other report" (rather than self-report) scale to be completed by parents or teachers of students who might be gifted. It was standardized on a sample of 1,439 students ages 5-18 years. McCarney and Anderson (1988) found that internal consistency reliability for the total scale was .95. Test-retest reliability correlations for all subscales were greater than .85, and interrater reliability ranged from .69 to .91 for all age levels. McCarney and Anderson established convergent validity through statistical comparison of ratings on the GES-2 and scores on the Gifted And Talented Evaluation Scales (GATES, Gilliam, Carpenter, & Christensen, 1996). All subscales of the GES-2 were significantly correlated with scores on the GATES.

Items on GES-2 (McCarney & Anderson, 1988) use frequency-referenced quantifiers. Each item is rated on a five-point scale from (1) Does not demonstrate the behavior or skill to (5) Demonstrates the behavior or skill at all times/consistently. All

items are positively worded and include specific examples of the behaviors or skills to be measured. For example, one sample item on the Intellectual Ability subscale is "Understands complex concepts and perceives relationships (e.g. understands arithmetic concepts and their relationship to money, understands politics and its relationship to governmental affairs, understands analogies, etc.)". One strength of the GES-2 is its relative ease of administration. According to McCarney and Anderson (1988), the GES-2 takes approximately 20 minutes to complete and can be completed by any adult who knows the student. The items of this scale are clear and relevant to both general and specific ability definitions of giftedness. Overall, the GES-2 is a psychometrically sound and usable measure of gifted characteristics in children.

*Gifted and Talented Evaluation Scales (GATES)*

The Gifted and Talented Evaluation Scales (GATES, Gilliam, Carpenter, & Christensen, 1996) is a 50-item measure of gifted characteristics in children ages 5 to 18 years. This instrument was developed on the basis of federal definitions of giftedness and has five subscales: Intellectual Ability, Academic Skills, Creativity, Leadership, and Artistic Talent. Gilliam, Carpenter, and Christensen (1996) reported that the instrument was normed using 1,083 subjects identified as gifted by their school districts, and that the norming sample was representative of the United States population. Gilliam et al. found that Cronbach's alpha internal consistency reliability for the GATES ranged from .95 to .97 for all subscales. Convergent validity was established through correlation with the Renzulli-Hartman Scale (1978), a precursor to the SRBCSS-R which measures four characteristics of giftedness: Learning, Motivation, Creativity, and Leadership.

Correlations between the GATES subscales and the Renzulli-Hartman Scale subscales ranged from .41 to .84.

Teachers and parents rate students on the GATES (Gilliam, Carpenter, & Christensen, 1996) by using a scale of 1-9, with 1-3 indicating below-average performance, 4-6 indicating average performance, and 7-9 indicating above-average performance. For example, some items are "Learning information and skills quickly with little practice", "Self-directedness", and "Unique and innovative ideas". Raw score, standard score, percentile rank, and probability rating for giftedness data can be calculated from responses to the instrument. The availability of multiple types of score data is a strength of this instrument. Additionally, administration is very quick; Gilliam et al. stated that the scale takes approximately 5-10 minutes to complete.

Like the aforementioned instruments, the GATES appears to be a psychometrically sound and usable measure of gifted characteristics in children. Additionally, this instrument can serve a broad range of purposes, including identification of gifted children, documentation of progress, and measurement of change in research projects such as gifted program evaluations.

*Scales for Identifying Gifted Students (SIGS)*

The Scales for Identifying Gifted Students (SIGS, Ryser & McConnell, 2004) is a norm-referenced rating instrument for measurement of giftedness in children ages 5-18. The SIGS was developed using definitions of giftedness derived from the Improving America's Schools Act of 1994 and the National Excellence: A Case for Developing America's Talent definitions of giftedness. This instrument has two versions, a Home Rating Scale (HRS) and a School Rating Scale (SRS). It includes seven subscales:

General Intellectual Ability, Language Arts, Mathematics, Science, Social Studies, Creativity, and Leadership. Parents and teachers rate students relative to others in their class on a scale of 0 (Never exhibits the behavior in comparison to his or her age peers) to 4 (Exhibits the behavior much more in comparison to his or her age peers). Additionally, there are open-response spaces for raters to give examples if a student receives six or more scores of 4 in a subscale. Some example items are "Has excellent reasoning ability", "Uses language in unusual or novel ways", and "Enjoys investigating and exploring science-related topics". The SIGS manual (Ryser & McConnell, 2004) includes both general and gifted norms for comparison of children's scores, and the SIGS yields raw scores, standard scores, and percentile ranks. The availability of both general and gifted norms is a unique strength of this instrument.

The SIGS was standardized using a sample of 1055 students ages 5-18 for the School Rating Scale and 811 students ages 5-18 for the Home Rating Scale. These samples were matched to the characteristics of the United States population in 2003. Ryser and McConnell (2004) found that internal consistency reliability coefficients for all subscales were greater than or equal to .85, and test-retest reliability for all subscales ranged from .58 to .93 in three studies. Convergent validity was established through analyses of correlations between the SIGS and the Wechsler Intelligence Scale for Children-Third Edition (WISC-III), the Test of Cognitive Skills, and the Cognitive Abilities Test. The SIGS had high positive correlations will all of these instruments.

Strengths of the SIGS include the provision of both home and school rating scales, very strong evidence of convergent validity, and good internal reliability. The

SIGS would be a useful tool in a comprehensive evaluation of children for gifted characteristics.

*Silverman's Adult Giftedness Scale*

Silverman's (1997) Adult Giftedness Scale is a 38-item Likert-type self-report instrument designed to measure characteristics of giftedness in adults. This scale was developed on the basis of psychologist Linda Silverman's experiences in counseling gifted adults; it does not have a specific theoretical basis and no psychometric information was gathered by the author of the scale. Silverman's scale was also not constructed systemically for use in research. Rather, it was an instrument that the present author found on Silverman's Gifted Development Center's website. On the website, the scale was presented and potentially gifted individuals were invited to self-administer it. No scoring instructions were provided, but the text of the website stated that higher scores indicate a higher likelihood that the individual is gifted. Adults who complete the instrument are asked to rate the degree to which each characteristic describes them on a five-point Likert-type scale ranging from 1= Not At All to 5 = Very True. The only existing psychometric data on the scale came from a study by Perrone, Perrone, Ksiazak, Wright, and Jackson (2007), who found that Cronbach's alpha for this scale was .88, providing support for internal consistency reliability of the scale. Perrone et al. (2007) also found that that Silverman's Adult Giftedness Scale (Silverman, 1997) was positively correlated with the Adult Self-Perception Profile ($r$ = .23, p = .05), a self-report instrument which measures perceived competencies in twelve areas: Sociability, Job Competence, Nurturance, Athletic Abilities, Physical Appearance, Adequate Provider, Morality, Household Management, Intimate Relationships, Intelligence, Sense of Humor,

and Global Self-Worth. This provides some limited evidence of the validity of the instrument.

Further research on the factor structure of Silverman's Adult Giftedness Scale, as well as additional studies of convergent and divergent validity of the scale, are needed before Silverman's Adult Giftedness Scale can be used with confidence in counseling or research applications. A criticism of this scale is its lack of a specific theoretical basis. Rather than being developed on the basis of an accepted theory of giftedness, Silverman's Adult Giftedness Scale was developed on the basis of Dr. Linda Silverman's clinical experiences counseling gifted adults. Therefore, this scale may be biased in that it more accurately reflects the traits of the subset of gifted adults who seek counseling, rather than all gifted adults.

## Conclusions and Implications

This review has pointed out both theoretical and empirical evidence of problems in both Renzulli's (1986) and Dabrowski's (1964; 1972; Dabrowski & Piechowski, 1977) definitions of giftedness. Specifically, Renzulli's three ring conception of giftedness may exclude gifted underachievers and gifted students who have been socialized to conform. Dabrowski's definition of giftedness as marked by the presence of five overexcitabilities was disproven by empirical studies comparing gifted and non-gifted individuals' possession of overexcitabilities. Only intellectual overexcitability was found to occur to a consistently greater degree in gifted than non-gifted people. This author proposes a new definition of adult giftedness that incorporates the supported factors from both Renzulli's and Dabrowski's definitions of giftedness. Giftedness should be defined by the presence of characteristics of both above-average ability and intellectual overexcitability.

Several valid and reliable instruments exist for the measurement of gifted behaviors and characteristics in children, yet only one adult giftedness scale exists and Silverman's (1997) Adult Giftedness Scale has little supporting evidence of reliability and validity. Additionally, Silverman's Adult Giftedness Scale lacks a specific theoretical base. Mental health professionals and researchers would benefit from the development of a valid, reliable, and theoretically-driven scale for the measurement of adult gifted characteristics. Such a scale would be a great tool for identifying giftedness in adult counseling clients, identifying samples of gifted adults for research, and examining relationships between giftedness and other characteristics. In the present study, the author developed such a measure of adult gifted characteristics, the Ksiazak Adult Giftedness Scale, and examined the scale's psychometric properties.

# CHAPTER 3 – Method

The purpose of this study was to develop a reliable and valid scale to measure characteristics of adult giftedness, specifically, above-average ability and intellectual overexcitability. This chapter discusses the research questions relevant to the development of a scale of adult gifted characteristics, associated hypotheses, and proposed methods for conducting the study.

## Research Questions

This dissertation addressed three research questions across two related studies. The first study investigated the construct validity of the Ksiazak Adult Giftedness Scale in a sample of adults identified as gifted. Cronbach's alpha reliability analysis and one year test-retest reliability analysis were also performed. The second study yielded further information about the Ksiazak Adult Giftedness Scale by conducting an exploratory factor analysis of undergraduate honors college students' responses to the scale's items. Construct validity was also investigated, and Cronbach's alpha reliability analysis was performed. Together, these studies addressed the following questions:

1. Can a reliable measure of characteristics of adult giftedness be developed?
2. Can a valid measure of characteristics of adult giftedness be developed?

3. What is the factor structure of a measure of characteristics of adult giftedness?

## Hypotheses

**1. A reliable measure of characteristics of adult giftedness can be developed.** An attempt was made to demonstrate internal reliability on the factors emerging from the Ksiazak Adult Giftedness Scale. Internal consistency reliability of the Ksiazak Adult Giftedness Scale was assessed using Cronbach's alpha. Test-retest reliability was assessed through analysis of correlations between the same participants' scores on the Ksiazak Adult Giftedness Scale at a one-year interval.

**2. A valid measure of characteristics of adult giftedness can be developed through factor analysis and analysis of construct validity.** Through the use of factor analysis, the internal construct validity of the Ksiazak Adult Giftedness Scale can be evaluated. Regarding analysis of construct validity, the author expected that the Ksiazak Adult Giftedness Scale would have strong positive correlations with Silverman's (1997) Adult Giftedness Scale, and undergraduate honors college students' grade point averages. It was also expected that the Ksiazak Adult Giftedness Scale would have a moderate positive correlation with the Scale of Creative Attributes and Behaviors (Kelly, 2004), a self-report measure of creative characteristics. These analyses assessed the convergent validity of the Ksiazak Adult Giftedness Scale. It was also expected that the Ksiazak Adult Giftedness Scale would have low positive correlations with the Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffith, 1985) and the Multigroup Ethnic Identity Measure (Phinney, 1992), demonstrating divergent validity with two

scales that measure constructs unrelated to adult giftedness. Through the use of factor analysis, the internal construct validity of the Ksiazak Adult Giftedness Scale can be evaluated. A two factor solution was predicted.

3. **The Ksiazak Adult Giftedness Scale will have two factors: one factor that measures above-average ability and one factor that measures intellectual overexcitability.** It was expected that exploratory factor analysis of responses to the Ksiazak Adult Giftedness Scale would reveal a two-factor structure. It was further expected that the items that load on the first factor would reflect traits of above-average ability, and that the items that load on the second factor would reflect traits of intellectual overexcitability.

## Study 1

The purpose of the first study was to investigate the reliability and validity of the Ksiazak Adult Giftedness Scale, a measure of characteristics of adult giftedness. As discussed in the previous chapter, the author proposed that gifted adults are those who possess two clusters of characteristics: above-average abilities as defined by Renzulli (1986) and intellectual overexcitability as defined by Dabrowski (1964; 1972; Dabrowski & Piechowski, 1977). Specifically, this study examined the Cronbach's alpha internal consistency reliability and construct validity of the Ksiazak Adult Giftedness Scale.

### *Methods*

#### *Participants*

Participants were 88 gifted adults who have been participating in a longitudinal study of the career and life development of gifted adults since their high school graduation in 1988. Among participants, 33 were male and 55 were female. All

participants had completed at least a bachelor's degree. Participants were originally recruited by contacting directors of guidance in all high schools in a Midwestern state and asking them to identify, distribute, and collect questionnaires from the two highest ranking graduates in schools graduating fewer than 250 students, and the five highest ranking students in schools graduating more than 250 students. National Merit Scholar finalists and semi-finalists who were not among the top graduates were also included in the longitudinal study. Participants are currently in their mid-to-late thirties and all hold at least a bachelor's degree.

*Procedures*

In 2007, participants completed surveys via the internet or the U.S. Postal Service as part of a yearly survey of participants in the longitudinal study of gifted adults. This survey included a demographic questionnaire and the measures described in the instruments section. Sixty participants completed surveys via the internet using an InQsit website after receiving an email inviting them to participate online. Twenty-eight participants indicated a preference to complete a paper version of the survey so the survey was mailed to them via the U.S. Postal Service.

Participants were emailed a link to complete the same survey in July 2008 in order to establish test-retest reliability. Again, the survey included the demographic questionnaire and the measures listed in the instruments section. Surveys were mailed to the 28 individuals who had indicated a preference to complete paper surveys. Data from both surveys were entered into an SPSS 17.0 database for statistical analyses.

*Measures*

*Ksiazak Adult Giftedness Scale.*

The Ksiazak Adult Giftedness Scale (Ksiazak, 2007) is a 23-item Likert-type self report scale with items based upon Dabrowski's (1964; 1972; Dabrowski & Piechowski, 1977) concept of intellectual overexcitability and Renzulli's (1986) concept of above-average ability. This scale was developed by the author of this proposal during a series of graduate-level courses on theories of measurement. The author developed the items on the scale after reviewing the research literature on Dabrowski's Theory of Overexcitabilities, existing instruments based upon Dabrowski's theory, research literature on Renzulli's Three-Ring Conception of Giftedness, and other self-report measures of gifted characteristics. The scale incorporates items designed to measure the existence and strength of intellectual overexcitability and above-average ability. After developing initial items for the scale, the author sought feedback from five Ball State University faculty members who are experts on giftedness. These five experts reviewed the items and suggested revisions. The author then revised the scale's items to reflect these experts' feedback, resulting in the current scale. The scale consists of 23 Likert-type self-report items. Respondents are asked to rate their agreement with statements on a seven-point Likert scale, ranging from 1=Never to 7=Always. Sample items include "It is important for me to be intellectually challenged at work or school" and "I ponder the meaning of my life". It is predicted that higher scores will indicate a higher degree of giftedness. Currently, no psychometric data on the Ksiazak Adult Giftedness Scale exists. The studies discussed in this proposal will be the first to provide data on the reliability and validity of the scale.

*Silverman's Adult Giftedness Scale.*

Silverman's Adult Giftedness Scale (Silverman, 1997) is a 38-item Likert-type scale composed of items that have been designed to reflect characteristics of giftedness. Participants are asked to rate the degree to which each characteristic describes them on a five-point Likert-type scale ranging from 1= Not At All to 5 = Very True. Sample items include "Are you a good problem solver?" and "Do you often connect seemingly unrelated issues?". The only existing psychometric data on the scale came from a study by Perrone, Perrone, Ksiazak, Wright, and Jackson (2007), who found that Cronbach's alpha for this scale was .88. Perrone et al. (2007) also found that Silverman's Adult Giftedness Scale (Silverman, 1997) was positively correlated with the Adult Self-Perception Profile (Messer & Harter, 1986; $r = .23$, $p = .05$), a self-report instrument which measures perceived competencies in twelve areas: Sociability, Job Competence, Nurturance, Athletic Abilities, Physical Appearance, Adequate Provider, Morality, Household Management, Intimate Relationships, Intelligence, Sense of Humor, and Global Self-Worth. However, there were some serious limitations to Silverman's Adult Giftedness Scale. First, the scale was not designed within the framework of an established theory of giftedness. Second, the process for constructing the scale did not involve the typical steps for scale development as outlined by DeVellis (2003), and the items were based on Silverman's personal observations from working with gifted adults as a therapist. Additionally, Silverman's Adult Giftedness Scale has no scoring protocol and was not designed for research purposes. The Ksiazak Adult Giftedness Scale addresses these limitations and strives to offer a theoretically grounded, empirically supported, psychometric instrument for use in the identification of gifted adults.

*Satisfaction with Life Scale.*

The Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffith, 1985) is a five-item, Likert-type measure of general life satisfaction. Participants are asked to indicate their agreement with each item on a seven-point Likert-type scale ranging from 1 = Strongly Disagree to 7 = Strongly Agree. Sample items include "In most ways my life is close to ideal" and "So far I have gotten the important things I want in life." A factor analysis conducted by Diener et al. (1985) revealed that a single factor model accounted for 66% of the variance in scores on this scale, which suggested that the SWLS measures a single factor of life satisfaction. In that factor analysis, the factor loadings for each of the five scale items ranged from .61 to .84. Two-month test-retest reliability for the SWLS was established as .82, and Cronbach's alpha reliability was .89 (Diener et al.). Additionally, content validity of the SWLS was evidenced by a .42 correlation between the SWLS and interviewer estimates of life satisfaction. Construct validity was evidenced by a strong negative correlation ($r = -.72$, $p < .01$) between the SWLS and the Beck Depression Inventory, a measure of symptoms of depression (Pavot & Diener, 1993).

*Data Analyses*

Data from the 88 gifted adults' responses to the Ksiazak Adult Giftedness Scale (Ksiazak, 2007) were analyzed for internal consistency reliability using Cronbach's alpha. The scale was found to demonstrate good internal consistency (*Cronbach's alpha = 0.877*). One-year test-retest reliability was also calculated using participants' responses to the August 2007 and August 2008 administrations of the scale. Forty participants completed both administrations of the scale, and one-year test-retest reliability was found to be 0.875, indicating good test-retest reliability.

Factor analysis could not be performed on this data due to the small difference between the number of items on the Ksiazak Adult Giftedness Scale (n=23) and the number of participants (n=88). In order to conduct factor analysis, there should be a minimum of five participants per item (DeVellis, 2003).

Data from the first pilot study were also used to explore the construct validity of the Ksiazak Adult Giftedness Scale. To test convergent validity, the researcher analyzed the correlations between participants' scores on the Ksiazak Adult Giftedness Scale and Silverman's Adult Giftedness Scale (Silverman, 1997), which was designed to measure adult giftedness on the basis of the author's clinical experience and correlates moderately with a measure of self-perceptions of abilities. According to established scale development procedures described by DeVellis (2003), if participants' scores on the scales are highly correlated, as indicated by a correlation greater than or equal to .70, convergent validity would be established. This would indicate that the Ksiazak Adult Giftedness Scale measures what it is supposed to measure (characteristics of giftedness in adults). If participants' scores on the scales have a low correlation, convergent validity would not be established. This would indicate that the Ksiazak Adult Giftedness Scale appears to measure a different construct than adult giftedness. Correlational analysis of participants' responses to the Ksiazak Adult Giftedness Scale and Silverman's Adult Giftedness Scale yielded a correlation of .782, thus establishing convergent validity.

To test divergent validity, the researcher analyzed the correlations between participants' scores on the Ksiazak Adult Giftedness Scale (Ksiazak, 2007) and the Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985). Life satisfaction is a construct that is theoretically unrelated to giftedness; Neihart (1999)

found that gifted individuals are no more satisfied with life, nor more likely to have mental health problems, than members of the general population. According to scale development procedures established by DeVellis (2003), if scores on the scales have a low correlation, as indicated by a correlation less than or equal to .30, this will provide evidence of divergent validity. This will indicate that the Ksiazak Adult Giftedness Scale appears to measure a different construct than life satisfaction. If scores on the scales have a high correlation, divergent validity will not be supported. This will indicate that the Ksiazak Adult Giftedness Scale appears to measure life satisfaction, which is a very different construct than giftedness. Correlational analysis of participants' responses to the Ksiazak Adult Giftedness Scale and the Satisfaction with Life Scale yielded a correlation of .120, establishing divergent validity.

## Study 2

### *Methods*

#### *Participants*

Participants were 217 undergraduate Ball State University Honors College students. These participants included students of all academic years: freshman, sophomores, juniors, and seniors. The sample was 27.2% male (n= 59) and 72.8% female (n=158). Participants' ages ranged between 17 and 25 years. Among respondents, 92.4% identified as White or Caucasian, 0% identified as Black or African American, 0% identified as Hispanic or Latino, 0% identified as Asian or Asian American, 0% identified as Native American or American Indian, 2.2% identified as biracial or multiracial, 1.3% identified as "other race", and 4% did not identify their racial or ethnic background.

*Procedures*

Participants were recruited via an emailed request for participation that was sent to all Ball State University Honors College students. This email stated that students' participation in a study of the psychological characteristics of gifted college students is requested and informed students that one participant would be randomly selected to receive an iPod Touch mp3 player. The email also directed students who wished to participate to an InQsit website where they could complete the survey. The InQsit website included an informed consent document stating that participants' responses to all survey instruments will be kept confidential. Once participants indicated their consent by entering their student identification numbers, they were granted access to a survey page. This survey page contained a demographic questionnaire and each of the measures listed below. The measures were presented in a randomly generated order. The winner of the iPod Touch was selected via generation of a random participant number; the participant was located via his or her student identification number.

*Measures*

*Ksiazak Adult Giftedness Scale.*

The Ksiazak Adult Giftedness Scale (Ksiazak, 2007) is a 23-item Likert-type self-report scale with items based upon Dabrowski's (1964; 1972; Dabrowski & Piechowski, 1977) concept of intellectual overexcitability and Renzulli's (1986) concept of above-average ability. This scale was developed by the author of this proposal during a series of graduate-level courses on theories of measurement. The author developed the items on the scale after reviewing the research literature on Dabrowski's Theory of Overexcitabilities, existing instruments based upon Dabrowski's theory, research

literature on Renzulli's Three-Ring Conception of Giftedness, and other self-report measures of gifted characteristics. The scale was designed to incorporate items that should measure the existence and strength of intellectual overexcitability and above-average ability. After developing initial items for the scale, the author sought feedback from five Ball State University faculty members who are experts on giftedness. These five experts reviewed the items and suggested revisions. The author then revised the scale's items to reflect these experts' feedback, resulting in the current 23-item Likert-type self-report scale. Respondents are asked to rate their agreement with statements on a seven-point Likert scale, ranging from 1=Never to 7=Always.

Currently, no psychometric data on the Ksiazak Adult Giftedness Scale exists. The studies discussed in this proposal will be the first to provide data on the reliability and validity of the scale.

*Multigroup Ethnic Identity Measure.*

The Multigroup Ethnic Identity Measure (MEIM; Phinney, 1992) is a 14-item Likert-type scale that measures ethnic identity and other group orientation. Participants are asked to indicate how much they agree or disagree with each statement on a four-point Likert-type scale ranging from "Strongly disagree" to "Strongly agree". Sample items include "I am active in organizations or social groups that include mostly members of my own ethnic group" and "I understand pretty well what my ethnic group membership means to me." Phinney (1992) conducted a factor analysis of this instrument using both high school and college age samples and found two interpretable factors: Ethnic Identity and Other Group Orientation. Internal consistency coefficients for the Ethnic Identity factor were .81 for the high school sample and .90 for the college

student sample. Internal consistency coefficients for the Other Group Orientation factor were .71 for the high school sample and .74 for the college age sample. Worrell (2000) studied the psychometric properties of the MEIM for a sample of academically talented adolescents and found that Phinney's (1992) two-factor solution accounted for 41% of the total variance in participants' scores. Worrell also found that Cronbach's alpha reliability coefficients the MEIM's factors were .89 for Ethnic Identity and .76 for Other Group Orientation.

*Scale of Creative Attributes and Behavior.*

The Scale of Creative Attributes and Behavior (SCAB; Kelly, 2004) is a 20-item, Likert-type self-report instrument that measures five factors of creativity: Creative Engagement, Creative Cognitive Style, Spontaneity, Tolerance, and Fantasy. This instrument was developed based upon a review of the research literature on personality characteristics and behaviors of creative individuals. Respondents rate their agreement to each item on a seven-point Likert scale ranging from 1 = Strongly Disagree to 7 = Strongly Agree. Sample items include "I spend much of my time creating things" and "I am often able to see the 'big picture' where others can't." Kelly (2004) conducted a factor analysis of responses to the scale and found that a five-factor solution accounted for 64% of the variance in participants responses to the SCAB. The results of this factor analysis provided support for the construct validity of the measure. Kelly also found that the Cronbach's alpha of the SCAB was .77 and the one-month test-retest reliability was .80 for the total scale. These findings suggest that the SCAB is a reliable instrument that measures a stable trait.

# CHAPTER 4 - Results

*Study 1 Data Analysis and Results*

All data for the second study were analyzed using SPSS 17.0. Data from the 88 gifted adults' responses to the August 2007 administration of the Ksiazak Adult Giftedness Scale (Ksiazak, 2007) were analyzed for internal consistency reliability using Cronbach's alpha. Cronbach's alpha was found to be .825, indicating good internal consistency reliability. Nunally (1978) stated that .70 was an acceptable reliability coefficient, with reliability coefficients above this cutoff indicating good internal consistency. Similarly, DeVellis (2003) stated that scale reliability in the .80 to .90 range was "very good" (p. 96). One-year test-retest reliability was calculated using correlational analysis of participants' responses to the August 2007 and August 2008 administrations of the Scale. Forty participants completed both administrations of the Scale, and the correlation between their total scale scores was .786, indicating good one-year test-retest reliability. Test-retest reliability generally decreases over time, and such a high reliability coefficient over a one-year indicates a reliable instrument (DeVellis, 2003). Factor analysis could not be performed on this data due to the small difference between the number of items on the Ksiazak Adult Giftedness Scale (n=23) and the number of participants (n=40). In order to conduct factor analysis, there should be a minimum of five participants per item (DeVellis, 2003).

Data from the pilot study were used to explore the construct validity of the Ksiazak Adult Giftedness Scale. To evaluate construct validity, total scores of the items on the Ksiazak Adult Giftedness Scale, Silverman's Adult Giftedness Scale (Silverman, 1997), and the Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985) were calculated, and correlations between the total scores of the KAGS and total scores of the other scales were determined using Pearson's correlation coefficient. Each of the scales was found to be correlated with the KAGS as expected. The KAGS had the highest correlation with Silverman's Adult Giftedness Scale ($r$=.732, $p$<.01). This high correlation provides evidence to support the convergent validity of the KAGS. Scores on the KAGS are moderately related to an established and practice-based measure of characteristics of gifted adults, in keeping with the hypothesis that the scales measure similar constructs. As expected, the KAGS had a low and non-significant correlation with the Satisfaction with Life Scale ($r$ = .116). This low correlation supports the divergent validity of the KAGS. Scores on the KAGS have a low correlation with a measure of satisfaction with life, a construct that is not theoretically related to giftedness.

*Study 2 Data Analyses and Results*

All data for the second study were analyzed using SPSS 17.0. To evaluate scale reliability and internal consistency of the items, reliability (Cronbach's alpha) and exploratory factor analyses were performed on the data from the Ball State University Honors College students' responses to the Ksiazak Adult Giftedness Scale (KAGS). Exploratory factor analyses were conducted to determine whether the factor structure of the KAGS followed a two-factor model based on Dabrowski's (1964; 1972; Dabrowski & Piechowski, 1977) concept of intellectual overexcitability and Renzulli's (1986)

concept of above-average ability. Results from the factor analyses allowed the researcher to determine the number of factors in the Ksiazak Adult Giftedness Scale, the strength of each item's loading on its respective factor(s), and the amount of variance accounted for by the factor solution.

To evaluate construct validity, total scores of the items on KAGS, Scale of Creative Attributes and Behaviors, and Multi-group Ethnic Identity Measure were calculated, and correlational analyses of the of total scores of the KAGS and the total scores of the other scales using Pearson's correlation coefficient were performed. It was expected that responses to the KAGS would have a moderate significant positive correlation with responses to the Scale of Creative Attributes and Behaviors because these measures address related concepts. Conversely, it was expected that responses to the KAGS would not be significantly correlated with responses to the Multi-group Ethnic Identity Measure because these measures address unrelated concepts. Table 1 summarizes the correlation matrix for the scales used in the study. Each of the scales was found to be correlated with the KAGS as expected. The KAGS had the highest correlation with the SCAB ($r$ =.559, $p$<.01). This moderate correlation provides evidence to support the convergent validity of the KAGS. Scores on the KAGS are moderately related to an established and valid measure of characteristics of creativity, in keeping with the hypothesis that giftedness and creativity are related constructs. As expected, the KAGS had a low correlation with the MEIM ($r$ =.160, $p$<.01). This low correlation supports the divergent validity of the KAGS. Scores on the KAGS have a low correlation with a measure of ethnic identity, a construct that is theoretically unrelated to giftedness.

Table 1: *Correlation Matrix for Measures Used in the Study.*

| | KAGS | SCAB | MEIM |
|---|---|---|---|
| KAGS | 1.00 | .605* | .093 |
| SCAB | | 1.00 | .184* |
| MEIM | | | 1.00 |

*Note.* * = Correlation is significant at the 0.01 level.
*Key:*
KAGS = Ksiazak Adult Giftedness Scale
SCAB = Scale of Creative Attributes and Behaviors
MEIM = Multigroup Ethnic Identity Measure

*Internal consistency and scale reliability.* To assess the factor structure of the items, an exploratory factor analysis utilizing a principal components extraction with a direct oblimin rotation was performed on the items of the KAGS. Oblimin rotation was used because it is recommended when factors appear to be correlated (Harman, 1976), and a review of the research literature suggests that above-average ability and intellectual overexcitability are related characteristics.

Preliminary analyses were conducted to determine if factor analysis of the items was appropriate. Bartlett's Test of Sphericity was found to be significant (Chi Square = 2255.812, $p < .001$), indicating that the correlation matrix was statistically significant and it was appropriate to conduct factor analysis of the scale. The Kaiser-Meyer-Olkin Measure of Sampling adequacy was .849, indicating that the ratio of magnitudes of the observed correlation coefficients to the magnitudes of the partial correlation coefficients was sufficient and a factor analysis of the items was appropriate. Next, means and standard deviations of the items of the KAGS were calculated and are presented in Table 2. These data show that the Honors College participants' scores were skewed in the direction of high scores on the KAGS and had relatively little variation. This general trend toward high scores on the KAGS items may have had a significant impact on the factor structure of the KAGS. It is likely that in a sample with greater variance of scores (e.g. including lower scores) the factor structure of the KAGS may be different (DeVellis, 2003). Additionally, internal consistency of the KAGS was examined using Cronbach's alpha, and the scale was found to have high internal consistency (Cronbach's alpha = .872).

Table 2: *Means and Standard Deviations for KAGS Items in Initial Principal Components Analysis*

| Item | Mean | Standard Deviation |
|---|---|---|
| 1 | *5.56* | .960 |
| 2 | *5.39* | 1.142 |
| 3 | *5.01* | 1.461 |
| 4 | *5.31* | 1.063 |
| 5 | *5.24* | 1.065 |
| 6 | *4.92* | 1.612 |
| 7 | *5.82* | 1.040 |
| 8 | *5.64* | .917 |
| 9 | *5.02* | 1.213 |
| 10 | *4.74* | 1.442 |
| 11 | *5.72* | 1.195 |
| 12 | *5.84* | 1.047 |
| 13 | *5.11* | 1.441 |
| 14 | *4.33* | 1.253 |
| 15 | *5.93* | .978 |
| 16 | *5.37* | 1.464 |
| 17 | *5.11* | 1.542 |
| 18 | *5.13* | 1.109 |
| 19 | *5.42* | 1.592 |
| 20 | *5.65* | 1.001 |
| 21 | *5.36* | 1.208 |
| 22 | *5.30* | 1.194 |
| 23 | *6.13* | 1.055 |

*Note.* N=283

The initial principal components extraction was performed, and in this extraction, SPSS was instructed to extract all factors with eigenvalues greater than 1.0 (Gorsuch, 1983). This principal components extraction produced six components with eigenvalues greater than 1.0, accounting for 59.545% of the variance. Table 3 presents the six factors, eigenvalues, percentage of variance accounted for by each factor, and their cumulative variances. The components matrix and scree plot are presented in Table 4 and Figure 1, respectively. For further analysis, the Cronbach's alpha coefficient if items deleted" were evaluated for all items. Table 5 indicates that deleting item 10 would increase the internal consistency of the KAGS and that deleting item 14 would have no impact on the internal consistency of the KAGS. Item 10 was deleted in order to increase internal consistency of the scale, and item 14 was deleted because it cross-loaded on the scale's two factors in addition to not contributing anything to the scale's internal consistency. In order to increase the internal consistency of the scale, these items were removed from the data used for subsequent analyses, leaving a 21-item scale.

In order to interpret factor analysis, one must set guidelines for the consideration of salient factor loadings. According Gorsuch's (1983) and Nunnaly's (1979) suggestions, factor loadings greater than .30 should be considered to indicate that an item loads on a particular factor. The factor loadings in Table 4 show evidence of multiple cross-loadings, or items with significant loadings on two or more factors. This is problematic because ideally, each item should load on only one factor. One potential reason for cross-loading is that the scale is actually unifactorial. Further factor analyses were conducted to determine if a unifactorial model would better explain the structure of this scale.

Table 3: *Principal Components Analysis 1 for the KAGS*

| Factor | Eigenvalue | % Variance | Cumulative % Variance |
|---|---|---|---|
| 1 | 6.487 | 28.202 | 28.202 |
| 2 | 2.110 | 9.173 | 37.376 |
| 3 | 1.497 | 6.509 | 43.885 |
| 4 | 1.334 | 5.799 | 49.684 |
| 5 | 1.189 | 5.171 | 54.855 |
| 6 | 1.079 | 4.690 | 59.545 |

*Note. N*=283

Table 4: *Components Matrix for Principal Components Analysis 1*

| | Component | | | | | |
|---|---|---|---|---|---|---|
| Item | 1 | 2 | 3 | 4 | 5 | 6 |
| 1 | .617 | -.181 | .281 | .036 | -.020 | -.265 |
| 2 | .564 | .054 | .094 | .275 | .230 | .284 |
| 3 | .635 | -.407 | -.059 | .418 | -.280 | .077 |
| 4 | .534 | .527 | .054 | .189 | -.186 | -.254 |
| 5 | .476 | .181 | -.240 | .341 | .089 | -.310 |
| 6 | .551 | -.453 | .050 | .396 | -.259 | .065 |
| 7 | .555 | -.081 | .367 | -.306 | .098 | -.376 |
| 8 | .553 | .210 | .022 | -.257 | -.341 | -.202 |
| 9 | .592 | -.164 | -.244 | .265 | .078 | .000 |
| 10 | .284 | .462 | .127 | .286 | .400 | -.035 |
| 11 | .636 | -.366 | -.010 | -.042 | -.070 | -.114 |
| 12 | .467 | -.116 | -.153 | -.349 | .111 | -.012 |
| 13 | .416 | -.213 | -.589 | -.298 | .234 | -.101 |
| 14 | .333 | .025 | .108 | .202 | .598 | -.151 |
| 15 | .544 | -.042 | .119 | -.078 | .251 | .298 |
| 16 | .525 | .361 | -.030 | -.172 | -.184 | .095 |
| 17 | .407 | -.395 | .238 | -.051 | -.120 | .306 |
| 18 | .572 | -.127 | -.568 | -.161 | .080 | .007 |
| 19 | .474 | .140 | .218 | -.226 | .140 | .425 |
| 20 | .678 | .108 | -.178 | -.173 | -.051 | .026 |
| 21 | .551 | .385 | -.078 | -.048 | -.059 | .364 |
| 22 | .558 | .595 | .048 | .030 | -.273 | .025 |
| 23 | .504 | -.264 | .516 | -.246 | .094 | -.143 |

*Note. N*=283

Figure 1: *Scree Plot for Initial Principal Components Analysis*

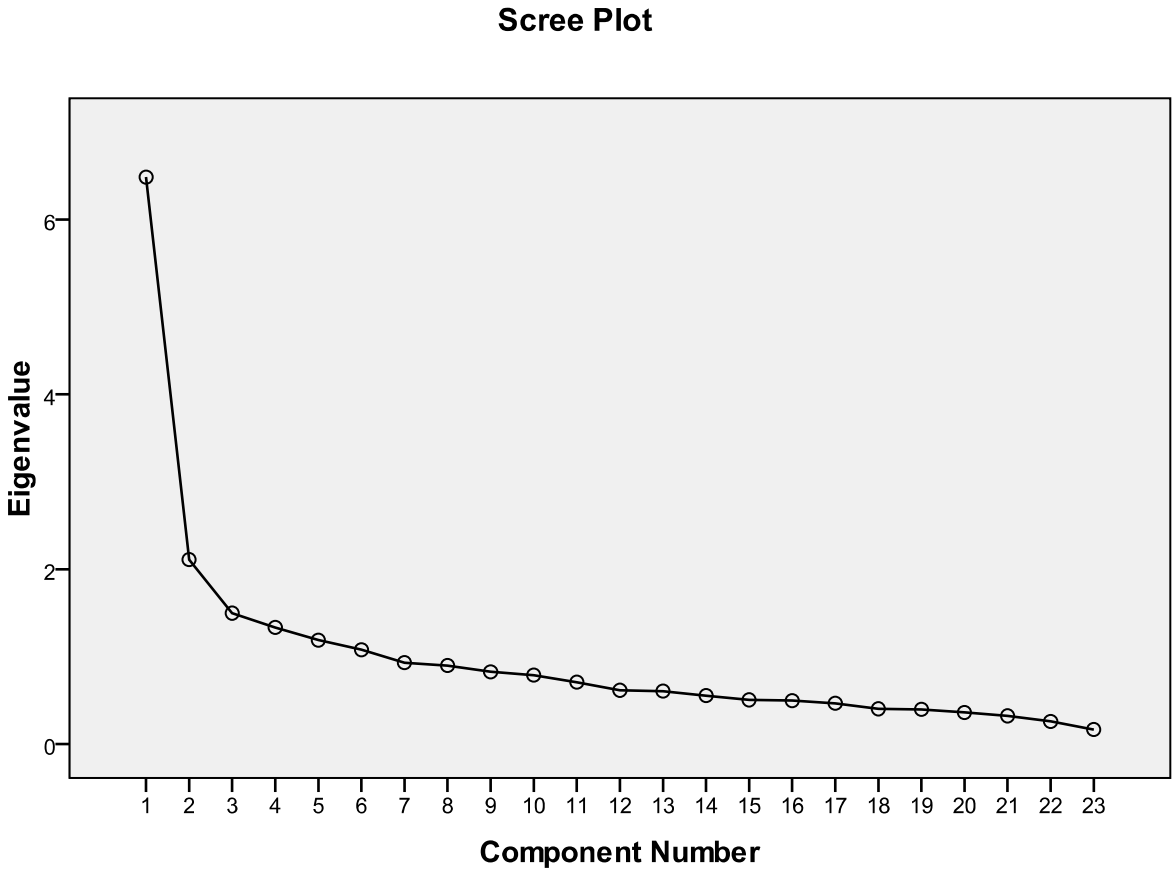


Table 5: *Cronbach's Alpha Coefficients If Items Deleted*

| Item | *Cronbach's Alpha* If Item Deleted |
|---|---|
| 1 | .865 |
| 2 | .865 |
| 3 | .862 |
| 4 | .866 |
| 5 | .868 |
| 6 | .866 |
| 7 | .866 |
| 8 | .867 |
| 9 | .864 |
| 10 | .874* |
| 11 | .863 |
| 12 | .868 |
| 13 | .871 |
| 14 | .872** |
| 15 | .866 |
| 16 | .867 |
| 17 | .871 |
| 18 | .865 |
| 19 | .869 |
| 20 | .863 |
| 21 | .866 |
| 22 | .866 |
| 23 | .867 |

*Note. N*=23

* = removing item increases internal consistency of scale

** = removing item has no impact on internal consistency

Based on the results of the scree plot and initial factor analysis, as well as the high number of cross-loaded items in the component matrix from the initial factor analysis, the KAGS appears to be unifactorial. A second principal components extraction was performed, and in this extraction, SPSS was instructed to extract a one-factor solution to determine the fit between the KAGS and a possible one-factor model. This principal components extraction produced a one-factor solution accounting for 30% of the variance in scores. Table 6 presents the one-factor solution, eigenvalues, and percentage of variance accounted for. The component matrix and scree plot are presented in Table 7 and Figure 2, respectively.

Table 6: *Principal Components Analysis for the KAGS With a One-Factor Solution*

| Factor | Eigenvalue | % Variance | Cumulative % Variance |
|---|---|---|---|
| 1 | *6.328* | 30.134 | 30.134 |

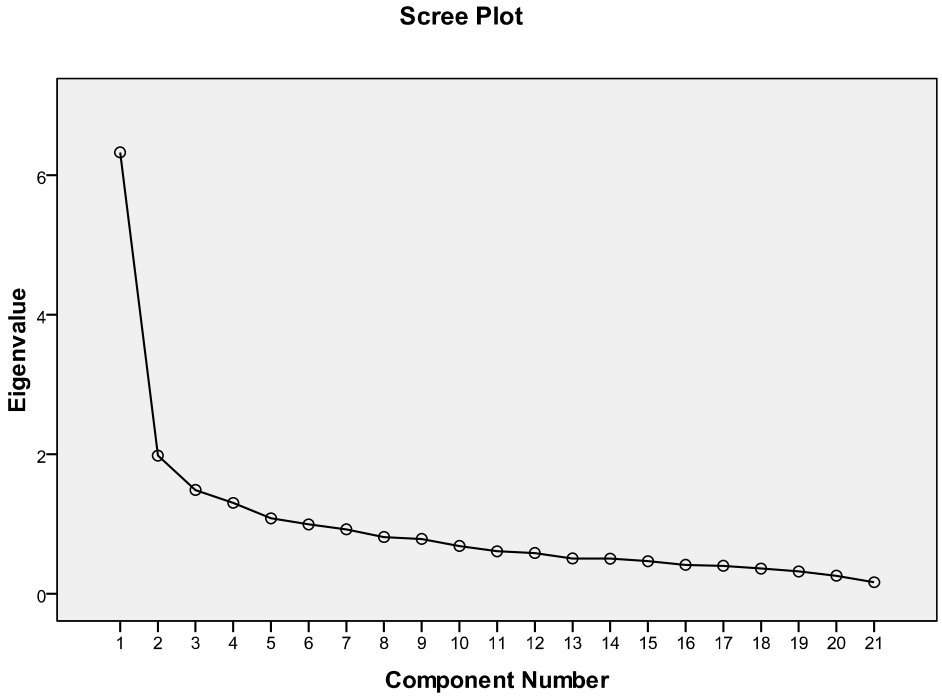
*Note. N*=283

Table 7: *Components Matrix for Principal Components Analysis with a One-Factor Solution*

| Item | Component 1 |
|---|---|
| 1 | *.619* |
| 2 | *.558* |
| 3 | *.646* |
| 4 | *.521* |
| 5 | *.469* |
| 6 | *.558* |
| 7 | *.554* |
| 8 | *.562* |
| 9 | *.593* |
| 11 | *.645* |
| 12 | *.472* |
| 13 | *.423* |
| 15 | *.540* |
| 16 | *.523* |
| 17 | *.417* |
| 18 | *.579* |
| 19 | *.472* |
| 20 | *.681* |
| 21 | *.547* |
| 22 | *.551* |
| 23 | *.507* |

*Note. N*=283

Figure 2: *Scree Plot for Principal Components Analysis With a One-Factor Solution*



A third principal components analysis was performed to test the hypothesis that the KAGS would have a two-factor solution based on Dabrowski's (1964; 1972; Dabrowski & Piechowski, 1977) concept of intellectual overexcitability and Renzulli's (1986) concept of above-average ability. This factor analysis used principal components analysis and a direct oblimin rotation because oblimin rotation is recommended when factors appear to be correlated (Harman, 1976). A review of the literature on definitions and characteristics of giftedness suggests that intellectual overexcitability and above-average ability are related constructs. Table 8 presents the two-factor solution, eigenvalues, and percentage of variance accounted for. The component matrix and rotated component matrix are presented in Table 9 and Table 10, respectively. The correlations between the components in the two-factor solution were also calculated, and the components were found to be moderately correlated with one another ($r$ = .431). This finding is consistent with the hypothesis that intellectual overexcitability and above-average ability are related constructs. However, the frequent incidence of items that load strongly on both factors in the two-factor solution and the small difference in the percent of variance accounted for adding a second factor (30% of variance in the one-factor solution and 39% of variance in the two-factor solution) suggest that the one-factor solution is the best fit.

Table 8: *Principal Components Analysis for the KAGS With a Two-Factor Solution*

| Factor | Eigenvalue | % Variance | Cumulative % Variance |
|---|---|---|---|
| 1 | *6.328* | 30.134 | 30.134 |
| 2 | *1.982* | 9.437 | 39.571 |

Table 9: *Components Matrix for Principal Components Analysis with a Two-Factor Solution*

| | Component | |
|---|---|---|
| Item | 1 | 2 |
| 1 | .619 | -.180 |
| 2 | .558 | .023 |
| 3 | .646 | -.408 |
| 4 | .521 | .523 |
| 5 | .469 | .175 |
| 6 | .558 | -.471 |
| 7 | .554 | -.079 |
| 8 | .562 | .276 |
| 9 | .593 | -.153 |
| 11 | .645 | -.346 |
| 12 | .472 | -.075 |
| 13 | .432 | -.176 |
| 15 | .540 | -.043 |
| 16 | .523 | .406 |
| 17 | .417 | -.387 |
| 18 | .579 | -.083 |
| 19 | .472 | .141 |
| 20 | .681 | .156 |
| 21 | .547 | .410 |
| 22 | .551 | .621 |
| 23 | .507 | -.269 |

*Note. N*=283

Table 10: *Rotated Components Matrix for Principal Components Analysis with a Two-Factor Solution and Direct Oblimin Rotation*

| | Component | |
|---|---|---|
| Item | 1 | 2 |
| 1 | .577 | .131 |
| 2 | .357 | .302 |
| 3 | .795 | -.080 |
| 4 | -.107 | .778 |
| 5 | .163 | .408 |
| 6 | .792 | -.186 |
| 7 | .443 | .200 |
| 8 | .138 | .554 |
| 9 | .535 | .146 |
| 11 | .740 | -.019 |
| 12 | .385 | .162 |
| 13 | .440 | .038 |
| 15 | .402 | .228 |
| 16 | -.003 | .663 |
| 17 | .622 | -.173 |
| 18 | .465 | .208 |
| 19 | .195 | .376 |
| 20 | .324 | .495 |
| 21 | .009 | .680 |
| 22 | -.173 | .890 |
| 23 | .579 | -.013 |

*Note. N*=283

# CHAPTER 5 - Discussion

## *Summary of Major Findings*

The purpose of the present study was to examine the psychometric properties of the Ksiazak Adult Giftedness Scale. This scale's development has the potential to contribute a quick, cost-effective, reliable, and valid measure of characteristics of giftedness in adults. No other such measure currently exists, and the Ksiazak Adult Giftedness Scale can be used by therapists to assess giftedness in adult clients as well as by researchers who need a sound measure of adult giftedness. In the first portion of the study, the reliability and validity of the KAGS were evaluated on the basis of data from a sample of adults who were identified as gifted during high school in a Midwestern state. The KAGS was found to have high internal consistency, as well as to correlate highly with Silverman's Adult Giftedness Scale (Silverman, 1997), a measure of attributes of giftedness in adults that was developed on the basis of Silverman's clinical work with the gifted population but has not yet been empirically validated. The KAGS was also found to have high one-year test-retest reliability. Additionally, the KAGS was found to have a non-significant correlation with the Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985), which measures life satisfaction, a construct that is not theoretically related to giftedness. The small sample size of the first study prohibited the

use of factor analysis to determine the factor structure of the scale, so an additional study was needed to test the scale with a larger sample.

In the second portion of the study, the reliability, validity, and factor structure of the KAGS were evaluated on the basis of data from a sample of undergraduate honors college students at a Midwestern university. The KAGS was found to have high internal consistency, as well as to correlate moderately with the Scale of Creative Attributes and Behaviors (Kelly, 2004), a measure of creativity, which is a construct that has been found to be related to giftedness in past research (Kelly, 2004). Additionally, the KAGS was found to have a non-significant correlation with the Multigroup Ethnic Identity Measure (Phinney, 1994), which measures a construct that is unrelated to giftedness, ethnic identity and other-group orientation. These findings provide support for the construct validity of the KAGS. Further, average scores for the Honors College students on the KAGS were high, which may be interpreted as giving further evidence of the criterion-related validity of the KAGS. It would be expected that if a scale measures characteristics of giftedness, those who were previously identified as gifted would attain higher scores than those who were not identified as gifted.

*Theoretical Implications*

The results of the second study suggest that Dabrowski's (1964; 1972; Dabrowski & Piechowski, 1977) concept of intellectual overexcitability and Renzulli's (1986) concept of above-average ability are related constructs that may, in fact, be variations of the same construct. The interrelationship of these concepts from two different theories suggests an underlying similarity between Dabrowski's and Renzulli's concepts of giftedness. These are two of the most frequently cited and most well-respected theories of

giftedness, and the overlap in these two concepts is significant. Perhaps each theorist simply gave a different name to the same construct of above-average intellectual tendencies and abilities, which is a hallmark of giftedness. Additionally, because individuals who were previously identified as gifted had high scores on the KAGS, it is likely that the KAGS measures a common factor that is present in intellectually gifted adults.

Because both the one- and two-factor solutions accounted for less than half of the variance in scores on the KAGS in the honors college sample, there may be other factors that define adult giftedness. This may be partially due to the fact that students in the honors college sample had uniformly high scores on the KAGS; participants' mean scores on each item were above half the total score possible for the item. The KAGS may perform differently in a sample that is more diverse in intellectual ability, and it is possible that such a sample would have greater variance in scores. Another possible explanation is that other factors from either or both Renzulli's (1986) three-ring theory of giftedness and Dabrowski's (1964; 1972; Dabrowski & Piechowski, 1977) theory of overexcitabilities could account for scores on the KAGS. Previous studies (Ackerman & Paulus, 1997; Bouchet & Falk, 2001; Gallagher, 1986; Piechowski & Colangelo, 1984; Tieso, 2007; Yakmaci-Guzel & Akarsu, 2006) have found that intellectual overexcitability is the only one of Dabrowski's five overexcitabilities that is consistently found in diverse groups of individuals who have been identified as gifted. The relationship between intellectual overexcitability and giftedness appears to be quite strong because it was supported by six studies that used six different operational definitions of giftedness to select the gifted sample. None of Dabrowski's other

overexcitabilities were found to be consistently related to giftedness in these six prior studies. Both emotional overexcitability (Ackerman & Paulus, 1997; Bouchet & Falk, 2001; Gallagher, 1986; Piechowski & Colangelo, 1984) and imaginational overexcitability (Gallagher, 1986; Piechowski & Colangelo, 1984; Tieso, 2007; Yakmaci-Guzel & Akarsu, 2006) levels were higher in gifted than non-gifted individuals in four of six studies. Only one study (Ackerman & Paulus, 1997) supported Dabrowski's hypothesized relationship between psychomotor overexcitability and giftedness, and no studies found sensual overexcitability to be related to giftedness. The results of these studies of overexcitabilities and giftedness suggest that intellectual overexcitability is a constellation of characteristics found in gifted individuals, who may display some other overexcitabilities but are not always destined to do so. However, because imaginational and emotional overexcitabilities were each found in four of the six previous studies, it is possible that these overexcitabilities may be found in many, but not all, gifted individuals. These other overexcitabilities may have been additional latent factors that impacted participants' scores on the KAGS in the current studies. Future research studies could continue to explore the relationships among emotional overexcitability, imaginational overexcitability, and giftedness. Perhaps these overexcitabilities are found more frequently in specific populations of gifted individuals, such as people who are creatively or artistically gifted.

In addition to the possibility of emotional or imaginational overexcitability accounting for variance in scores, it is possible that one or both of Renzulli's other factors – task commitment and creativity – impacted scores on the KAGS. The KAGS was only designed to assess Renzulli's factor of above-average ability; however, the theory states

that giftedness is a combination of above average ability, task commitment, and creativity (1986). Scores on the KAGS were moderately correlated with scores on the Scale of Creative Attributes and Behaviors, and this correlation may support Renzulli's assertion that creativity is, in fact, a factor in adult giftedness. Additionally, task commitment may have been a factor that impacted participants' responses to the KAGS. Both samples, undergraduate honors college students and adults who had previously been identified as gifted, have demonstrated task commitment by completing the substantial work necessary to, respectively, obtain admission to a college honors program and complete a bachelor's degree or, in some cases, a graduate degree.

Social desirability may also have contributed to the variance in honors college student participants' scores on the KAGS. The items of the scale are worded positively and generally have favorable connotations. For example, most people would consider it socially desirable to answer affirmatively to the item "I come up with original ideas." Additionally, prior research has indicated that it can be socially desirable to be gifted for some populations. Luftig and Nichols (1991) investigated the social status of gifted and non-gifted elementary school students according to peer ratings and found that gifted males were the most popular students in school, described by peers as smart, fun, and handsome. Because the participants in the second study were college students currently enrolled in an honors college program, they may have perceived it more socially desirable to answer affirmatively to questions that appear to measure attributes associated with intelligence.

*Implications for Practice*

The results of these studies suggest that the KAGS is a valid and reliable measure of characteristics of giftedness in previously identified gifted adults and honors college students. However, because both the one- and two-factor solutions of the KAGS accounted for less than half of the variance in honors college participants' scores on the KAGS, further studies must be conducted to determine whether these results can be generalized to all adults or to all college students. Specifically, research is needed to examine the reliability, validity, and factor structure of the KAGS with college students who are not in an honors college as well as for the general population of adults, rather than just adults who have previously been identified as gifted. If the factor structure of the KAGS is found to be different in a general college student or adult sample, such that the factors of the KAGS account for a larger proportion of scores on the instrument, then the KAGS could be used with greater confidence to identify gifted adults. This scale could be a helpful tool for psychologists with adult clients whom they suspect may be gifted. Because there are currently no other existing valid and reliable measures of characteristics of giftedness in adults, psychologists would have needed to use intelligence tests in the past, requiring a large investment of time and financial expense to identify giftedness. The KAGS can allow practitioners to assess giftedness in their clients using a 21 item paper and pencil test that is easy to administer, score and interpret. Identification of giftedness in adults can be an important step in counseling both identified and previously unidentified gifted adults who have concerns related to their giftedness, including multipotentiality and career choice issues, relationship difficulties, and existential concerns (Jacobsen, 1999; Lovecky, 1986; Rocamora, 1992).

According to Kerr and Claiborn (1991), multipotentiality is the existence of talent in many areas. Gifted adults who are multipotential may have difficulty selecting and staying with a major in college, may change careers in adulthood, and may become frustrated if they are unable to find a career in which they can use all of their talents. Willings (1986) reported that gifted individuals begin to think about career choices by the age of nine and that career is a major facet of identity for many gifted people. Silverman (1993) advocated that counselors can help gifted clients to resolve multipotentiality and career choice dilemmas by encouraging these clients to create or modify careers to fit their abilities and interests. Kerr and Claiborn (1991) stated that counselors should focus on exploring gifted adult clients' values and life goals and helping them to find careers that fit those values and support attainment of those goals. Other common career issues of the gifted are underemployment and a lack of meaning in one's work. Gifted adults may be fatigued and depressed because they are underemployed, working in unfulfilling jobs in which they cannot exercise their true talents. They may also become depressed if their work is repetitive, denies them creative freedom, or otherwise seems meaningless. Counselors can help gifted adult clients to find meaningful work by assisting them in exploring careers that provide intellectual challenge, collaborating with clients to identify careers that will meet the clients' needs and values, working with clients to integrate paid employment with leisure pursuits that meet different needs, and normalizing midlife career changes (Kerr & Claiborn, 1991; Silverman, 1993). Normalizing midlife career changes may be a particularly important intervention for counseling gifted adult clients who are perfectionists; otherwise, these clients' high internal standards may prevent them from making changes that could lead to greater career satisfaction. Clients who are

perfectionists may have difficulty admitting that a high-prestige job is not a good fit for them and may feel guilt and shame if they choose to change careers.

Gifted adults may face a variety of relationship difficulties. Willings (1985) found that in a longitudinal study of 15 former college students who had been identified as gifted, over half of participants reported that they had struggled with unhappy marriages, one or more divorces, and boredom or other dissatisfaction in significant interpersonal relationships. Tolan (1994) and Kerr and Claiborn (1991) noted that gifted adults who are perfectionists are prone to having difficulties in relationships because their high standards from themselves and others can be frustrating and hurtful to romantic partners. Jacobsen (1995) also reported that gifted adults' sensitivity to criticism and strong desire to fit in with others can lead them to denying or minimizing their traits of giftedness, resulting in inauthentic relationships. Lovecky (1986) advocated that counselors working with gifted adult clients help them to learn to moderate their emotions, identify characteristics of mutually positive relationships, and find ways to connect with like-minded others. Identification of giftedness in such clients by using the KAGS can help depathologize gifted adult clients' relationship concerns. Rather than believing that something is "wrong" with them because of relationship issues, counselors can assist clients in identifying their needs in relationships, connecting their relationship needs to their giftedness, and developing strategies and behaviors for finding and maintaining successful relationships. Interventions that counselors can use to help gifted adult clients who have relationship difficulties include psychoeducation about giftedness and relationships, referrals to groups and activities through which clients can meet like-minded others, modeling appropriate boundary-setting in relationships, and assisting

clients in developing a variety of relationships to meet different needs (Jacobsen, 1999; Lovecky, 1986).

Jackson (1999) conceptualized gifted individuals' needs as a Tripartite Needs System, which consists of a need for understanding and knowledge, a need for communion or meaningful connection with others, and a need for expression. She noted that gifted individuals are at risk for depression if any of these needs are unmet. Gifted adults often face existential concerns regarding these needs as well. For example, they may struggle to understand their purpose in life, the reason for their giftedness, or the meaning of their experiences. For unidentified gifted adults, these struggles can be intensified because giftedness may be the missing "puzzle piece" that could help them to make meaning of a perceived sense of differentness, relationship difficulties, or other issues. Counselors who are working with such clients can use the KAGS to identify traits of giftedness, and this identification can lead to an empowering reframing of clients' views of themselves (Jacobsen, 1999). Once giftedness has been identified in adult clients, therapists can also use psychoeducation about giftedness to help clients better understand themselves and to develop more accurate conceptualizations of client issues. Therapists can also assist gifted adult clients to cope with existential issues by using journaling, developing a plan for clients to engage in meaningful activities, and facilitating clients' meaningful interpersonal connections through referrals to therapy groups and activity groups based on specific interests (Jackson, 1999).

Once giftedness has been accurately identified, psychologists can help gifted clients to integrate giftedness into their self-understanding, as well as to adequately address the aforementioned issues or any other issues in which giftedness is a

contributing factor. Psychologists may also work with previously unidentified gifted clients to explore why their giftedness was not identified earlier and to determine what other roles and relationships have kept the clients from integrating giftedness into their self-concepts. Once a client has been identified as gifted using the KAGS, his or her therapist can also perform the important function of providing psychoeducation about giftedness (Jacobsen, 1999). Through identifying and taking ownership of one's own gifted traits, Jacobsen (1999, p. 38) advocates that gifted clients can "rewrite their histories in terms of assets rather than liabilities", allowing them to develop higher self-esteem and self-understanding.

Identification of giftedness in an adult client can signal to the therapist that he or she may need to alter his or her therapeutic approach (Jacobsen, 1999). Gifted adult clients may possess traits such as a tendency toward existential thoughts, perfectionism, a predisposition to question and debate, and a high degree of self-examination that may require specialized counseling approaches or interventions. Fortunately, several models of counseling gifted individuals have been proposed on the basis of successful clinical experiences (Mendaglio & Peterson, 2007), and knowledgeable psychologists can adopt or borrow from these models to better serve the needs of gifted clients.

*Limitations*

The major limitations of these studies are that the KAGS was pilot-tested on a sample of adults from a Midwestern state who were identified as gifted during high school and undergraduate honors college students from a Midwestern university, and thus the results may not generalize to other populations. The majority of participants in the pilot study's sample were Caucasian and all were from the Midwest and had obtained at

least a bachelor's degree. The majority of undergraduate honors college students in the second study's sample were Caucasian and from the Midwest, and all were between the ages of 18 and 25 years. To address this limitation, future studies should examine the validity, reliability, and factor structure of the KAGS in samples diverse in age, race, region of origin, and ability level. Additionally, because both the one- and two-factor solutions for the KAGS accounted for less than half the variance in honors college participants' scores on the KAGS, further studies must be conducted to determine whether the KAGS can differentiate between gifted and nongifted adults in the general population.

*Directions for Future Research*

In these studies, the use of participants who had been identified as gifted in high school or college may have restricted the range of scores in that these individuals were more likely to have a higher score on the KAGS. Future research is needed to test the psychometric properties of the KAGS with a broader range of individuals, including individuals who have not previously been identified as gifted or who are not participants in an honors college program. Research is needed to determine if the KAGS would perform differently if administered to a general (rather than formerly identified as gifted) sample. Additionally, future studies should examine whether social desirability impacts participants' responses to the KAGS by administering the KAGS with a measure of social desirability and using statistical analysis to examine the relationship between scores on the KAGS and scores on the social desirability measure. However, evidence of high reliability and validity supports the use of the KAGS as an appropriate tool for identifying giftedness in adults.

Further research studies should examine the factor structure of the KAGS in general college student samples, as well as general adult samples. If future studies show that the factors of the KAGS account for a majority of the variance in these samples' scores on the scale, the KAGS can then be used to identify gifted adults for other research studies. This would be an important contribution because there are many areas of gifted adults' functioning that remain to be studied. For example, studies could be conducted to determine the effectiveness of various counseling methods with gifted adult clients in order to guide treatment of future clients. While there are many theoretical and conceptual articles and book chapters about counseling gifted individuals, there is a lack of empirical outcome studies to determine the most effective counseling interventions and strategies for gifted adult clients. Additionally, many of the existing theories of counseling the gifted were developed for the purpose of working with children and adolescents (Mendaglio & Peterson, 2007), who have different developmental needs and may have different presenting concerns than gifted adults. Therefore, counseling practices that are based on these theories may need to be tailored in order to better meet the needs of gifted adult clients. Future research studies could compare treatment outcomes for gifted adults who receive counseling from each of the applicable theoretical perspectives described in Mendaglio and Peterson's (2007) *Models of Counseling Gifted Children, Adolescents, and Young Adults.*

Another future research application of the KAGS would be to use the scale to identify a sample of gifted adults and survey this sample regarding their mental health needs, concerns, prior counseling experiences, perceptions of prior counseling experiences, and attitudes toward utilization of counseling. Such a study would allow

psychologists to determine the rates of utilization of counseling by the gifted population in proportion to need, the most common mental health concerns of the gifted population and their prevalence, and the factors that encourage or inhibit gifted adults' use of counseling. These findings could then be used to develop university counseling center outreach programs for gifted and honors college students and to train future mental health professionals to better meet the needs of gifted adult clients.

The KAGS could also be used to identify gifted adults for future studies of successful relationships among gifted adults, career adjustment in the gifted population, and coping techniques among gifted adults. Terman's (1925; Terman & Oden, 1947; Terman & Oden, 1959) longitudinal study of the development of gifted individuals, the largest-scale study of the lives of identified gifted individuals from childhood through old age, found evidence of positive adjustment and successful careers and relationships in the majority of gifted adults. These findings suggest that psychologists can learn a great deal about leading successful, satisfying, and productive lives from studying the gifted population. The findings from studies of the lives of gifted adults who have satisfying relationships and careers can be used to develop psychoeducational interventions for both gifted and non-gifted clients in order to encourage positive adjustment and to prevent career and relationship difficulties.

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# Appendix A

## Ksiazak Adult Giftedness Scale

1.) It is important for me to be able to have intellectually stimulating discussions.
*Never* *Almost Never* *Rarely* *Sometimes* *Often* *Almost Always* *Always*

2.) When I am interested in something, I take the time to learn everything I can about it.
*Never* *Almost Never* *Rarely* *Sometimes* *Often* *Almost Always* *Always*

3.) I think about existential issues often (e.g. the meaning of life, freedom and responsibility, etc.).
*Never* *Almost Never* *Rarely* *Sometimes* *Often* *Almost Always* *Always*

4.) It is easy for me to learn new material the first time I am exposed to it.
*Never* *Almost Never* *Rarely* *Sometimes* *Often* *Almost Always* *Always*

5.) I solve problems intuitively.
*Never* *Almost Never* *Rarely* *Sometimes* *Often* *Almost Always* *Always*

6.) I ponder the meaning of my life.
*Never* *Almost Never* *Rarely* *Sometimes* *Often* *Almost Always* *Always*

7.) It is important for me to be intellectually challenged at work or school.
*Never* *Almost Never* *Rarely* *Sometimes* *Often* *Almost Always* *Always*

8.) It is easy for me to integrate information from multiple sources.
*Never* *Almost Never* *Rarely* *Sometimes* *Often* *Almost Always* *Always*

9.) I use metaphors in my speech.
*Never* *Almost Never* *Rarely* *Sometimes* *Often* *Almost Always* *Always*

10.) It is very frustrating for me to be with people who don't learn as quickly as I do.
*Never* *Almost Never* *Rarely* *Sometimes* *Often* *Almost Always* *Always*

11.) I love to talk about ideas.
*Never* *Almost Never* *Rarely* *Sometimes* *Often* *Almost Always* *Always*

12.) I think that some problems have more than one right answer.
*Never* *Almost Never* *Rarely* *Sometimes* *Often* *Almost Always* *Always*

13.) Other people would describe me as a creative person.
*Never* *Almost Never* *Rarely* *Sometimes* *Often* *Almost Always* *Always*

14.) I tend to get tired of a job after I have learned how to do everything that is required for it.
*Never Almost Never Rarely Sometimes Often Almost Always Always*

15.) I am a curious person.
*Never Almost Never Rarely Sometimes Often Almost Always Always*

16.) I am able to remember more things than other people.
*Never Almost Never Rarely Sometimes Often Almost Always Always*

17.) I am very concerned about world issues such as the environment, homelessness, war, or human rights.
*Never Almost Never Rarely Sometimes Often Almost Always Always*

18.) I come up with original ideas.
*Never Almost Never Rarely Sometimes Often Almost Always Always*

19.) I am an avid reader.
*Never Almost Never Rarely Sometimes Often Almost Always Always*

20.) I am an independent thinker.
*Never Almost Never Rarely Sometimes Often Almost Always Always*

21.) I have an advanced vocabulary compared to most other people.
*Never Almost Never Rarely Sometimes Often Almost Always Alway*

22.) I learn new material with few repetitions.
*Never Almost Never Rarely Sometimes Often Almost Always Always*

23.) Continuing to learn throughout my life is one of my most important priorities.
*Never Almost Never Rarely Sometimes Often Almost Always Always*

# Appendix B

## Scale of Creative Attributes and Behaviors
(Kelly, 2004)

There are many different ways to be creative. In responding to the following questions, think of all the new things and ideas that you generate, as well as all the ways you express yourself artistically, as creativity. These ideas and expressions may include art, writing, new ideas, new uses for something, etc. Using the scale below, indicate how characteristic of you each statement is. Don't spend too much time on any one statement, but give the answer that is most characteristic of you.

1. I spend much of my time creating things.

*Strongly disagree Disagree Slightly Disagre Neither agree nor disagree Slightly Agree Agree Strongly Agree*

2. I dabble in many different hobbies.

*Strongly disagree Disagree Slightly Disagre Neither agree nor disagree Slightly Agree Agree Strongly Agree*

3. I enjoy creating new things.

*Strongly disagree Disagree Slightly Disagre Neither agree nor disagree Slightly Agree Agree Strongly Agree*

4. I work on some type of creative project on a daily basis.

*Strongly disagree Disagree Slightly Disagre Neither agree nor disagree Slightly Agree Agree Strongly Agree*

5. I am often able to see the "big picture" where others can't

*Strongly disagree Disagree Slightly Disagre Neither agree nor disagree Slightly Agree Agree Strongly Agree*

6. I am often able to make connections between seemingly unrelated things or situations.

*Strongly disagree Disagree Slightly Disagre Neither agree nor disagree Slightly Agree Agree Strongly Agree*

7. I have an ability to find the hidden potential of ideas that others often can't see.

*Strongly disagree Disagree Slightly Disagre Neither agree nor disagree Slightly Agree Agree Strongly Agree*

8. When someone asks me to solve a difficult problem, I can usually find creative solutions.

*Strongly disagree Disagree Slightly Disagre Neither agree nor disagree Slightly Agree Agree Strongly Agree*

9. I am somewhat mischievous.

*Strongly disagree Disagree Slightly Disagre Neither agree nor disagree Slightly Agree Agree Strongly Agree*

10. I am very spontaneous.

*Strongly disagree Disagree Slightly Disagre Neither agree nor disagree Slightly Agree Agree Strongly Agree*

11. I am impulsive.

*Strongly disagree Disagree Slightly Disagre Neither agree nor disagree Slightly Agree Agree Strongly Agree*

12. I am a “risk taker”.

*Strongly disagree Disagree Slightly Disagre Neither agree nor disagree Slightly Agree Agree Strongly Agree*

13. I am flexible in my thinking.

*Strongly disagree Disagree Slightly Disagre Neither agree nor disagree Slightly Agree Agree Strongly Agree*

14. I like new ideas.

*Strongly disagree Disagree Slightly Disagre Neither agree nor disagree Slightly Agree Agree Strongly Agree*

15. I am very tolerant of other people.

*Strongly disagree Disagree Slightly Disagre Neither agree nor disagree Slightly Agree Agree Strongly Agree*

16. I am accepting of other peoples’ ideas.

*Strongly disagree Disagree Slightly Disagre Neither agree nor disagree Slightly Agree Agree Strongly Agree*

17. I often fantasize.

*Strongly disagree Disagree Slightly Disagre Neither agree nor disagree Slightly Agree Agree Strongly Agree*

18. I don’t like to waste my time daydreaming.

*Strongly disagree Disagree Slightly Disagre Neither agree nor disagree Slightly Agree Agree Strongly Agree*

19. I would have difficulty just letting my mind wander without control or guidance.

*Strongly disagree Disagree Slightly Disagre Neither agree nor disagree Slightly Agree Agree Strongly Agree*

20. I like to imagine going to new places.

*Strongly disagree Disagree Slightly Disagre Neither agree nor disagree Slightly Agree Agree Strongly Agree*

# Appendix C

## Multigroup Ethnic Identity Measure

Indicate how much you agree or disagree with each statement.

1.) I have spent time trying to find out more about my ethnic group, such as its history, traditions, and customs.
*Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

2.) I am active in organizations or social groups that include mostly members of my own ethnic group.
*Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

3.) I have a clear sense of my ethnic background and what it means for me.
*Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

4.) I think a lot about how my life will be affected by my ethnic group membership.
*Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

5.) I am happy that I am a member of the group I belong to.
*Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

6.) I have a strong sense of belonging to my own ethnic group.
*Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

7.) I understand pretty well what my ethnic group membership means to me.
*Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

8.) In order to learn more about my ethnic background, I have often talked to other people about my ethnic group.
*Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

9.) I have a lot of pride in my ethnic group.
*Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

10.) I participate in cultural practices of my own group, such as special food, music, or customs.
*Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

11.) I feel a strong attachment towards my own ethnic group.
*Strongly Disagree* *Disagree* *Agree* *Strongly Agree*

12.) I feel good about my cultural or ethnic background.
*Strongly Disagree* *Disagree* *Agree* *Strongly Agree*