Introduction

Educational policy in the United States has long been based on a system that values cognitive skills (i.e., memory and analytic abilities) in assessing and determining intelligence, while at the same time devaluing those individuals with other talents such as creative and practical noncognitive abilities (Sternberg, 2010). This has led to a closed educational system which has been primarily based on Charles Spearman's theory of intelligence (e.g., g-factor) from which all standardized testing is based (Sternberg). Furthermore, educational policy planning in the U.S. has traditionally undervalued using noncognitive factors in assessing intelligence (Heckman, 2008). Recent research, however, has determined the value of using noncognitive factors for teaching diverse types of abilities (Sternberg, 2005); for evaluation within developmental education (Boylan, 2009); and, for standardized testing (Schmitt et al., 2009; Sternberg, 2009). Gottfredson and Saklofske (2009) noted the trend in research is to find ways to partner cognitive and noncognitive viewpoints to better understand cognitive competencies. Heckman (2008) reported that the evidence gained from the recent ability to measure noncognitive skills is beginning to confirm that college students can improve cognitive skills training by primarily focusing on their noncognitive skills, such as social-emotional regulation, personality, motivation, and a willingness to communicate with others.

In order to further investigate this issue, the central purpose for this phenomenological study was to investigate the multidimensional ways that noncognitive factors influenced academic preparedness. Several noncognitive areas such as educational factors, personal factors, affective factors, and noncognitive skill factors were explored. The resulting textual narratives and structural themes that emerged coming from our participants' lived experiences led to the development of four cognitive/noncognitive distinctions, and ultimately into an overall creative synthesis of four types of academic preparedness and underpreparedness: Cognitively Prepared/Noncognitively Prepared;   Cognitively Prepared/Noncognitively Underprepared; Cognitively   Underprepared/Noncognitively   Prepared;   and,   Cognitively Underprepared/Noncognitively Underprepared (Finkelstein & Thom, 2014).

Literature Review

The previously mentioned four cognitive/noncognitive distinctions were mainly derived from studying the implications of noncognitive factors. Researchers have discovered the need for assessing academically underprepared students using cognitive factors combined with noncognitive factors (Thom, 2013). However, they primarily investigated only one or two noncognitive areas for their research. For example, Sternberg (2009) focused on noncognitive skill factors; Boylan (2008) focused on affective factors as well as personal factors; and, Fewell and Deutscher (2004) focused on early educational factors.

Seminal Research on Noncognitive Factors

Recent researches on noncognitive factors were all preceded by Vygotsky (1978). He believed in the interlocking of both cognitive and noncognitive abilities. He further suggested that noncognitive abilities (i.e., auxiliary tools) such as self-regulation and metacognitive skills were brought about through social/cultural influences and language (Van Der Veer, 2007). However,

it wasn't until the 1960s and 1970s that Vygotsky's social/cultural theory was recognized by psychologists looking for an alternative to Piaget's cognitive theories. (Van Der Veer). Additionally, neuropsychology research beginning in the 1970s eventually led to the development of multiple intelligences (MI) theory (Gardner, 2006). Other researchers focused on highlighting the hidden talents of both lower socioeconomic students and higher socioeconomic students based on successful intelligence theory (Sternberg, 2010). It was these early studies on noncognitive factors that led to the recent proliferation of research on the influence of noncognitive factors.

Current research on noncognitive factors has been instrumental in discovering the important influence of noncognitive factors on academic success. Heckman (2008) conducted a social-economic study and found that educational outcomes were reliant on both cognitive skills as well as noncognitive skills. He further noted that noncognitive skills such as motivation and self-regulation were just as important as cognitive skills. Other empirical evidence indicated that more improvement would occur in the cognitive training of adults and adolescence when noncognitive skills were the focus, rather than with cognitive training alone (Cunha & Heckman, 2008).

Vukman and Licardo (2010) confirmed that self-regulation was a product of social environment, as well as a natural prefrontal cortex maturation process. They advocated using the noncognitive factor of self-regulation in finding solutions to obstacles. Monitoring self progress, note taking, and setting goals were self-regulation techniques recommended by Berger (2011) for focused interventions to help learners become proactive learners by making them aware of their strengths and limitations. According to Sitzmann and Ely (2011), the most indispensable asset an adult has for effective functioning in the workforce, personal lives, and higher education is their self-regulation.

        Academic Underpreparedness. While self-regulation and metacognition may be important noncognitive factors affecting academic underpreparedness, other noncognitive factors in several areas may have a combined affect on learning. For example, Boylan focused his research on affective factors (i.e., motivation and self-efficacy), personal factors (e.g., at-risk factors), and cognitive factors (i.e., math and English) to understand academic underpreparedness for targeted interventions. Sternberg (2007) focused his research on noncognitive skill factors (i.e., creative skills and practical skills) along with cognitive skills to discover gifted students in both lower and upper socioeconomic levels for college entrance testing. Fewell and Deutscher (2004) studied early educational factors focusing on maternal responsivity. The current study focuses not on one noncognitive factor but four areas of noncognitive factors such as affective factors, personal factors, educational factors, and noncognitive skill factors to better understand the combined affect on academic underpreparedness.

Understanding academic preparedness and underpreparedness may come from understanding the construct of intelligence. According to Shavinina (2008), understanding human intelligence is not possible using current intelligence theory. Current intelligence theory has a foundation on fixed intelligence and uses what is referred to as general intelligence known as g-factor, which according to Gardner (2006) is the latent variable used in standardized testing.

Significance of Traditional and Other Intelligence Theories

Binet, who was credited with making a questionnaire that led towards the intelligence quotient (i.e., IQ) test, was adamantly against using his questionnaire as a construct of fixed intelligence (Van Der Veer, 2007). However, the construct of fixed intelligence has prevailed. Jackson (2007) reported that the construct of fixed intelligence was used as the basis for the Army Alpha test. In 1917 the Binet-based questionnaire was used to create the first standardized test at the national level. This fixed intelligence theory became known as g-factor intelligence theory, or as Guvercin and Arda (2008) stated, a heredity transfer of intelligence. Gardner (2006) reported the IQ test was later to become known as Scholastic Aptitude Test (i.e. SAT), which was introduced in 1926 by the College Board (Sternberg, 2010). To this day, most colleges use some form of standardized testing such as SAT or American College Test (i.e., ACT) (Boylan, 2009). Thom (2013) noted that even the computer placement assessment and support system (i.e., COMPASS) used by most community colleges has a foundation similar to SAT and ACT tests.

G-factor intelligence. Standardized testing (e.g., SAT, ACT, or COMPASS) using IQ as the foundation has g-factor as the underlying construct (Weel, 2008). Van Der Veer (2007) noted during the development of g-factor intelligence theory that cognitive abilities were considered to be stable and unchanging. These abilities were described as psychological constructs in terms of traits of emotional and intelligence stability (Gottfredson & Saklofske, 2009). However, Sternberg (2010) reported this has led to an educational system in which only analytical and memory skills were valued depriving society of individuals who have noncognitive skills such as creative and practical skills.

Boylan (2009) reported most colleges use SAT or ACT to measure academic preparedness. Syverson (2007) showed that SAT and ACT scores can accurately assess academic preparedness of prospective college students. However, under scrutiny, Geiser (2009) noted that these tests were not accurate when assessing academically underprepared college students. In essence, educational systems in the U.S. have an incomplete understanding of the important influence of noncognitive factors when concerning academically underprepared adults (Thom, 2013).

Imitation as dynamic intelligence. Shortly after the development of fixed intelligence theory Vygotsky proposed a counter theory of dynamic intelligence (Van Der Veer, 2007). Fixed intelligence theory was based on the assumption that cognitive intelligence was inherited at birth, aided by maturation, and could not be contaminated by environment or even instruction (Van Der Veer). However, Vygotsky (1978) suggested that intellectual growth occurs first from emotional regulation (i.e., self-regulation) combined with communicative speech, and then expanded by the individual's ability to plan (i.e., metacognition). He felt that the ability of a young individual to imitate a more knowledgeable elder led to intellectual development through reenactments of environmental situations. He further argued that auxiliary tools (i.e., the child's ability to self-regulate leading toward their developing metacognitive skills) were a construct of dynamic intelligence developed first through imitation and the *zone of proximal development*. He defined this as the gap between actual development and potential development, determined through problem-solving exercises with assistance by a more capable elder or peer. This suggests that instruction should not follow the mental development of individuals but run ahead of their

mental development (Van Der Veer, 2007). Van Der Veer further noted that only instruction that stimulates independent performance above the individuals' actual developmental stage is fruitful toward higher mental development.

Successful intelligence. Sternberg (2008) believed including creative and practical abilities (i.e., noncognitive abilities) in standardized tests could increase assessment accuracy without lowering academic standards. His research indicated that teaching in a way to match natural abilities may lead to better academic performance by college students. His *Successful Intelligence Theory* is based on the notion that all individuals can have weaknesses and strengths in three areas (analytical, practical, and creative), and they compensate their weaknesses with their strengths as a form of successful intelligence. Sternberg et al. (2010) believed that diverse sociodemographic groups such as those based on gender and ethnicity may need to overcome challenging environments, leading to the development of practical and creative skills. To test his theory, Sternberg (2010) conducted the Kaleidoscope and Rainbow research studies. He found that he could increase college diversity of gender and ethnic groups while also increasing academic standards.

Multiple intelligence theory. Multiple intelligences is based on the idea that individuals can have many intelligences (Gardner, 2006). Gardner felt that standardized testing only gives a partial view of an individual's intellectual abilities. He described the social/cultural environment of an individual as the basis for a bio-psychological potential. Gardner (2007) indicated social influences reorganize the structure of the brain into many autonomous abilities and each of these abilities become different forms of intelligence. In reference to education, he warned to not curtail connections made by the young mind as these connections may join diverse neural networks of intelligences. According to Helding (2009), MI theory in arts education and education in general may represent an historical paradigm shift. She lists the seven original intelligences as: (1) linguistic, (2) logical-mathematical, (3) spatial, (4) bodily-kinesthetic, (5) interpersonal, (6) intrapersonal, and (7) musical.

Methods

The data in this study was collected using in-depth, semi-structured interviews that were individually conducted with 16 college students from a four year college in the Southwest. The audio recorded interviews were subsequently transcribed verbatim. All participants were assigned pseudonyms to maintain confidentiality and anonymity. The participants were from a variety of ethnic groups including Hispanic, White, Native American, and African American. All participants were over the age of 18 were currently enrolled in a below college level course.

Participants were asked about their lived experiences related to noncognitive factors including personal factors (relationship to parents, parental unemployment, parental literacy); affective factors, (attitude towards learning, willingness to make an extra effort, willingness to seek help); noncognitive skill factors (creativity and practical skills); and, early educational factors (educational experiences from pre-K through high school). Open-ended interview questions were developed with the purpose of understanding how the students' experiences with noncognitive factors influenced their academic preparedness.

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The data analysis included reading the interview transcripts several time to achieve what Giorgi (1985) called a "sense of the whole" (p.10). As categories emerged from the data, they were established as storage units for similar participants' significant statements. Out of these statements emerged textual categories with invariant constitutes to provide what Moustakas (1994) called narrative descriptions. Using textual categories, structural themes, and integrated aspects of interpretive phenomenological analysis, a cohesive analysis of academic underpreparedness evolved using four cognitive/noncognitive distinctions of preparedness and underpreparedness. Finally, through iterative readings of textual categories and structural themes, a creative synthesis adapted to the study was an attempt to make visible what was previously invisible.

The analysis included five preconfigured categories: college experiences; early educational factors; personal factors; affective factors; and, noncognitive skill factors. A further analysis of textual categories, structural themes, and integrated aspects of interpretive phenomenological resulted in a creative synthesis of academic underpreparedness using four cognitive/noncognitive distinctions of preparedness and underpreparedness. These themes are discussed in the following section. Structural themes are described within the discussion of each major category.

Areas of Noncognitive Factors

While most studies on noncognitive factors focus on one factor or one area of factors, this study expanded the scope of inquiry to combine four areas of noncognitive factors as a multi-area factor. This multi-area factor as discussed below included educational factors, personal factors, affective factors, and noncognitive skill factors. An examination of these areas ultimately provided a multidimensional view of the ways noncognitive factors influence academic preparedness.

Educational Factors

Educational factors include educational experiences from pre-kindergarten through high school (Fewell & Deutscher, 2004; Mathews, 2010). To understand how this area influenced academic preparedness participants were asked to give their perceptions on their experiences related to early educational factors before and during K-12. Participants; textual and structural narratives revealed that most were read to as children but not by their parents. This was consistently reported by participants, regardless of whether they were raised in broken families or two-parent families. Most revealing was that participants were not pushed by their parents to succeed academically nor did they have chores imposed on them. For example, Rachel told us, "I wish they would have stressed to me more of the uh, taking it more of accountability and responsibility…rather than to end up dropping out." Serena added, "…we weren't guided very well and were making a lot of mistakes." The limited few participants who did receive some form of structural discipline or were pushed to succeed academically by their parents often had some form of cognitive or noncognitive preparedness. For instance, John noted, "We were always active at home and there were a lot of chores." In another example, Henry noted, "…my father control my education… always directing me."

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Participants also revealed that the K-12 school system did not push many of them to succeed toward academic excellence. They were allowed to put minimal effort into their academics and pass into higher grade levels. Serena noted, "they just seem a little bored…maybe they're just tired of teaching, I don't know. Laura added, "I don't think that any of us realized how important it was…the teachers really didn't want to take the time." Jackie reported, "teachers, they're just passing students, even if they don't understand the – what they're trying to teach." In summary, participants' pre-kindergarten experience was inconclusive concerning academic preparedness. However by taking a fresh look at participants' direct-quote data, this noncognitive area of educational factors, as a whole, was found to be a negative influence on participants' academic preparedness.

Personal Factors

Griffin (2008) defined personal factors as personal at-risk issues as well as family at-risk issues, such as parental unemployment, illiteracy, and absentee parents. Boylan (2009) cited childcare issues and language barriers as personal factors that may influence study habits. To understand how this area of noncognitive factors influenced academic preparedness, participants were asked to describe any personal issues that may have helped or hindered their ability to obtain a college degree. The data on this factor revealed that most participants had family at-risk issues, as well as some personal at-risk issues. However, family issues were predominant. For instance, most broken homes had much strife between parents. Jackie acknowledged, "it was difficult trying to grow up because…my father was abusive and stuff, and, um, it was just difficult growing up." Josephine replied, "I was going through a tough time, because my mom was going through a divorce." Additionally, some of the participants who were raised in two-parent families also reported family conflict. Delores revealed,"…my mom stayed at home with us kids, but it was a lot of – there was a lot of chaos going on all the time." This one aspect of strife within personal factors was a significant negative influence on most participants' academic preparedness throughout k-12 and going into college.

Affective Factors

Boylan (2009) described affective factors as motivation attributes such as the students' approach toward learning, their willingness to ask for help, and an all around determination to put an extra effort into their learning. To discover the ways this area of noncognitive factors influenced academic preparedness participants were asked to describe how they would overcome the challenges they may face in obtaining a college degree. The data obtained from participants' direct quotes revealed that the study participants had a great deal of motivation and determination to overcome their circumstances in order to obtain their degree. James replied, "…overcome any obstacle that's set in my path and if I can't, and I have to ask for help, I mean I will." David also mentioned, "…there's a certain, certain level of self-control, I guess, that I have over myself for, uh, pushing past the procrastination and getting that work done, or whatever." However, this determination and motivation they expressed was dependent on student support services, such as tutoring, and mainly student financial support services provided by the college. For instance, Rachel noted, "Um, I'm on financial aid so without those, without the ability with financial aid I would have never been able to go." In other words, college support services were

converging with affective factors to have a positive influence on academic preparedness.

Noncognitive Skill Factors

Sternberg (2008) revealed through several of his own research studies that noncognitive skill factors, he called creativity and practical skills, were just as important as analytical skills in determining students' academic preparedness. To explore the ways this noncognitive area may have influenced students' academic preparedness participants were asked to describe an educational situation in which a teacher inspired them to think creatively or use practical skills. Most participants could think of at least one teacher who inspired them. Frank recalled, "My sixth grade teacher, he was awesome. He always inspired me to be myself and encouraged me to go further in education." However, most participants were longing for creativity to be included into their curriculum. These participants found academic lectures to be boring and desired their classes to be inspiring such as learning life skills. Rachel reported, "I think that it's important for teachers to inspire their students… to give life skills, so that students will be able to compete in the real world." As well, some participants felt something was missing in education. Apollo expressed, "…I think that's where, um, uh, there's like a bridge – a broken bridge in a sense." While the noncognitive skill factor area was found to be helpful toward academic preparedness, it was also found that it was not used much in education according to the lived experiences of the participants in this study.

Four Cognitive/Noncognitive Distinctions

The challenge of this study was to discover from what appears to be simple the hidden complexity (Brough, 2008). Combining Vygotsky's findings on self-regulation and metacognition, with the multidimensionality of the four noncognitive areas previously mentioned several cognitive/noncognitive distinctions were developed to create an overall creative synthesis: (1) cognitively/noncognitively prepared; (2) cognitively prepared/noncognitively underprepared; (3) cognitively underprepared/noncognitively prepared; and, (4) cognitively/noncognitively underprepared.

The term *cognitively prepared* was based on the students' metacognitive ability to consciously develop some sort of planning strategy, such as planning to enter a university, planning a business, or planning to home-school their children. Efklides (2008) described cognitive as the metacognitive ability to develop a conscious process of planning strategies. According to Dunlosky and Metcalfe (2009), metacognitive abilities are separate from a student's measured intelligence quotient (IQ).

Noncognitively prepared was defined as the students' ability to self-regulate, such as their behavioral ability to control their attention, actions, or thoughts. Sitzmann and Ely (2011) described self-regulation as an emotional or behavioral choice process in which choices are made about how much of personal resources are to be used for the attainment of a goal. According to Vukman and Licardo (2010), guidance coming from student's social environment as well as a maturing prefrontal cortex may result in the student developing their self-regulation.

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By operationalizing the terms *cognitively prepared* and *noncognitively prepared*, a culmination of participant's direct quotes was instrumental in developing what Moustakas (1994) called a creative synthesis, and of what Pringle, Drummond, McLafferty, and Hendry (2011) called evidenced-based data. In line with this rationale, much of the narration in this part of the study consists of participants' direct quotes. Also, the assumption is made that self-regulation and metacognition are central to academic preparedness.

Cognitively Prepared/Noncognitively Prepared

Only one student out of the 16 in the study was found to be both cognitively and noncognitively prepared. This implies that the student was prepared for college in both cognitive and noncognitive areas. This student was attending college to support his daughter in her education, and the school system allowed him to attend below college level courses with his daughter. This student, John, reported that he home-schooled his daughter. He mentioned, "…her not being ever in a classroom was a little scary for her, and I said, 'Don't worry, I'll go with you'…" About having chores, he explained," We were always active at home and there were a lot of chores."

John often tutored many of the students at the college and home-schooled his daughter. For these reasons, he was deemed metacognitively prepared. He reported few negative experiences from his early schooling, home environment, or negative personal issues in his early life as a child or in his later life as an adult. He was an excellent example of having both self-regulation (i.e., control of his thoughts, attention, and actions) and metacognitive skills (i.e., the ability to plan such as planning to enter a university, planning to start a business, or home-schooling his child). John seemed to have an advantage on most participants by having a structured stable and loving two-parent home environment. This is consistent with Heckman (2008), who suggested that the quality of home environment is more influential in determining academic disadvantage or advantage than from financial resources alone.

Cognitively Prepared/Noncognitively Underprepared

Two other participants in the study, Tanya and Frank were both considered cognitively prepared, meaning they had good metacognition. However, they were both lacking in self-regulation. Tanya had family issues, and later personal issues. Frank had no childhood family issues but later experienced negative personal issues as an adult.

Tanya reported she took proficiency test in testing out of high school and received her diploma at 16 years of age. She stated, "I took a proficiency exam…I would have got when 16…I tested out, yes." A few years later, she received an associate's degree. However, even though she did not return to college for 14 years and she had to take a below college level math class as a refresher, It was as a result of her earlier proficiency exam, her early university experience, and her recent membership in an academic honor society that she was considered cognitively prepared. In her own words, Tanya reported, "Um, I actually belonged to an Honor Society… I enjoyed helping people on campus." At the same time, however, Tanya was also noncognitively underprepared due to her family and personal issues putting her at-risk. For example, she had to deal with an alcoholic ex-husband and she had scheduling issues in school as the result of her children who have special needs. She explained, "So having to be divorced…an ex-spouse has probably

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actually been a bigger factor than being disabled or being, uh, a mom with kids that do have special needs. So I have a lot of challenges there."

When asked how she got along with her parents, Tanya revealed, "we actually worked together; and I enjoyed working with them more than I did going to school quite honestly… My dad had issues where he wasn't around a lot and, uh, suffered from alcoholism." She also noted, "I knew how to make money. I was working with my parents…I had the regular separation from my parents and the kind of rebellion…I was actually staying with my sister, um, during high school." Although Tanya had a shaky relationship with her parents, she apparently did have some family structure imposed such as chores in her parent's business. She also enjoyed this activity. This was similar to John's experience of working and doing chores with his mother. Both John and Tanya were deemed cognitively prepared, and both had worked within their parent's businesses. However, the fact that Tanya had early family issues involving her father's alcoholism, as well as her personal issues as an adult with an ex-husband, who was also alcoholic, put her at-risk. As a result, she was noncognitively underprepared.

Frank was also deemed cognitively prepared. He noted, "My mom has her Associate's in Public Administration and my dad was an accountant for over 17 years, so they were both professionals…I'm also president of a student organization here on campus… I don't' want to start drinking again...I made some wrong choices in my life." Frank was considered cognitively prepared because he was able to enter into a large university straight from high school. This was evident even though he developed an alcohol problem and dropped out of the university. When he returned after 20 years he had to take below college level courses. However, he had no problem with his courses when he came back to education and he became the president of a student organization. Conversely, He was deemed noncognitively prepared because of his alcohol drinking issue, which makes him an at-risk student.

Cognitively Underprepared/Noncognitively Prepared

This distinction is defined as metacognitively underprepared with self-regulation preparedness. By overlapping textual descriptions with structural themes, the discovery was that some participants who were noncognitively underprepared as children in K-12 were actually noncognitively prepared as adults in college.

For example, Henry came from a loving two-parent family. He would have been in the cognitively/noncognitively prepared category. However, he came from another country and did not speak fluent English, which left him cognitively underprepared in this country. In fact, he reported doing well in math, chemistry, and physics. He reported, "… Like math, physics and chemistry, I'm really good at that, but the good thing here is like they prepare you for talking." He further mentioned, "…I've got a good relationship with my father…and my mother I consider her like my best friend…" Although Henry was deemed cognitively underprepared because of his low ability to speak English, he was noncognitively prepared because of his strong family support.

Jane also came from a two-parent family. She was deemed cognitively underprepared because she quit high school did not return to education for over 20 years. This was due to a family health

issue, which required her to play a second mother to her siblings. She stated, "I dropped out…there was a lot of family issues…I kind of played the role of a second mother in it…because either my mom was sick or she was giving birth." However, she was deemed noncognitively prepared because later in her life, her family wanted her to finish her education. She stated, "…My kids would say, well, what's holding you? Why aren't you finishing up? I said I don't know." The family issues that she had experienced in her youth had disappeared. Although she was out of education for over 20 years, which made her cognitively underprepared, she now had her family support to go to college. Her decision to help her ailing family as well as her current family support made her noncognitively prepared. She was definitely able to control her behavioral choices such as control of her thoughts, attention, and actions.

While Phil also came from a loving two-parent family, he was deemed cognitively underprepared because of a learning disability. However, his learning disability did not stop him from going to a university directly from high school. The high school he attended was able to deal with his disability and teach him in a way that was conducive to his learning style. Conversely, the university he attended had too many students in class. He eventually had to drop out and go to another college. Phil reported, "My home is a loving home…I am dyslexic…I could talk to teachers. The teachers will tell me what I need to do… way different than LA. In LA, it was – the lady that supposed to help you, she was so busy – so many students." He was deemed cognitively underprepared because he needed a particular method of teaching because of his learning disability. However, he was noncognitively prepared mainly because he has a supportive and loving family, which helped him to make positive behavioral choices.

Lydia came from a broken family and also had a learning disability. She was considered cognitively underprepared because of her learning disability. When asked about her learning disability and family life as a child she explained, "…I have dyslexia…I have extra time on my test…My parents got a divorce when I was five… It's getting better because now I live with my mom so there's no more fighting. She eventually received help with her disability and attended all regular classes during high school. She went directly into college from high school and has her mother's emotional and financial support while currently in college. Lydia further explained, "**…** I was in all regular classes**…**My mom told me and my sister that if we go to college, me and her do not have to work**...**" Because Lydia currently has a stable and supportive environment helping her to make responsible decisions provided by her mom, she was considered noncognitively prepared.

Cognitively Underprepared/Noncognitively Underprepared

The main difference between this cognitive/noncognitive distinction and the other three previous distinctions was that seven of the nine participants were from broken homes. Six of the seven participants in the first three distinctions were from two-parent families.

Using participants' direct quotes from this current distinction, a picture of academic underpreparedness begins to emerge. For instance Serena was from a broken family and she was a returning adult. She entered college courses before she was ready. She was considered cognitively underprepared because she had much difficulty with her college level courses. In one example, she reported, "I got straight into algebra and I hadn't taken a math class in quite some

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time so, it was a little difficult…" She was deemed noncognitively underprepared because of her lack of family support and consequently her making bad choices. She recalled, "…broken home, we were living with our grandparents… we weren't guided very well and were making a lot of mistakes…I started drinking about 13… spent a lot of years creating my own obstacles…"

In another example, Josephine began college immediately after graduating high school. She was from a broken family but very much attached to her grandfather. When her grandfather died she lost her motivation to learn, which may have been a main contribution to her cognitive underpreparedness. She was also noncognitively underprepared because of lack of family support and the negative effect of alcoholism in her family. She noted, "When my grandfather passed away, and that was a real hardship, that affected my grades…my mom's divorce and my dad is an alcoholic…me and the father of my child broke up…that's a pretty big barrier."

Rachel was another returning adult more than 20 years after dropping out of high school. She also had a learning disability. These issues combined with the fact that she had no family support led to her being deemed cognitively underprepared and noncognitively underprepared. She noted, "…they divorced when I was very young…I must deal with a learning disability…I do depend on as much tutoring as I can get help with…Um, my K-12 was rocky…because of my home life…"

Delores was a high school dropout returning to education after 25 years of being away. She was from a two-parent family but her family life was chaotic. She found no reason to learn during her k-12 experience. For these reasons, she was considered both cognitively and noncognitively underprepared. She acknowledged,

> …I hadn't been at school in twenty-five years; my math skills were not good… I dropped out…I was not happy…there was a lot of chaos going on all the time… K-12 you pretty much sat there, be quiet and it was almost like they were drilling something into you rather than letting you show the willingness of wanting to learn.

These participants were all examples of the negative effects of the two previously mentioned noncognitive areas, personal factors and educational factors. These study participants had virtually no family support or anyone to push them academically. As well, the k-12 educational system may have failed these participants. For instance Laura, who came from a two-parent family, mentioned, "…there was no one at school who really wanted to take the time to help me… and then High School, it didn't really seem that important because there wasn't anybody pushing me… and the teachers did not care to help." As well, Jackie noted,

> …my kindergarten through 12th grade experience…it was kind of hard to learn… I remember one teacher in particular, she, um, she would just give us an assignment, and she would then – after, she would just play on her cell phone or just play cards… teachers, they're just passing students, even if they don't understand the – what they're trying to teach.

Overall Creative Synthesis

Although having a two-parent family was conducive toward some form of academic preparedness, either cognitively or noncognitively, it was not a guarantee of any form of

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academic preparedness (Finkelstein & Thom, 2014). For example, the deciding issue was whether there was family strife between the parents such as arguing, or if there was an alcohol issue with at least one parent, or an alcohol issue with the participant. As one example, Lydia wished her parents were not fighting and were still together. She stated, "my mom and my dad not fighting, them still together." In another example, James stated, "… my father was an alcoholic… my mom and him would be fighting, and me and my sister would be there really sad and stuff". As well, Frank also stated, "The main factor for me was alcohol… it did take a hold of me." Alcoholism and family strife were issues that came up consistently even though this specific question was never asked, during initial interview questions or probing questions.

Another synthesis that came from the study participants was that without some form of structure imposed at home, participants were prone to make bad choices. As a result, they did not put forth an effort into their academics. Serena, who was mentioned in the cognitively underprepared/noncognitively underprepared distinction was from a broken home and spent many of her early years with her grandparents. She admitted that she created many of her own obstacles. She noted, "…we weren't guided very well…living with our grandparents…rough childhood…spent a lot of years creating my own obstacles…started drinking about 13…I didn't care back then." Rachel added, "growing up in my house was very dysfunctional… I never had parents or adults to follow through on my education… that's where my failure started in my education."

Additionally, the school system may not have provided these participants with an atmosphere to strive for academic excellence. For instance, Delores, who was from a two-parent family and was mentioned in the cognitively underprepared/noncognitively underprepared distinction, noted, "k-12 you pretty much sat there, be quiet and it was almost like they were drilling something into you rather than letting you show the willingness of wanting to learn." Also from the same distinction, Jackie noted, "they're just passing students, even if they don't understand the – what they're trying to teach."

The only participants that had cognitive preparedness were from two-parent families in which participants had chores imposed on them such as working in their family business or helping out around the home, or they had parents who were working professionals. For instance, John, who was the only participant both cognitively prepared/noncognitively prepared, had chores imposed on him. He noted that, "… there were a lot of chores." Tanya, who was also cognitively prepared but noncognitively underprepared, acknowledged she grew up "learning by being in a working environment… I was working with my parents." Frank, the other cognitively prepared/noncognitively underprepared participant, added that, "My mom has her Associate's in Public Administration and my dad was an accountant for over 17 years, so they were both professionals."

Another aspect was that six of the nine participants that were both cognitively and noncognitively underprepared were female. When taking a fresh look into the direct-quote data, it was implied by at least one female that her parents approach toward her academics was that it was not that important. For example, it came out through probing questions that Laura had a college fund saved for her by her two-parent family. When probed further, Laura stated, "I, uh, my parents ended up using the money for personal. They had saved it, and they just – they

couldn't – and they ended up using it. And then they just made it seem like it just wasn't that important that I go." Although most participants who were cognitively underprepared/noncognitively underprepared were female, the potential reason for this result was not conclusive.

The overall creative synthesis was that these participants experienced a failure by both their families and the school system towards their obtaining an outlook of academic excellence, which ultimately led to them making bad decisions such as dropping out of school, not applying themselves to their academics, and alcohol abuse. This was supported by the earlier allusion to personal factors and educational factors as both negative influences on participants' academic preparedness.

Overall Influence of Noncognitive Factors on Academic Preparedness

The findings of this study suggest that there are many ways that noncognitive factors influence academic preparedness. The failure of participants' families and k-12 school system established within personal factors and educational factors indicated a common negative effect on participants' academic preparedness. While the majority of participants were returning adults, being away from education for at least 10 to 20 years or more, the majority of participants in the cognitively/noncognitively underprepared distinction were 19 years of age or in their early twenties and female. As well, many of these participants, both male and female who came from broken families had a hard time just obtaining shelter. Apollo mentioned that he "…didn't have nowhere to stay, so I was like, homeless… I had to stay in my girlfriend's car." Laura commented, "I had a lot of barriers because to go to summer school I needed somewhere to live, and I was willing to live in the park…you know leave my dog outside parked, you know tied up so that I could go."

Affective factors combined with college support services such as financial aid and tutoring provided these participants with new optimism. Participants collectively demonstrated a determination to obtain a degree. For example, Jane stated, "Well, I'm very determined. Whenever I set my mind…" As well, affective factors combined with financial support services were a positive influence on academic preparedness. As an example, Delores stated, "The tutoring is wonderful…I'm getting tutoring for my algebra, and it's awesome." James mentioned, "…staying strong and when something happens, if I get a bad grade, just make me try harder. And overcome any obstacle that's set in my path and if I can't, and I have to ask for help, I mean I will." Rachel added, "if I wouldn't have the ability of financial aid it would be rough."

Although noncognitive skills are not measurable items in the U.S. public education school system, many participants expressed the importance of including noncognitive skill factors such as using creative and practical skills. At least one participant considered them to be necessary life skills. For instance, Frank stated,

> …I believe you need to be well rounded in order to survive in this kind of world we live in today…I would have probably come out, excuse the expression, dumb as a rock, because I might be book smart but I wouldn't have common sense or the ability to interact socially with people…

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John added, "…they actually solve problems for you – your own creativity can solve a problem… it's very important how you view things, how you get along, how you see things, knowing that you can either change it or how it was done." Delores stated, "I think being creative is very important. I think it helps the cognitive skills along, whereas if you just have the cognitive without the creation, then it doesn't come together." Rachel added, "…I think it's very important for, for teachers to, to teach education wise but also to keep in mind that uh it's important to give life skills…" Although the school system does not make use of these noncognitive skills as measured items, participants intuitively felt the importance of having creative and practical skills or as one participant stated life skills. This was consistent with Sternberg, who proposed that noncognitive skills such as practical and creative skills were essential life skills.

However, as viewed through a divergent perspective, at least one participant noted how little this noncognitive skill area was used and was therefore unnecessary for him to spend time learning. For instance, James noted,

> I feel like learning math, reading and all of those cognitive skills are something people really need to learn in life because they're used almost every day…practical skills are good, good to learn, but they're not, they're not as important…You chose if you want to know the practical skills.

Because the school system does not make use of these noncognitive skills as an important item to be measured, noncognitive skills factor was found to be non-consequential toward academic preparedness. This was also consistent with Sternberg (2008), who proposed that the educational system is a closed system that values only cognitive analytical skills such as English, math, and memory.

Disconnect Between Social/Cultural Experiences and Cognitive/Noncognitive Development

Sternberg (2007) discovered that disadvantaged individuals who do not develop cognitive skills compensate by developing noncognitive skills such as creative and practical skills as part of their social/cultural experience. He proposed that when these individuals are taught in a way that matches their naturally formed abilities their academic performance improves. Heckman (2008) believes that the educational system does not value noncognitive factors. This implies that academically underprepared participants may experience a mismatch or disconnect between their natural forming abilities derived from social/cultural experiences and their cognitive/noncognitive development obtained from public education teaching norms. This was consistent with Vygotsky (1978), who uncovered many issues related to learning were the result of a disconnection or mismatch between natural forming abilities of individuals and dominant teaching norms in public education.

Vygotsky (1978) theorized that social/cultural experiences provide self-regulation during an individuals' early development leading towards metacognitive skills based on an elder or peer interaction guiding them through their zone of proximal development. According to Cunha and Heckman (2008), during the critical early development before adolescence the brain is more malleable toward cognitive skills development. They further noted that if this critical early developmental period is missed the brain becomes less malleable for cognitive development during late adolescence. They felt that this may provide an explanation for the dismal cognitive

success rates within developmental education. Their recommendation for cost effectiveness in developmental education was to teach by first focusing on the individuals' noncognitive skills as these skills are more malleable within the brain during late adolescence and adulthood.

Noncognitive skill factors such as creative and practical skills may also have a connection to Vygotsky's zone of proximal development. For example, cognitively underprepared/noncognitively underprepared participants expressed their desire to have someone push them, and to have someone to impress. One such participant, Rachel stated, "…I wish I would have had somebody to, to push me or encourage me… I think that it's important for teachers to inspire their students…" Another participant within the same distinction expressed a desire to have someone to impress. James revealed, "…when I met my girlfriend was actually when things started changing for me in school because I…actually had somebody to impress in school because no one really actually did care how I did in school…" In essence, these were participants who wanted to be pushed so that they may grow academically through their zone of proximal development.

Implicit Broken Structure

Noncognitive skill factors, according to Sternberg (2007), are what disadvantaged individuals develop through their social/cultural experiences to survive their challenging environments. However, what happens when the educational system does not teach to the strengths of disadvantaged individuals, such as by nurturing their naturally developed practical and creative abilities? One of the participants from the cognitively underprepared/ noncognitively underprepared distinction offered his own theory. Apollo reasoned,

> … I think that's where, um, uh, there's like a bridge – a broken bridge in a sense. Like, um, there's a lot of people that are creative thinkers that, um, become bored, you know, go off and because they're so depressed and they'll turn to some kind of drug or something, and kill themselves. Not – probably not physically kill themselves, but mentally kill themselves, you know? Some of them plant themselves so deep they can't come back. So I think creative thinking should be more expressed.

The broken bridge that was intuitively understood by this participant was that creativity and practical skills are essential, however not systematically used in his educational lived experience. This participant may have touched upon a main problem in education. When U.S. educational system policy makers devalue noncognitive factors, it creates an implicit broken structure. Heckman (2008) warned educational policy-makers to not underestimate the value of noncognitive factors. This warning may become even more evident when understanding the multidimensionality of noncognitive factors.

Multidimensionality of Noncognitive Factors

The importance of noncognitive factors may become more evident by understanding the multidimensionality of noncognitive factors within an educational context. As explored earlier, four noncognitive areas were used to help understand issues of academic preparedness and underpreparedness. These noncognitive areas may be better understood as one multi-area factor by first taking a look at each part and then looking at the whole.

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Educational factors and personal factors together indicated a negative influence on academic preparedness, as well as causing a possible disconnection or mismatch between social/cultural experiences of participants and their cognitive/noncognitive development. Conversely, affective factors and noncognitive skill factors revealed another story. With affective factors, most participants were highly motivated and indicated a high level of perseverance by overcoming the deficit of personal factors and educational factors with the help of financial aid and tutoring. However, since noncognitive skill factors were rarely used they were found to be a non-consequential influence on participant's academic preparedness. In essence, the multi-area factor may be out-of-balance when concerning academically underprepared students.

Additionally, noncognitive skill factors revealed a disparity or a disconnection between the way participants wanted to be taught and the way they were actually taught. Most participants expressed the importance of using creative and practical skills along with their cognitive skills of English and math. They associated these noncognitive skill factors as essential life skills and longed for these skills to be taught in education. For instance, Rachel noted,

> Again, um, I think it's very important for, for teachers to, to teach education wise but also to keep in mind that uh it's important to give life skills, so that students will be able to compete in the real world. Um, and I think that that should be important to, for the teachers to remember that a lot of the students that, that are high risk, will have the challenge of having to learn skills and life skills.

This was consistent with Sternberg (2009), who proposed that students who came from a disadvantaged background may not develop their cognitive skills, but was likely to develop creative and practical skills as a normal function of successful intelligence. However, if these skills are not valued or taught in an educational setting, student apathy may result. In this study, most participants only had fun in education when they had creative projects such as creative writing or an instructor who was able to convey academic material in a way that was understandable. Serena noted, "There's some people that just walk into a room and you know it's going to be fun or inspiring…Something that they're actually going to use, it can be very inspiring." Josephine added, "My mathematics teacher inspired me. He was one tough… and he pushed us to learn it." This was consistent with Mathews (2010), who discovered one reason for student apathy is that education is not fun.

In result, the multi-area factor is out of balance. Participants may be able to overcome the deficit of educational factors and personal factors with just affective factors aided by college support services. However, they may not develop the full set of skills needed to compete in the job market. Noncognitive skill factors may be the essential part of the multi-area factor to fully balance initial deficits and to propel students onto the world stage.

Research Recommendations

Several recommendations emerged as a result of the study findings. The first recommendation is to provide self-regulation knowledge support so that students can develop their metacognitive skills as a means to improve academic preparedness. Dunlosky and Metcalfe (2009) felt that it was that important to academic preparedness that metacognitive skills are used to compensate for

low IQ. A vital indication of academic preparedness is the self-regulation of students' metacognitive skills (Vukman & Licardo, 2009).

The second recommendation is to provide every student at enrollment information about college support services, such as distributing as a brochure with phone numbers to ensure a cohesive and supportive environment. According to Bailey (2009), the distinction made by developmental education is misguided as even academically prepared students need help. This is especially true of gifted underachievers on which they are creativity based on intrinsic motivation (Morisano & Shore, 2010).

The third recommendation is to include noncognitive skills such as creativity and practical skills along with cognitive skills for evaluating academic preparedness. By including noncognitive skills, students who excel at these noncognitive skills may become as valued as students with cognitive skills. A lowering of academic standards does not occur when including noncognitive factors with cognitive factors for the evaluation of students' academic preparedness (Sternberg, 2008). In fact, empirical data has shown noncognitive factors may increase the evaluation accuracy of academic preparedness (Schmitt et al., 2009; Sternberg, 2008, 2009).

The fourth recommendation is to redesign education from a foundation based on fixed intelligence to a design of dynamic intelligence. This may create the recognition that intelligence is not just from genetic inheritance, but also stems from environmental influences. The redesign should include using noncognitive factors for a variety of educational issues such as: (1) for teaching diverse types of abilities (Sternberg, 2005); (2) for evaluation within developmental education (Boylan, 2009), and (3) for standardized testing (Schmitt et al., 2009; Sternberg, 2009).

The overall creative synthesis in this study revealed that most participants experienced a failure by both their families and the school system in providing them with an outlook of academic excellence. A multi-area factor was developed from combining the four noncognitive areas to illustrate how this system was out-of-balance. An implicit broken structure was exposed revealing a deeper understanding of the multidimensionality of noncognitive factors.

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