UNCOVERING THE MEDIATING VARIABLE BETWEEN ATHLETIC IDENTITY AND ACADEMIC PERFORMANCE IN REVENUE-SPORT STUDENT-ATHLETES

By

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(Under the Direction of James J. Zhang)

ABSTRACT

NCAA Division I FBS revenue-sport student-athletes, those participating in men's basketball and football, tend to have lower GPA averages than the general student body. Existing research findings support the conclusion that these students overall have strong athletic identities; but there is a scarcity of information that directly measures how this identity variable may quantitatively relate to their academic performance. This study is exploratory and quantitative, using a small sample of revenue athletes from one FBS university to begin hypothesizing about a possible, important mediating variable between athletic identity and academic performance: Intelligence. Findings of this study reveal a relationship between identity and intelligence for revenue athletes, with an equality found between the athletic variables (bodily-kinesthetic and spatial intelligence) and the academic variables (logical-mathematical and linguistic intelligence), yet statistically higher means for the athletic variables compared to their academic counterparts. The data also suggest that the academic performance of these athletes is statistically lower, on average, than the general student body. Though there is not enough data to confidently claim a dependent relationship between athletic identity and academic performance, the data trends towards such a conclusion. These tentative results are the first steps

to gaining insight, establishing research priorities, and developing hypotheses for a large-scale study.

INDEX WORDS: FBS, Division I, NCAA, Men's Basketball, Football, Identity, Foreclosure, Academic Performance, Special Admissions, Multiple Intelligence Theory, Motivation, Logical-Mathematical, Linguistic, Spatial, Bodily-Kinesthetic

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DEDICATION

To any person who has ever questioned his or her ability inside of a classroom, and to all of us on this lifelong journey in education. Also, to my mother, who guided me in the flesh, and now continues to guide me in spirit. Thank you.

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None of this would have been possible without Dr. James J. Zhang, who I sent an email to during the spring semester of 2014, wondering whether it was too late to apply for this program. Now, I am not only en route to completing a second master's degree, but will also be continuing on my academic journey in athletic education towards a PhD. I would also like to thank Dr. Billy Hawkins, not only for serving on my committee, but for also helping me realize my research potential, providing me opportunities to become published, and trusting in my vision for how to impact the academic lives of revenue-sport student-athletes and underrepresented learners in general. I also have to exuberantly thank Dr. Joseph Cooper, a graduate of UGA's PhD program in Sport Management, who will be guiding me on my doctoral journey at UConn. By the end of our first phone call, I knew I would be in good hands. I am thrilled by the opportunity to work with someone who not only sees my vision and trusts in it, but also has the background, passion, and academic fortitude to push it forward beyond what I initially thought was possible. I've now been moved from a small kernel of an idea to a solid foundation that I am prepared to build upon during my doctoral work. Finally, I would be lost without my friends, many of whom I refer to as family, for picking me up when I thought I wouldn't make it through, believing in me when I was unable to, and championing my causes louder than I ever could alone. And though we may never cross paths again, I have to thank Monica Miller. She gave me a job at Sylvan Learning Center, but my position called for me to work with college student-athletes who were struggling in the classroom. It was through that

position that I became inspired to effectively connect my passion for education and sports. Finally, I want to thank every student, athlete and otherwise, who has allowed me to educate each of them in my own unique way. Thank you all!

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CHAPTER 1

INTRODUCTION

Revenue-sport student-athletes, particularly at the National Collegiate Athletic Association (NCAA) Division I Football Bowl Subdivision (FBS) level, continuously underperform in the classroom when compared to their classmates, including athletes in other sports (Barker, 2012; Knobler, 2008, Whitner & Randall, 1986). So many of them are granted admission into academically competitive institutions even though athletic departments are aware of their academic under-preparedness prior to enrollment. Oftentimes, 50% or more receive special admission waivers from institutions in order to attend and participate on revenue-generating sports teams (Knobler, 2008; Gutting, 2012). Growing public concern about the education these athletes receive has led to increased research investigations into their academic profiles and backgrounds, hoping to find initial causes for the academic shortcomings in order to design effective intervention programs.

Currently, it is known that NCAA Division I FBS programs focus on bringing in the best players for their revenue-generating teams regardless of the students' academic readiness (Gann, 2014); exceptions are made for these students due to their athletic prowess (Gutting, 2012). Their academic standards are typically far below those of their non-athlete classmates, with GPAs and test scores highlighting inevitable college achievement gaps (Barker, 2012; Knobler, 2008). Special admissions grant them entry, but it does not undercut the lower graduation and retention rates (Gutting, 2012). However, academic exceptions are continuously granted to men's

basketball and football players in numbers that are highly disproportionate to that of the rest of the student body (Knobler, 2008). Some of these students are several grade levels behind in reading, with standardized test scores that fall short of minimum requirements for college competency (Ganin, 2014). Their decisions to attend college lie almost completely in playing at the next level (Paskus, 2012). Upon entry, they are incapable of completing the academic work due to lack of preparation for, and understanding of, the demands for success in college; a strong athletic identity can cause less investment in education pursuits (Barker, 2012; Whitner & Myers, 1986; Bimper & Harrison, 2011). This stems from identities built upon a sports domain that offer these athletes unique perspectives about their statuses and platforms in society, which includes fan adulation as well as media and institutional support in athletics. Unfortunately, this is often accompanied by negative stereotypes about academic competencies and achievement (Bimper & Harrison; 2011). This has become the reality for too many of these young men, who generate millions for their schools but graduate with degrees that they are disinterested in, do not understand the function of, and/or leave them unprepared for the competitive job market they must navigate at the end of their athletic careers (Dosh, 2011; Lederman, 2003; Long & Walker, 2011).

Many scholars agree that these issues begin with athletic identity (Beamon, 2012; Bimper & Harrison, 2011; Coakley, 2009; Webb, Nasco, Riley, & Headrick, 1998). Identities develop when culture, commonalities, and social roles intersect (Stryker & Burke, 2000). An identity is as much about how social structures affect an individual as it is about how internal self-processing affects social behavior. Most people have multiple identities, with one dominating all others based on the situations and/or interactions at hand. The strength of different identities depends on the ties one has to specific communities, with deeper ties resulting in some identities

manifesting more often and clearly than others (Stryker & Burke, 2000); more interactions within a setting lead to more stability and continuity of an identity (Stryker, 2007). However, when one identity begins to supersede all others in importance, regardless of the setting, identity foreclosure occurs (Marcia, 1966). This single identity completely represents one's concept of self, with an individual reaching this decision without fully exploring other needs. Consequentially, one settles on the identity he/she believes his/her dominant social group deems most acceptable (Marcia, 1966). Identity foreclosure stifles growth in other areas, usually beginning before high school and fully settling before graduation, the primary developmental period for students (Beamon, 2012; Cieslak, 2004; Trent & Medsker, 1968). Athletic identities are defined by the importance, strength, and exclusivity of the role "athlete" (Cieslak, 2004). Foreclosure in a revenue-sport student-athlete is psychological, involving avoidance of personal change and anyone that opposes predetermined goals (Beamon, 2012; Henry & Renaud, 1972). The student will enter college with this mindset, ignoring alternatives and being committed solely to the athletic role (Beamon, 2012).

As with any type of identity foreclosure, athletes overemphasize and nurture only this role, believing they find positivity in physical abilities and accomplishments alone (Beamon, 2012). This level of foreclosure becomes a liability, especially to the fundamental role they should have, "student." The Athletic Identity Measurement Scale (AIMS), a tool for measuring athletic identity exclusivity, has shown that male athletes are the most susceptible to foreclosure because of the perceived importance of sports to their population (Brewer, Van Raalte, & Linder, 1990; 1991; 1993). The scale inferred a negative correlation between athletic and academic identity, with athletic identity trumping the importance of academics (Yukhymenko-Lescroart, 2014). Beamon (2012) identified that while foreclosure is more probable in male athletes as a

whole, revenue-sport student-athletes are the most susceptible population. Further studies by Beamon (2012) and others have shown that revenue athletes' predisposition to athletic identity foreclosure, and therefore academic underperformance, is influenced by their race.

One of the paths towards this conclusion began with Maloney and McCormick (1993), who looked at the athletic participation and academic performance of Clemson University students. Their data supported the common result that revenue-sport student-athletes underperformed all others in the student body based on high school GPA, college GPA, and precollege standardized test scores. They also observed a general reduction in academic success when high school class sizes increased, regardless of student athletic status (Maloney & McCormick, 1993). From this issue, they inferred that revenue-sport student-athletes were likely the most disadvantaged due to public high school attendance (Maloney & McCormick, 1993). Data on football players supported this notion: The majority of players graduate from public high schools, known for their large class sizes and high student-teacher ratios ("2016 ESPN 300," 2016; Breslin, 2015; Elementary and Secondary Education Enrollments, 2015). Also, public schools post the lowest percentages of college-ready graduates (Willingham, 2007). However, their inference did not successfully extend to basketball players, the majority of whom graduate from private secondary schools, smaller in population and class size, and accepted as the most college preparatory ("2016 ESPN 100," 2016; "Elementary and Secondary Education Enrollments," 2015; "Private School Universe Survey," 2010). Yet, basketball players still underperform, producing grades even lower than football student-athletes (Barker, 2012; Gutting, 2012). This negated the school size argument. The data that led to this conclusion was likely influenced by the combination of two factors: (a) football players made up 28% of the athlete sample, the largest proportion of all included student-athletes and 90% of the revenue-

athlete sample, easily dominating the male basketball player sample, and (b) there are 4.4 times the number of public school graduates enrolled in four-year-postsecondary institutions compared to private school graduates annually ("College and University Education: Attainment," 2015; "High School Benchmarks 2014," 2014). Coupling both sports together as "revenue sports" more or less ensured the success of the class size argument (Maloney & McCormick, 1993). However, researching the two sports separately disproved that conclusion.

When Maloney and McCormick (1993) controlled for other variables and isolated race, revenue-sports teams performed the worst. Additional research has uncovered that African Americans are the majority in revenue-generating sports at the collegiate level (Lapchick, Agusta, Kinkopf, & McPhee, 2013). Beamon (2012), after conducting in-depth interviews, discovered that many African American revenue-athletes center their lives on athletic pursuits, making it highly probable that they will experience identity foreclosure and its negative effects. Many do not seek to separate their athletic and racial identities, seeing them as one in the same (Harrison & Bimper, 2011). Between the two revenue sports, African Americans have the highest representation in Division I basketball (Lapchick, Agusta, Kinkopf, & McPhee, 2013). This observation infers why men's basketball players underperform compared to their football counterparts: A higher percentage of Black athletes results in higher probabilities for athletically foreclosed athletes, and athletic identity foreclosure has been correlated with poor academic performance (Brewer, Van Raalte, & Linder, 1990; 1991; 1993; Yukhymenko-Lescroart, 2014; Paskus, 2012). However, race is only a moderating variable, affecting the strength of the relationship between high athletic/low academic identity and low academic performance in this population; most researchers do not assert it as the reason for the connection, supporting the

argument that motivation is the missing link (Simons, Van Rheenen, & Covington, 1999; Gaston-Gayles, 2005).

Motivation is determined by choice, effort, and persistence (Weiner, 1984). When studying student-athletes, Gaston-Gayles (2005) found revenue athletes possessed higher athletic motivation and lower academic motivation compared to their non-revenue athlete peers. The data showed that low academic motivation scores for revenue-sport student-athletes correlated with their lower GPAs; the researcher inferred that this would hold true across the Division I population (Gaston-Gayles, 2005). An explanation for this phenomenon could be attributed to a study by Simons, Van Rheenen, and Covington (1999). They measured a number of factors, including self-worth, academic beliefs, and metacognitive study skills, determining that academic fear was just as important as commitment to athletics, especially for revenue-sport athletes (Simons et al., 1999). The positive qualities of athletic motivation failed to transfer to academics. This left revenue-sport student-athletes in one of two motivational categories. Those identified as failure-avoiders had low academic self-esteem due to a history of failure, resulting in their disengagement from academic pursuits. Their fear of failure led to an avoidance of it, believing that lack of effort was to blame for their low levels of academic achievement (Simons et al., 1999). Failure-acceptors were not worried about academic failure or success. Their history of failure led to the belief that they were incapable of academic achievement. Many were once failure-avoiders, but settled into learned helplessness, a behavior developed after failure to escape repeated negative experiences, resulting in making no further attempts to escape similar recurrences (Simons et al., 1999; Carlson, Miller, Heth, Donahoe, & Martin, 2010).

Though low academic motivation strongly correlates with low academic performance, it only mediates the *continued* relationship between identity and performance. All discussions of

diminished academic motivation explain how it results after a history of failure; it is not automatic, but the effect of continuously poor classroom performance (Simons, Van Rheenen, & Covington, 1999). Therefore, another factor must be present to help explain why these athletes initially began underperforming; it cannot solely be lack of effort: Division I men's basketball and football players spend 39.2 and 43.3 hours per week, respectively, on their sport, but they also reported spending 37.3 and 38 hours, respectively, on academics (O'Shaughnessy, 2011; "NCAA GOALS and SCORE Studies," 2011). This seems to contradict the effort argument, and more strongly supports an ability issue. In support of this, Simons, Van Rheenen, and Covington (1999) stated that failure-avoiders' justification for their performance may be a façade "to avoid the shame and scrutiny of apparent low ability" so they limit effort and "engage in self-handicapping behavior" (Simons, Van Rheenen, & Covington, 1999, p. 153). Eventually, they settle into acceptance of academic underperformance, losing motivation because they believe they are incapable of completing the work.

Researchers, scholars, educators, and laypeople find it less controversial to accept motivation as the mediating variable; they believe increasing effort and confidence is the key. But what if ability is the problem? What if something happens cognitively during athletic identity foreclosure that not only reduces the student role, but also reduces realized academic ability? Whether there is any truth to this hypothesis as it pertains to revenue-sport student-athletes is an area of research that deserves more attention, but is likely avoided due to its contentious subject matter. Cognitive deficits are usually compartmentalized, but they should be considered in tandem with psychological and sociological factors that form identities and influence what one wants to learn, how they learn, and why one chooses what is learned (Bimper & Harrison, 2011). Outside influences play a major role in cognitive development, with cultural

identification and "society and sport stakeholders" often socializing athletes to view themselves specifically, and only as athletes (Bimper & Harrison, 2011). Gardner (2006) purported this, stating that internal and external influences likely affect cognitive development and intelligence training. Establishing a theoretical framework, with cognitive development at the center that has the ability to affect, be affected by, and exist separately from sociological factors, may identify the intermediary connection between athletic identity and academic performance.

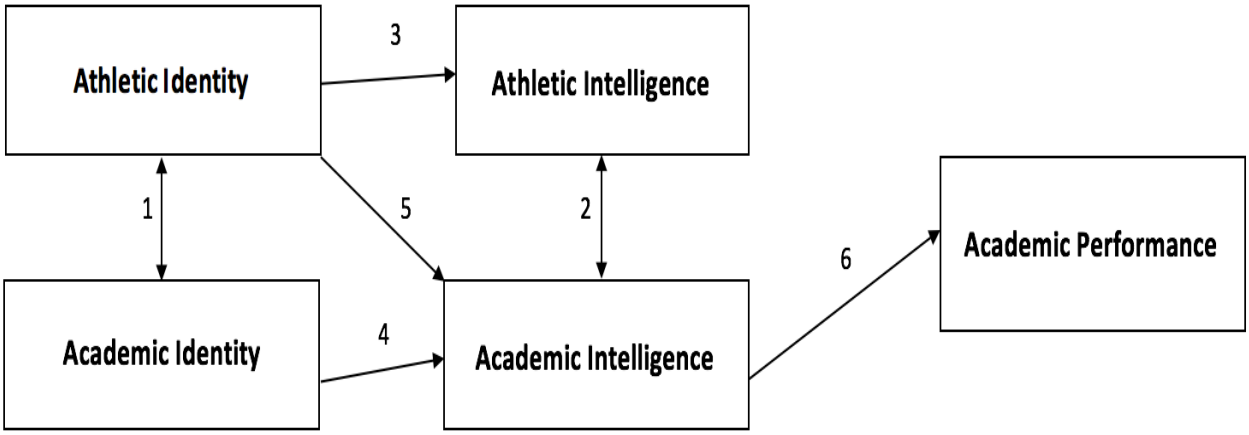
Statement of the Problem

This renewed approach to understanding the current academic ability of revenue-sport student-athletes requires identifying a new mediating variable: intelligence. Intelligence is usually defined in one way, equating all learning to what occurs in the classroom. But such a definition is in opposition to the elite athlete who is brilliant during competition yet performs below average in the classroom; diminished ability should be equal across domains if there is only one type of intelligence. Instead, these student-athletes must have certain skill sets that developed above the norm in athletics, while their underdeveloped academic abilities result in poor classroom performance. This is the founding principle of Multiple Intelligence Theory. In 1983, Howard Gardner proposed the existence of distinct intelligences that *could* develop equally, but usually do not; some remain underdeveloped due to a lack of role identification and practice. Using Gardner (1983) as the theoretical foundation, the following exploratory study is designed to gain insight into whether intelligence could be the mediating link between identity and academic performance. Gardner (1983) identified a number of intelligences, two of which can be classified as academic intelligence and two others that define athletic intelligence. Academic intelligence includes logical-mathematical thinking and strong linguistic abilities

while athletic intelligence resides in spatial awareness and bodily-kinesthetic talent. If there are multiple intelligences, just as there are multiple identities, revenue-sport student-athletes likely have thoroughly developed athletic intelligence, yet reduced academic intelligence. Strengths and weaknesses in the various intelligences vary by person, and Gardner (1983) contends that when one or two intelligences are disproportionately strong, it can create a laser profile, leaving all others weaker in comparison.

Adcock (2014) further studied Multiple Intelligence Theory, supporting its application in classrooms and the importance of understanding cognitive development during learning in the same manner that sociological factors are studied. She stated that "The diversity of the learner is defined commonly by ethnicity, economic conditions, and gender; however, there are other issues of diversity—such as visual and auditory abilities or the disposition of the learner—that can affect learning" (Adcock, 2014, p. 50). Each individual has a number of ways in which learning is best achieved, as defined by Gardner's intelligences (Adcock, 2014). Assumedly, excelling in intelligences that rarely appear in classroom instruction is likely to negatively affect academic learning, especially if the strongest intelligence(s) created a laser profile. This study is intended to be foundational, using an exploratory approach to analyze a small set of quantitative data. Definitive conclusions will not be drawn, but research priorities would be established, using these tentative, preliminary results to define and clarify concepts and theories that would be applied to later, larger scale research. It would explore the possibility of relating a high commitment to athletic identity to high athletic intelligence profiles and, therefore, lower academic intelligence; without adequate levels of academic intelligence, academic performance suffers. This main question, whether high athletic identity can be connected to low academic performance through low academic intelligence (by way of Multiple Intelligence Theory) in

revenue-sport student-athletes, is comprised of a number of mini investigations/assumptions: (a) the relationship between athletic and academic identity, with higher athletic identity, (b) the relationship between athletic and academic intelligence, with higher athletic intelligence, (c) the relationship between the like identities and intelligences, which should be statistically equal, (d) the relationship between athletic identity and academic intelligence, with high athletic identity correlating with low academic intelligence, and (e) the relationship between academic intelligence and academic performance, with low academic intelligence correlating with low academic performance. This supports the following: A→C = A→B and B→C, or high athletic identity and low academic performance are correlated through the mediating variable of low academic intelligence.



The study would also briefly introduce race and how it could have a more significant role in a future, larger study.

Definition of Terms

1. **Athletic identity foreclosure/exclusivity** – overemphasis on the degree of importance attached to the athlete role; basis of self-identity, beginning in childhood and fully formed by early adulthood, creating the inability to invest in other identities (Cieslak, 2004; Beamon, 2012)
2. **Critical thinking** – ability to think rationally and clearly, engaging in reflection and independent introspection (Lau & Chan, 2004-2016)
3. **Division I** – NCAA division encompassing the schools that generally have the largest student bodies, manage the largest athletic budgets, and offer the most scholarships and scholarship funding; requires commitment to continued high academic standards; further divided, only for football, into Football Bowl Subdivision and Football Championship Subdivision
4. **Eligibility** – academic standards that determine whether a student-athlete can participate in sport-related activities and/or competition
5. **FBS (Football Bowl Subdivision)** – 128 Division I institutions that have football teams competing in bowl games; schools are divided into 10 conferences, informally split into the "Power Five" (ACC, SEC, Pac-12, Big Ten, and Big 12) and "Group of Five" (American, C-USA, MAC, MW, and Sun Belt) conferences, as well as three independent football teams: Army West Point, Brigham Young University, and the University of Notre Dame; each is allowed to provide up to 85 full scholarship to members of the football team
6. **GPA** – an academic measurement is not universal, but operationally accepted as a strong yet imperfect measure of ability and/or effort in academic content areas (Davy, Doolan, & Higgins, 2007; Lei, Bassiri, & Schultz, 2001).

7. **High school** – institutions that generally provide academic and extracurricular instruction to students in grades 9 through 12
8. **Identity** – one's concept of self-defined by culture, common identity within a collective or social category, and how oneself is viewed in relation to roles in society (Stryker & Burke, 2000)
9. **Identity foreclosure** – occurs when one identity supersedes the importance of all others, resulting in its overrepresentation in all social interactions and concepts of self (Marcia, 1966)
10. **Intelligence** – "intellectual competence;" "a set of abilities, talents, or mental skills" (Gardner, 1983); the ability to learn, process, and apply knowledge as quickly and successfully as possible (Goldman, Bowman, & Auerbach, 2014)
11. **K-12** – all levels of American schooling, prior to the collegiate level, beginning with kindergarten and ending with 12th grade, the senior/final year of high school
12. **NCAA (National Collegiate Athletic Association)** – membership-driven organization dedicated to integrating athletics and higher education for the most enriching student-athlete experience; members include colleges, universities, conferences, and affiliated groups
13. **Non-revenue sports** – collegiate varsity sports other than men's basketball and football, generally (can vary by school and/or geographical region)
14. **Public school** – a school supported by public funds, free to students at the K-12 level
15. **Revenue-sports** – Division I men's basketball and football, generally (can vary by school and/or geographical region); usually used in reference to men's basketball and football programs in FBS conferences though there are exceptions e.g. The Big East Conference

16. **Special admit/admission** – NCAA Bylaw 14.1.5.1.1, disproportionately utilized for revenue-sport student-athletes: "A student-athlete may be admitted under a special exception to the institution's normal entrance requirements if the discretionary authority of the president or chancellor (or designated admissions officer or committee) to grant such exceptions is set forth in an official document published by the university (e.g., official catalog) that describes the institution's admissions requirements." (*NCAA*)
17. **Standardized test** – any form of assessment that requires test takers to respond to the same questions in the same way scored using a consistent manner, making it possible to compare the performance of different students or groups
18. **Student-athlete** – a participant in an organized competitive sport sponsored by the educational institution in which he or she is enrolled
19. **Black/African American** - an ethnic group of Americans with total or partial ancestry from any of the racial groups of Africa and/or those individuals who are descended from enslaved Africans (Martin & Fabes, 2009)
20. **White/Caucasian** – used as a racial classifier since the 17th century in multiracial societies to identify those of European descent in order to create a contrast with people of color (Eliav-Feldon, Isaac & Ziegler, 2009)

Delimitations

The observations and analyses in this study were intended to gain insight into how and why many revenue-sport student-athletes underperform their peers at the NCAA Division I FBS level. This study's sample was collected from one university, and therefore, was not intended to make binding assumptions or generalizations about the national revenue-sport athlete population;

it was meant to be foundational, a starting point for a new direction of athletic academic research. However, the study's conclusions were intended to solidify research questions, hypotheses, theories, and/or assumptions for future work in the same or similar areas. It would establish the framework that large-scale research should follow in generating generalizable assumptions and conclusions. The university from which the sample was pulled is in the southeastern United States and could affect the interpretation of the data: The measurement instruments utilized did not collect student geographical data to account for any biases in that area. Additionally, there is a disparity in quantity versus percentages in the sample collected. Football teams are much larger than basketball teams, but in an effort to maintain balance and avoid having one sport completely bias the results, the sample sizes from each sport were kept fairly similar. This resulted in collecting data from almost the entire men's basketball team compared to a small percentage of the football team. Still, this model should be maintained in larger research to avoid some of the shortcomings and misinformation/biases other researchers fell prey to. A large sample that includes numerous institutions should eliminate worries attached to collecting unbalanced percentages from the same school. Finally, though the reported research focuses on FBS institutions, those athletes attending FCS institutions with strong basketball programs may also be included in future research since many of the same assumptions intended to be generated in this exploratory study would apply to that population as well.

Limitations

As an exploratory study, there were natural limitations to this manuscript, and data analyses cannot be used for purposes beyond establishing initial investigative directions. The sample size was small, and in some cases, too small to fully reflect the needs of the research

question. Additionally, very little investigation was conducted in regards to race due to the overwhelming majority of the sample identifying as either fully or partially African American. This may also affect how foundational the research can be deemed, even though African Americans do make up the majority of the national population in both sports at the collegiate and professional level. Additionally, the data collected was limited by when it was collected. By gathering data during the summer semester, incoming freshmen did not have any GPAs to report, reducing the usability of GPA data. Finally, whether the following can be interpreted as a limitation is arguable, but the university from which the sample was drawn is not perceived as a powerhouse in either revenue sport. It is feasible that the students in this sample may have higher academic values that those revenue athletes attending "powerhouse" institutions.

For data collection, the surveys required study participants to be American-born, primarily American-educated graduates from a U.S. high school. They also had to be English-speaking, though they could be multilingual. They were also required to be between 18 and 23, the standard ages of college student athletes. These parameters naturally omit a percentage of the population and potential samples. Finally, all information received was self-reported, including GPA data, which were already an imperfect science for measuring observed academic abilities. Again, the sample size disqualified results from being generalized, but would still inform future research. Finally, data analyses were kept simple for ease of interpretation since it was only intended to be foundational currently, but would require complexity in order to be properly generalizable.

Significance of Study

High athletic identity alone does not explain poor academic performance. But for many revenue-sport student-athletes, it presupposes the development of elite-level skills. To perform at such a level takes cognitive skill that requires a special intelligence that encompasses so much focus and energy, it can result in the underproduction of academic intelligence. While many athletes, particularly in non-revenue-generating sports, are able to excel in athletics and academics, many revenue athletes develop such highly disproportionate levels of athletic identity that it leads to cognitive profiles that mitigate comparable academic-skill development. Particularly for African American revenue-sport athletes, but for both sports in general, the culture that surrounds them encourages, even pressures, these athletes to focus all of their attention on athletic development. Revenue-sport culture often resides in a space that undermines and undervalues the importance of academic achievement; this mentality is passed on to the athletes from a multitude of social outlets including family, peers, and other athletic personnel (Beamon, 2012). Accepting Multiple Intelligence Theory requires acknowledging that many revenue athletes are highly susceptible to academic underperformance not only because of sociological factors, but also because of cognitive similarities that cause their diminished investment in the development of college preparatory academic skill sets, which were under-prioritized during the most critical adolescent stages of learning (Snyder, 1985; Bimper & Harrison, 2011).

Adcock (2014), when studying whether Multiple Intelligence Theory had longevity potential and its applicability in classrooms, found that 75% of the educators she studied believed it was imperative in meeting the needs of individual learners; its effective application helps educators increase student motivation and interest. This supports the notion that

intelligence development is a prerequisite to motivation levels. Adcock (2014) inferred that the value of Multiple Intelligence Theory resided in its ability to help with understanding how the brain works during the learning process. Though inherently important to the revenue-sport student-athlete experience, if certain sociological factors can be controlled for, yet the same students continue to underperform, it supports the argument that these athletes share certain cognitive similarities.

The higher probability of identity foreclosure for revenue-sport student-athletes likely restricts adequate levels of academic intelligence development, resulting in lower-than-average academic performances. This knowledge is not intended to remove the burden from students or schools; it should redirect efforts. The probability of identity foreclosure for this population remains high. Colleges should be educated about its effects on intelligence and, therefore, academic performance; revenue-sport athletes are not failing because they simply do not care. Division I athletic academic staff require education about the strengths and weaknesses associated with the revenue athletes' intelligence distribution in order to develop programs that bridge these gaps first, then address the overall achievement gap.

CHAPTER 2

REVIEW OF LITERATURE

Revenue-sport student-athletes, those participating in men's basketball and football, are typically the lowest academic performing population at NCAA Division I institutions, especially in the FBS conferences (Whitner & Randall, 1986). These students are more likely to be unprepared upon entry and continue to underperform throughout their postsecondary tenure; their retention and graduation rates lag behind their peers as well (Gutting, 2012). At many institutions, half or more of the revenue-sport student-athletes are admitted through the special admissions process, granted acceptance due to exceptional athletic abilities, not academic potential (Barker, 2012; Knobler, 2008).

Student-athletes have the highest levels of athletic identity, trumping their low levels of academic identity; many foreclose on athletic identities prior to postsecondary enrollment (Beamon, 2012). Correlated very closely with this phenomenon are their academic troubles. However, current research fails to address what may catalyze this connection. Without answers, the NCAA has implemented various programs with varying degrees of success, keeping athletes eligible, but failing to shrink the achievement gap between them and their peers, with these athletes continuing to average lower GPAs and graduate at lower percentages ("Overall Division I," 2008; Gutting, 2012). Academic assistance cannot be completed without programs designed to address deficits at a cognitive level. Upon entry, many men's basketball and football players lack the critical thinking skills that keep other students out of four-year postsecondary

institutions due to a number of factors inside and outside of their control; identity formation, social and cultural upbringing, and investment in academia all factor into their higher percentages of postsecondary under-preparedness (Bimper & Harrison, 2011). Many scholars and educators currently attribute this deficiency to low academic motivation as opposed to a stagnancy in academic skills development caused by the cognitive, psychological, and sociological factors that accompany athletic development in promoting athletic intelligence and fortitude over education and academic critical thinking, resulting in academic underperformance. Reduced academic intelligence does not automatically suggest a learning disability; instead, it represents a disconnection between how these athletes learn and develop compared to what is expected in college classrooms.

Revenue-Sport Student-Athlete: Academic Profile

NCAA Division I men's basketball and football coaches target players for their programs who have all the signs of inadequate college preparation (Ganin, 2014; Whitner & Randall, 1986). A top-tier coach would not offer a scholarship to a player who is shorter, slower, or weaker than another recruit (Knobler, 2008). But these same coaches, and their institutions, are much more flexible with academic standards for these two specific sports (Gutting, 2012). Separate from those of the institution, the NCAA sets its own minimum eligibility standards, leaving each school to make admissions decisions regarding students who do not reflect the typical entrance profile ("Report: Exemptions Benefit Athletes," 2009). Non-athlete incoming students will have completed at least the same high school course load as mandated by the NCAA for Division I institutions; the majority will surpass these minimums. Meanwhile, the

average men's basketball or football player would be denied admission if required to meet the standards of the general student body.

The Baltimore Sun collected student-athlete records from public universities in the ACC (Barker, 2012). At Georgia Tech, an ACC school, while incoming students averaged a GPA of 3.9, 21 football players benefitted from special admission, with an average incoming GPA of 2.19. Five of their specially admitted men's basketball players had GPAs ranging from 2.16 to 2.42 (Barker, 2012). Those same five players maintained a group average of 2.16 while enrolled, with only two remaining in good standing; two were placed on academic warning, and one received academic probation (Barker, 2012). Additionally, Knobler (2008) discovered that nationally, football players average 220 points lower than their classmates on the SAT, and basketball players average seven points less than football players. At Georgia Tech, the football players posted a 1028 SAT average, the nation's best for the sport. That score was still 315 points below the average of their classmates. In general, schools with the highest general body admission standards have the largest standardized test score gaps between the revenue athletes and the general student body (Knobler, 2008). Special admits have proponents that laud the policy's ability to give these students access to some of the best universities, but football players graduate at a rate that is 16% lower than their peers; for the men's basketball players, the rate in comparison to their peers is 25% lower (Gutting, 2012). Yet, the special admission process continues. At the University of Georgia, 73.5% of revenue athletes were special admits compared to 6.6% of the entire student body. At Alabama, between 2004 and 2006, football players were more than 43 times more likely to benefit from special admission than a non-athlete; UC Berkeley shared Alabama's rate between 2002 to 2004. At Wisconsin, Clemson,

UCLA, Rutgers, Texas A&M, and LSU, more than half of the scholarship athletes were special admits (Knobler, 2008).

Some of those special admits have extreme cases. Mary Willingham, a learning specialist at UNC Chapel Hill, encountered student-athletes who could not read or write (Ganin, 2014). She discovered that 60% of the basketball and football players were reading between a fourth to eight-grade level, and a little less than 10% were reading below a third-grade level. A CNN investigation discovered public universities where men's basketball and football players could read only up to an eighth-grade level; college textbooks are written at a minimum ninth-grade level (Ganin, 2014). Academic experts state that the minimum threshold for college literacy is a 400 on the critical reading section of the SAT or a 16 on the ACT; CNN discovered revenue athletes who had scored in the 200s and 300s on the SAT section and in single digits on the ACT section (Ganin, 2014). U.S. Secretary of Education Arne Duncan told the NCAA Convention in 2012 that too many of the special admits were never capable of completing the expected college work (Barker, 2012). In fact, more than 80% of student-athletes stated that athletic participation was a major contribution to their school choice, much higher than the role they reported academics played in their decisions (Paskus, 2012). The reality of the academic demands proved to be overwhelming due to lack of anticipation or preparation (Whitner & Myers, 1986). As it became clear that these low academic outputs would continue, more research was conducted into what was contributing to the poor results. Now, the starting point is commonly an investigation into the identities of revenue-sport student-athletes.

Identity and Foreclosure

One's identity is usually complex, existing along three strands: culture, commonalities within a collective or social category, and how oneself is viewed in relation to roles in society (Stryker & Burke, 2000). The strands are formed by how social structure affects one's concept of self and social behavior, and how internal dynamics of self-processing affect social behavior (Stryker & Burke, 2000). Most people have multiple identities, each coming into play for interactions with specific positions and relationships; they are generated from internal role expectations embedded in social contexts (Stryker & Burke, 2000). A vital part of one's commitment to a role is the number of other people one is connected to that share a similar identity; the stronger the tie, the more deeply the characteristics of a particular identity become embedded, with that role manifesting the most saliently (Stryker & Burke, 2000). Particular traits that strengthen an identity are more likely when an individual engages in various social relationships that are compatible with that role's expectations (Stryker, 2007). The stability of a particular identity is predicated on the continuity of an individual's relationship within that social setting (Stryker, 2007).

Identity foreclosure occurs when one identity supersedes the importance of all others, resulting in its overrepresentation in all social interactions and concepts of self (Marcia, 1966). During foreclosure, an individual makes a premature commitment to an occupation or ideology without fully exploring internal needs and values. The identity found most compatible is accepted, heavily influenced by the most strongly expressed societal beliefs. While this creates a sense of security, it also stifles growth and opportunities in other areas (Marcia, 1966). Foreclosure is usually obtained by adolescence and fully settled into prior to high school graduation (Trent & Medsker, 1968). Those with identity foreclosure fall into two categories:

psychological and situational. Revenue-sport student-athletes fall into psychological foreclosure, avoiding personal change and anyone that may challenge their rigidly-followed, predetermined career goals (Henry & Renaud, 1972). They maintain their exclusion of alternatives and their decision-making remains consistent with the identity they entered college with (Waterman & Waterman 1974). This level of foreclosure for athletes is referred to as athletic identity foreclosure.

The most complete definition of athletic identity is "the degree of importance, strength, and exclusivity attached to the athlete role that is maintained and influenced by their environment" (Cieslak, 2004, p. 38). It is a social role and occupational self-image, one's cognitive, affective, behavioral, and social development in relation to athletics. Revenue-sport athletes tend to overemphasize this role and nurture it solely, leading to athletic identity foreclosure (Beamon, 2012). These elite athletes receive positive reinforcement centered on physical abilities; they base their self-identity on athletic performance as well as making sure their social identity agrees with the title "athlete" (Beamon, 2012). Like all identity foreclosures, this role begins developing in childhood, solidifies by early adulthood, and is likely to become a liability (McPherson, 1980; Brewer Van Raalte, & Linder, 1993). The athletic role becomes the "master status," creating an inability to invest in other available roles (Adler & Adler, 1991).

Athletic Identity Measurement and Effects

Research into how to measure athletic identity foreclosure largely begins with the Athletic Identity Measurement Scale (AIMS). The AIMS is one of the most popular tools, measuring levels of exclusivity towards athletic identity (Brewer, Van Raalte, & Linder, 1993). It originally included 10 items scored on a seven-point Likert scale, ranging from strongly

disagree (1) to strongly agree (7), that allowed respondents to self-report social, cognitive, and affective elements of their identities as they related to athletics (Brewer, Van Raalte, & Linder, 1993; Yukhymenko-Lescroart, 2014). The scale was found to have internal consistency and construct validity when correlated with measures of perceived importance of sport competence (Brewer, Van Raalte, & Linder, 1993). When first testing the scale, preliminary AIMS results showed significantly higher scores for male respondents, inferring that men internalized athletic identity more deeply than women because sport participation was deemed more credible in society for them (Brewer, Van Raalte, and Linder, 1990; 1991). The scale showed a high correlation between social identity and exclusivity, and has been used to measure the relationship between athletic identity and identity foreclosure. It has also been used to support research correlating strong athletic identity to placing less focus on academics (Yukhymenko-Lescroart, 2014). Adler and Adler (1985; 1991) proposed that the demands between athletics and academics are seen as competitive for student-athletes with strong athletic identities. Unable to fulfill both roles, they are left to try and find a compromise between the two, but those with athletic identities that are too strong find this attempted balance difficult, allowing the athletic role to take precedence (Sturm, Feltz, & Gilson, 2011). This occurs most often in revenue-sport student-athletes (Beamon, 2012). Paskus (2012) stated that the correlation between high athletic identity and low academic identity is the most important piece of information because it holds the key to understanding the academic troubles that usually accompany revenue-sport participants. Researchers have uncovered key factors, with race being an influential moderating variable (Maloney & McCormick, 1993, Bimper & Harrison, 2011).

Moderating Variable: Race

African American revenue athletes have been shown to have increased chances of identity foreclosure (Beamon, 2012). This is heavily influenced by the cultural unification created between participation in a revenue sport and identification as an African American male (Bimper & Harrison, 2011). Many African American males see sport as their most likely pathway to success (Hodge, Harrison, Burden, & Dixson, 2008). This can negatively affect their interpretation of their dual identities. In 2008, Singer discovered, after interviewing a number of African American college athletes, that they preferred the title "athlete-student" as it better represented where the bulk of their time was expended, with one athlete stating that he was at the school only to play sports (as cited by Bimper & Harrison, 2011). Singer believed that this mindset was molded not solely by the student, but also by major athletic stakeholders: coaches, administrators, and academic counselors (as cited by Bimper & Harrison, 2011). It is now believed that the strong athletic identities held by many African American athletes "negatively compromises" and is "detrimental to academic achievement, behavior choices, and transitioning out of sport," (Bimper & Harrison, 2011, p. 278). Their majority-presence in Division I basketball and FBS football assists in explaining the increased academic underperformance observed in both sports. However, prior to these aforementioned findings, Maloney and McCormick (1993) intimated school type as the strongest moderating variable.

In 1993, Maloney and McCormick studied students at Clemson University to investigate connections between athletic participation and academic performance. As expected, revenue athletes had the lowest average GPAs out of the student-athlete population, their numbers were significantly lower than the university's average, and they entered college with overall weaker academic credentials (Maloney & McCormick, 1993). Seeking an explanation, the researchers

controlled for various variables, and found that all of the students in their sample performed worse as the sizes of their high school graduating classes increased (Maloney & McCormick, 1993). Large classes are associated with public schools, averaging 854 students per school and 25 to 40 students per classroom, with an average student-teacher ratio of 27-to-1 (Chen, 2012; Breslin, 2015; "Elementary and Secondary Education Enrollments," 2015). The public school environment struggles with teaching critical thinking as the focus has shifted towards improving test scores (Willingham, 2007; Smith & Szymanski, 2013). Following this logic, Maloney and McCormick inferred school size was one of the key factors connecting athletic participation and academic performance. It appeared to have credence, but there were faults with the argument.

Of ESPN's 2016 top 300 ranked high school senior football players, 79% graduated from a public school ("2016 ESPN 300," 2016). Eight of the nine UCLA commits graduated from public high schools in 2016; UCLA has the third worst differential in the country between the academic status of its incoming athletes and the general student body (Taylor, 2012; "2016 ESPN 300," 2016). The University of Florida holds the title for largest academic differential (Taylor, 2012); all seven of its commits from ESPN's Top 300 (2016) graduated from public high schools. However, the public school argument falters for basketball. More than half (55) of the 2016 top 100 ranked high school senior basketball players graduated from private schools, which have smaller school sizes and student-teacher ratios, 283 and 13-to-1, respectively ("2016 ESPN 100," 2016; "Elementary and Secondary Education Enrollments," 2015; "Private School Universe Survey," 2010). They are also known for having stronger curriculums and being more college preparatory ("Private School Students…Ready for College," 2015). Yet, college men's basketball players underperform compared to football players (Knobler, 2008; Barker, 2012;

Gutting, 2012). School size is not the issue, but it is likely the researchers' collected data made it seem as though it was because of categorization.

Maloney and McCormick (1993) paired basketball and football together as revenue-sports, as if commonplace. However, of the 594 athletes included in the study, football players dominated with 178 participants, 28% of the sample; there were only 19 men's basketball players included, 3% of the sample. Additionally, in 2016, 3.3 million seniors will graduate from high school: 3 million from public schools and only 0.3 million from private schools ("College and University Education: Attainment," 2015). Though 77% of those private school students will enroll in four-year institutions compared to only 34% of their public school counterparts, because of quantity, there will still be 4.4 times more public school students in these colleges than private school students ("High School Benchmarks," 2014). The vast majority of the sample collected by Maloney and McCormick (1993), athlete and non-athlete, was more than likely public school students, and with 90% of the revenue athlete sample comprised of football, this increased chances of attributing the underperformance of revenue athletes to graduating from public schools. However, school type was not the only variable Maloney and McCormick (1993) isolated. They observed a significant relationship between athletic participation and academic performance when isolating race: the revenue-athletes were still performing the worst and had large African American representation (Maloney & McCormick, 1993).

Further investigation into African American participation uncovers that African American culture is intricately linked with revenue-generating sports: 68% of the NFL and 64% of the NBA are made of Black males (Tapp, 2014; Lapchick & Guiao, 2015). With such representation, it makes sense that they have the high rates of identity foreclosure within these two sports, centering their lives on athletic pursuits (Beamon, 2012). No other group inundates

its males with sports the way the African American community does, including intense influence from families, peers, communities, and media (Beamon, 2012). They are groomed to see themselves as athletes first, and believe that is the way they are seen by others as well (Harrison, Sailes, Rotich, & Bimper, 2011). Revenue sports are obviously the most popular at the college level, and for a young Black athlete leaning towards athletic identity foreclosure, he becomes fixated on whether he can play at the highest level, especially seeing the large representation of his race in the sports. Harrison, Sailes, Rotich, and Bimper (2011) highlighted the trope of professional athlete dreams existing disproportionately in African American men.

Many Black males do not seek to separate their athletic and racial identities, seeing them as one in the same; many believe sport is part of the Black experience (Harrison, Sailes, Rotich, & Bimper, 2011). African American commitment to athletic identity in revenue sports manifests into disproportionate numbers in Division I programs: while they represent only 22% of the all Division I athletes, they encompass 57.2% of the basketball teams and 51.6% of FBS football teams (Lapchick, Agusta, Kinkopf & McPhee, 2013). Using the Multidimensional Model of Racial Identity, Harrison, Sailes, Rotich, and Bimper (2011) discovered the various ways in which race played into how Black athletes viewed themselves, specifically the positive aspects that accompany participation, from fan adulation to escaping racial marginality and oppression. Such positive views affected their general life experiences; athletic participation had the greatest potential to create a totalitarian reign over all other aspects of self (Harrison, Sailes, Rotich, & Bimper, 2011). Because of heightened athletic pressure in their lives, Black male athletes foreclose intensely, manifesting into greater academic woes (Bimper & Harrison, 2011). The strength of African American male athletic identity has been well-documented and supported, including through in-depth interviews conducted by Singer (2008) and Beamon (2012). Existing

research infers the athletic identity exclusivity in many revenue-sport athletes, and assuming a multiplying effect, a Black student-athlete participating in basketball or football would more than likely have an inflated athletic identity.

With their saturation in these two sports, it is possible that the African American male presence affects the overall strength of the athletic identities found in men's basketball and football players. This inference is supported not only by the teams' lower incoming standardized test scores, but also by lower graduation rates. While only 61% of football players and 47% of men's basketball players graduate overall, 71% of the White FBS football players and 57% of the White basketball players do compared to 56% of the Black football players and 41% of the Black basketball players ("Overall Division I," 2008). This does not automatically assume that they have the highest levels of athletic identity in all sports, but it does suggest that their increased presence in revenue sports, and likelihood for foreclosing on athletics identities because of participation in them, affects the academic identity of the two. For example, there is a larger percentage of Black athletes participating in college basketball, and they have lower academic numbers.

African American participation seems to increase the strength of the negative relationship between athletic identity and academic performance in revenue sports, with the strongest negative correlation existing for basketball players (Beamon, 2012; Harrison, Sailes, Rotich, & Bimper, 2011; Bimper & Harrison, 2011; "Overall Division I," 2008). However, the mediating variable, the mechanism that underlies an observed relationship between an independent variable and a dependent variable via a third explanatory variable, cannot be attributed to race. It does not cause academic underperformance, just strongly influences it. That variable is commonly identified as motivation.

Motivation: The Currently Accepted Mediating Variable

The NCAA expects student-athletes to balance demands inside and outside of the classroom, but Snyder (1985) explains how athletic identity makes this highly implausible since a commitment to academics is incompatible with athletic subculture. Educational achievement is not perceived as a highly sought out reward and may even be stigmatized (Snyder, 1985). Males feel a sense of personal inadequacy if they fail to deliver as athletes and will neglect academics in order to commit to developing the role that fits with perceived social norms (Snyder, 1985). Foreclosed individuals are pure athletes, with higher commitment to the athlete role and lower commitment to the academic role (Snyder, 1985). Such is the case for athletes at the many schools that value the star athlete over the honor student, especially in basketball and football (Snyder, 1985). This increases athletic motivation disproportionately compared to academic motivation, increasing commitment to time demands.

Time Commitment

The time commitment in revenue sports surpasses all others in the NCAA. In-season countable playing and practice time is limited to 20 hours, and there are out-of-season time restrictions as well, heightened for football ("CARA," n.d.). But, this is rarely followed because there is no limit on voluntary activities. A survey completed by Division I football and men's basketball players, that included both required and voluntary time, revealed that basketball players spent an average of 39.2 hours per week on their sport while in season, and the football players spent an average of 43.3 hours per week on their sport while in season (O'Shaughnessy, 2011). Thomas Emma (2008), a former Duke University basketball player, described the implausibility of reaching the academic standards of the general student body while balancing

games, practices, travel, film sessions, weight training, injury and recovery treatments, media responsibilities, and community duties through 30-plus games, and preseason, at universities that house the best and brightest college students (Emma, 2008). An average student would struggle to keep up with the academic competition; most revenue-athletes are behind upon entry, and this is only exacerbated by athletic commitments (Emma, 2008). However, time demands are extreme all around at the collegiate level. Though men's basketball and football players do spend the most time per week on athletics, other sports are not far behind. The remaining men's sports average 37 hours per week on athletics and women's sports average 35 hours per week ("NCAA GOALS and SCORE Studies," 2011). Yet these other teams do not underperform in the classroom the same way. Instead, they are able to successfully transfer their positive athletic qualities to an academic domain (Simons, Van Rheenen, & Covington, 1999). Revenue athletes largely do not, with most researchers connecting this to a lack of motivation, failing to reconcile their levels of motivation inside and outside of the classroom (Snyder, 1985). This motivation theory has been supported by many scholars, including Gaston-Gayles (2005) and Simons, Van Rheenen, and Covington (1999).

Prominent Studies of Athlete Motivation

Joy Gaston-Gayles (2005) quantitatively studied the prioritizing of athletics over academics. She developed the Student Athletes' Motivation Toward Sports and Academics Questionnaire (SAMSAQ) to measure motivation as it pertains to performance (Gaston-Gayles, 2005). It used an expectancy-value framework relatable to athletic and academic identity; motivation towards a task could be determined by choice, effort, and persistence in the task (Weiner, 1984). The SAMSAQ contained 30 item measuring three types of motivation: student

athletic, career athletic, and academic (Gaston-Gayles, 2005). Her sample included 236 student-athletes at a Division I university in the Midwest participating in football, men's and women's basketball, men's volleyball, men's and women's lacrosse, women's field hockey, and softball. Respondents ranked their reactions to each item on a 6-point Likert scale from very strongly disagree (1) to very strongly agree (6) (Gaston-Gayles, 2005). Data analysis showed revenue-sport student-athletes had a higher mean for athletic motivation and lower mean for academic motivation than non-revenue-sport athletes (Gaston-Gayles, 2005). Academic data provided for the sample showed revenue-sport athletes performing the worst. The study suggested that a lack of motivation in the classroom was the primary cause of academic underperformance, mediating the relationship between identity and academic performance; high levels of athletic identity correlates with high athletic motivation and low academic motivation, and this low motivation manifests into poor classroom performance. The work of Simons, Van Rheenen, and Covington (1999) also supports the alleged mediating impact of motivation.

According to these researchers, revenue-sport student-athletes face a "motivation contradiction," highly motivated in athletics yet failing to enact the same focus in academics (Simons, Van Rheenen, & Covington, 1999, p. 151). They have the capacity to strive for success as demonstrated in their athletics achievements through hard work, self-discipline, determination, concentration, etc., but fail to transfer the qualities to academia (Simons, Van Rheenen, & Covington, 1999). The lack of academic motivation, coupled with fatigue from athletic pursuits, diminishes possibilities for classroom success (Simons, Van Rheenen, & Covington, 1999). Female and nonrevenue athletes are more willing to transfer their positive athletic qualities to academic interests; as a result, they perform much better than men's basketball and football players (Simons, Van Rheenen, & Covington, 1999). The lack of transfer

is attributed to nonrevenue athletes not having to face the same pressures from school, sport, and peers that revenue athletes do; they also do not receive the same level of reward or praise for athletic success (Adler & Adler, 1991). For revenue athletes, their self-worth is intertwined with athletics (Simons, Van Rheenen, & Covington, 1999). Unfortunately, this seems to reduce academic self-worth.

Simons, Van Rheenen, and Covington (1999) conducted a study of the factors influencing academic motivation for student-athletes. In the study, 361 Division I athletes at the University of California, Berkeley participated in a measure of their athletic and academic motivation. Likert scales measured self-worth, academic beliefs, metacognitive study skills, and other similar aspects. It was determined that, for the 75 revenue-sport student-athlete participants, levels of academic fear played an important role in overall academic motivation (Simons, Van Rheenen, & Covington, 1999). Out of four identified motivational types—success-oriented, overstrivers, failure-avoiders, and failure-acceptors—revenue-sport student-athletes that participated in the study overwhelmingly fell into the latter two categories: 38.5% and 26.2% respectively (Simons, Van Rheenen, & Covington, 1999). Failure-avoiders score low on motivation to approach success and high on avoiding failure; they are characterized by low self-esteem as a result of a history of academic failure, limiting their efforts, engaging in procrastination, handing in late assignments, and suffering from test anxiety; they believe effort is the problem, not ability (Simons, Van Rheenen, and Covington, 1999). Failure-acceptors score low in both approaching success and avoiding failure; they do not care about academic success or failure after a history of it. They have a low sense of self-worth and confidence in school, believing that they are incapable of academic success (Simons, Van Rheenen, & Covington, 1999). Many failure-avoiders later become failure-acceptors, suffering from learned helplessness

after continuously failing to escape negative academic outcomes (Simons, Van Rheenen, & Covington, 1999; Carlson, Miller, Heth, Donahoe, & Martin, 2010). These two motivation groups had the lowest average GPAs in the study, with the failure-avoider averaging a 2.67 and the failure-acceptors averaging a 2.73 compared to the 2.93 for success-oriented students and the 3.10 for overstrivers (Simons, Van Rheenen, & Covington, 1999).

The motivation theory is strong, but it is not without its flaws, and one particular imperfection justifies the need to find an alternative mediating variable. One contention with the motivation argument is that it only explains why the revenue-sport student-athletes continue to underperform. Motivation arguments revolve around a history of failure and/or a disengagement with academia that results in low motivation. But this must be proceeded by a variable that influenced psychological and cognitive factors simultaneously, establishing the cycle of negative academic performance. This variable does not exist in a vacuum, but is cultivated from the culture of the sports and how it affects one's definition of self as well as private and public expectations (Bimper & Harrison, 2011). This is especially true when considering, even with the large number of hours that revenue athletes spend engaged in sports-related activities, they also self-reported spending ample time on academic pursuits. FBS football players contend to spend 38 hours on academic activities every week, and men's basketball reported 37.3 hours weekly. This surpasses the number reported by other men's sports (33.85) and is just under what female student-athletes reported (39.5) ("NCAA GOALS and SCORE Studies," 2011). They are giving time to academics, though arguably not the same level of engagement; it cannot solely be about motivation. In fact, Simons, Van Rheenen, and Covington (1999) proposed that low motivation may actually just be an excuse to avoid admitting low academic ability. If low ability is the issue, it predates motivation, even causes it, and may be the actual mediating variable. Most educators

avoid this argument because low ability is usually equated with a learning disability. But this does not have to be the case, and by adapting a scarcely utilized theory, especially in this domain, support will not only be given to the low academic ability argument, but also define the simultaneous ability to thrive in athletics. Multiple Intelligence Theory may provide a more fulfilling mediating variable between high athletic identity and low academic performance.

A New Approach: Multiple Intelligence Theory

It is important for educators to understand what exactly intelligence is and the forms it comes in. Goldman, Bowman, and Auerbach (2014) define intelligence as the ability to learn, process, and apply knowledge as quickly and successfully as possible; Howard Gardner (1983) described it as "intellectual competence," "a set of abilities, talents, or mental skills" (p. 60; 1993, p. 15); it is necessary for comprehending and acquiring new information (Gardner, 1999). Gardner (1983) addressed intelligence in a novel way by creating Multiple Intelligence Theory. In studying how students learn and achieve, he concluded that intelligence is not one-dimensional. Instead, students have different strengths and weaknesses in how they learn and apply knowledge (Gardner as cited by Conti, 2015). He initially identified seven major intelligences: linguistic, logical-mathematical, musical, bodily-kinesthetic, spatial, interpersonal, and intrapersonal. The first two intelligences are school-specific, typically associated with the word "intelligence" (Gardner as cited by Conti, 2015). Linguistic intelligence involves demonstrating a command over language when thinking and learning. Logical-mathematical intelligence is connected to math, logical thinking, and pattern recognition (Gardner, 1983). Both are essential to academic content areas and critical thinking in the classroom; students who lack strength in them are usually labeled unintelligent overall, but Gardner's theory refutes this

common interpretation (as cited by Conti, 2015). In reviewing the various intelligences, two can be applied to athletics: bodily-kinesthetic and spatial. Bodily-kinesthetic intelligence is using the body to solve problems and orient one's self in a space; spatial intelligence involves visualizing and using space, understanding patterns and designs, and perceiving and/or envisioning the whole picture (Gardner as cited by Conti, 2015). Excellence in each is required for elite athleticism.

Theory Deconstruction

The viability and longevity of Multiple Intelligence Theory was studied by Phyllis Adcock (2014). She analyzed Multiple Intelligence Theory, analogizing what is commonly viewed as diversity—ethnicity, economic conditions, and gender—with learning diversity. Supporting Gardner, she wrote that students typically have one or two intelligences in which they excel (Adcock, 2014). Overly enhancing the preferred one or two intelligences results in the development of a laser profile. Students learn better if the knowledge to be absorbed is adapted for their preferred intelligence; otherwise, there is a disconnect that results in poorer performance (Gardner, 1983). Multiple Intelligence Theory has found support and adaptation over the years, influencing Daniel Goleman's (1995) Emotional Intelligence Theory, later expanded into Social and Emotional Intelligence Theory, and Robert Sternberg's (1996) Theory of Successful Intelligence (as cited by Adcock, 2014). Sternberg's theory is important in that it was a multiple intelligence theory specifically adapted for higher education. The Theory of Successful Intelligence supposes three schemes, two of which are applicable to the binary intelligences suggested in this study: analytical intelligence involves literary and mathematical or logical thinking (similar to linguistic and logical-mathematical in Multiple Intelligence Theory) and

creative intelligence involves finding a unique and experiential way of solving a problem, moving towards skill automation (Sternberg, 1997). Sternberg (1997) did not intend to measure creative intelligence with IQ tests or standard written assessments, the same way it would be difficult to measure spatial and bodily-kinesthetic without an evaluation of experiential performance.

Moran, Kornhaber, and Gardner (2006) stated that educators that learn about Multiple Intelligence theory see its value, understanding the importance of profiling the strength and weaknesses a child displays during the learning process (as cited in Adcock, 2014). However, it is rarely employed. In a graduate-level education course at the University of Nebraska, Omaha, only 1% of the 75 participants stated that they employed the theory regularly when teaching. Yet 75% stated that understanding and using it would help meet the individual needs of each student (Adcock, 2014). Additionally, the survey participants stated that learning about Multiple Intelligence Theory helped them learn ways to increase student motivation. Addressing the appropriate intelligence during learning helped students feel more successful; challenging areas could be attributed to weaker intelligences, helping students gain insight into their learning process, staving off further loses in intelligence (Adcock, 2014). Multiple Intelligence Theory focuses on the "process of learning" and "how the brain works" (Adcock, 2014, p. 54). Theoretically, for foreclosed revenue-sport student-athletes, cognitive processes are often dominated by athletic intelligence.

The Case for Athletic Intelligence

Worthington (n.d.) used Gardner's description of bodily-kinesthetic intelligence to explain the "sophistication and intellectual rigor" of the athletic mind. Honing in on body

movement, physical control, hand-eye coordination, and dexterity, Worthington (n.d.) studied athletes who were either naturally gifted or challenged themselves to strengthen this intelligence; with more practice came greater retention (Worthington, n.d.). For revenue-sport athletes, whose intelligence lies in knowing how to use the body to its highest potential, they put an endless number of hours into playing at elite levels; their intelligence shows in their performances (Worthington, n.d.).

Branswell (2013) reported on Jocelyn Faubert's study of spatial intelligence, stating that the best athletes have "the ability to process and react to complex and rapidly changing visual cues." The study, conducted at the University of Montreal, sought to use spatial intelligence as an indicator of elite athlete status (Branswell, 2013). Faubert measured athletes' abilities to process rapidly changing visual information. 308 athletes—120 professionals, 173 elite amateurs (NCAA and European Olympics trainees), and 33 non-athletes—trained on Faubert's NeuroTracker in a virtual environment over 15 sessions in five days. A series of balls that bounced between each other, changing in size to show depth, were projected onto a screen. The goal was to track specified balls as they went around identical decoys. Faubert tracked how quickly and how much each individual improved from session-to-session (Branswell, 2013). Everyone improved in sequential order, with the professional athletes improving the fastest and non-athletes improving the slowest. Faubert inferred that the better the athlete, the better he/she is at managing many visual and dynamic subjects/objects simultaneously; they have a special intelligence that makes learning and executing the task easier (Branswell, 2013). Her research supports Gardner's (1983) definition of spatial intelligence, and strengthens the hypothesis that high levels of athletic intelligence favor those who identify and been trained as elite athletes.

Identity and Intelligence

Assumedly, revenue-sport student-athletes peak in bodily-kinesthetic and spatial intelligence due to their athletic identities, and those athletes who are leaning towards exclusivity continue to strengthen their resolve in these two areas. As a result, they lack similar levels of academic intelligence, stifling intellectual development. Gardner emphasized creating profiles for every student, looking at strengths and weaknesses, how a student demonstrates learning, and what he/she uses to reflect that learning (as cited by Conti, 2015). With revenue-sport athletes, an educator would look at the difference in the strengths of athletic and academic intelligence and how their chosen dominant identity aligns with these results; the strongest identity should match with the strongest intelligence. Gardner (2006) emphasized studying laser profiles since they show which intelligences have the most strength. Those students will continue on the path that has led to the most success (Gardner, 2006). For revenue-sport athletes, laser athletic profiles are highly probable, but are mostly incompatible with college learning, which requires the critical thinking development that is acquired through the academic intelligences. Many nonrevenue athletes are able to escape the pitfalls of the laser profile, likely because they avoid succumbing to athletic identity foreclosure. Allowing the coexistence of multiple identities supports the development of multiple intelligences at higher, similar levels. Between athletic and academic intelligence, one will inevitably be stronger, but not to the degree observed by those with foreclosed athletic identities; the measured variation should be subtle enough to allow for success in both domains.

Athletic identity exclusivity correlates with a mismatch in the critical thinking skills required at the postsecondary level. Lau and Chan (2004-2016) define critical thinking as the ability to think rationally and clearly, engaging in reflection and independent introspection. In

many colleges, it is incorporated into mission statements, vision statements, and accreditation standards. Critical thinking is unrelated to memorization; one must have the ability to identify, analyze, deduce, and reason, not just accumulate information. It is "domain general," a universal skill required in every subject (Lau & Chan, 2004-2016). Additionally, there is a direct connection between critical thinking and the academic intelligences. Holyoak and Morrison (2005) state that problem solving and decision-making represent major aspects of academic intelligence; Rashid and Hashim (2008) studied the connection between language proficiency and critical thinking, concluding that as one increased, so did the other; decreases followed the same pattern. Critical thinking promotes long-term understanding and retention of course content (Yanklowitz, 2013). Success in today's world involves knowing how to "access, structure, and use" critical thinking skills given a content-related problem (Benjamin, 2012, p. 1). A college-bound student should have adequate command of critical thinking skills. However, a laser profile in a different intelligence can stifle this development. As inferred by Gardner (1983), laser profiles deny comparable levels in intelligences other than the primary one. Revenue-sport student-athletes, with their laser athletic profiles, are poised to be elite athletes while possessing weaker academic intelligences and, therefore, weaker critical thinking ability resulting in lower academic performances in college.

This was the message inferred by the work of Pascarella et al. (1999). Controlling for precollege factors and student experiences, first, second, and third-year revenue-sport student-athletes underperformed non-revenue athletes and non-athletes in various academic standardized tests. In 1995, Pascarella, Bohr, Nora, and Terenzini analyzed first-year data at 18 Division I and non-Division I four-year institutions, controlling for precollege test scores, ethnicity, academic motivation, enrollment type, and institutional type; male football and basketball players had

significantly lower scores in standardized reading comprehension and math testing. The work continued, seeking to answer whether negative academic consequences are confined to the two revenue sports and if differing backgrounds mattered (Pascarella et al., 1999). Again, using 18 four-year institutions, the researchers administered the Collegiate Assessment of Academic Proficiency (CAAP), developed by the American College Testing Program (ACT), that consists of five 40-minute multiple-choice sections in reading comprehension, mathematics, critical thinking, writing, and science. For both second and third-year students, football and men's basketball players had scores that were significantly lower than non-athletes, while nonrevenue athletes (male and female) had scores that were not significantly different from those of non-athletes (Pascarella et al., 1999). These results support the negative effects of the higher athletic identities that are associated with revenue-sport student-athletes; they may be developing laser profiles as a reaction to their higher academic identities, and this may be leading to lower academic performance. Adcock (2014) emphasizes the importance of acknowledging the multiple ways in which students learn and encouraging educators to teach to how students learn best. This may not be possible in a college classroom, but it can be developed and applied through supplemental instruction.

Summary

Division I revenue-sport programs prioritize the athleticism of their recruits over their academic potential (Gutting, 2012). Many of these students are only admitted through exceptions made by the university since their high school numbers are far below the norm for standard incoming students. Unfortunately, many are incapable of performing at the standards of their classmates upon entry. At many institutions, these special admits make up over half of the

revenue teams (Barker, 2012; Knobler, 2008). These particular student-athletes highlight the pitfalls of succumbing to a high athletic identity.

An identity is combination of culture, common interest, and social role, and most people have multiple that activate based on circumstance (Stryker & Burke, 2000). This is not usually the case for revenue-sport student-athletes; many undergo identity foreclosure, with the athlete role superseding all others, stifling growth in any other area (Marcia, 1966, Cieslak, 2004). By overemphasizing this identity, he/she neglects to develop an adequate "student" identity (Snyder, 1985). Male athletes are the most susceptible, with men's basketball and football players attaining the strongest athletic identities (Brewer, Van Raalte, & Linder, 1990; 1991; 1993; Beamon, 2012). The strength of this identity within these two sports is moderated by a number of factors, with one of the strongest variables being race (Beamon, 2012).

Maloney and McCormick (1993) first studied whether class size moderated academic performance. Though men's basketball and football players always performed the worst academically, when athletic status was controlled for, decreases in academic performance correlated with increases in high school size. But, the inference did not apply universally to both revenue sports. The majority of men's basketball players are private school graduates, yet they tend to average lower GPAs than football players, who mostly graduate from public schools with larger class sizes (Breslin, 2015; "2016 ESPN 100," 2016; "Elementary and Secondary Education Enrollments," 2015; "Private School Universe Survey," 2010; "Private School Students…Ready for College," 2015; Knobler, 2008; Barker, 2012; Gutting, 2012).

Maloney and McCormick (1993) then studied race in college athletics. African Americans make up less than a quarter of Division I athletes, but over 50% of the men's basketball teams and FBS football teams (Lapchick et al., 2013). They also make up the majority

of NBA and NFL (Lapchick & Guiao, 2015; Tapp, 2014). This representation influences African American susceptibility to athletic identity foreclosure, increasing their rates as they meld their racial culture with that of revenue sports (Beamon, 2012; Harrison, Sailes, Rotich, & Bimper, 2011). Their over-commitment to athletics results in a vast under-commitment to academics (Beamon, 2012). Due to their disproportionate representation, they have the ability to affect performance data for entire teams and in the two sports at-large, with their academic underperformance increasing the overall achievement gap between revenue and non-revenue-generating sports (Lapchick, Agusta, Kinkopf & McPhee, 2013; "Overall Division I," 2008).

Revenue-sport student-athletes are unable to find balance between athletics and academics due in part to the culture of the two sports, which often equates merit with athletic ability. In non-revenue-sports, which often lack the same level of fan adulation, institutional praise, and media attention, the demand to be an athlete first—or only—is much more subdued (Bimper & Harrison, 2011). Due to the increased pressure and demands, some revenue-athletes who would be good students conform to transferring that energy towards improving their athletic output, devoting upwards of 40 hours or more per week to their sport (O'Shaughnessy, 2011). With countless athletic demands that they feel a need to fulfill, these students form a habit of believing academic shortcomings are part of the process (Emma, 2008). Due to its association with success, they demonstrate the highest levels of motivation in athletics and the lowest levels in academics (Gaston-Gayles, 2005). Simons, Van Rheenen, and Covington (1999) monitored self-worth and academic beliefs in student-athletes. Their data analysis inferred that academic motivation in revenue-sport student-athletes is defined in one of two ways: failure-avoiders that have low academic self-esteem due to years of failure and disengagement with education, attributing poor academic performance to lack of effort, or failure-acceptors who have

internalized beliefs that they lack actual academic ability, expecting and accepting negative academic outcomes (Simons, Van Rheenen, & Covington, 1999). Low academic motivation does correlate with low academic performance, and does arise from strong athletic identities, but only as an aftereffect of already-present academic failure; low academic motivation must be based on a preexisting history of failure (Simons, Van Rheenen, & Covington, 1999). Failure-avoiders use lack of effort as an excuse to dismiss their inability to perform in the classroom, and though failure-acceptors understand their lower abilities, their lack of motivation leaves them helpless to overcome it (Simons, Van Rheenen, & Covington, 1999). Therefore, before motivation, there must be a catalyst initiating the relationship between high athletic identity and low academic performance in revenue-sport student-athletes; that variable is likely intelligence.

Howard Gardner (1983) believed that intelligence came in multiple forms, with different people displaying different strengths and weaknesses in each. Revenue-sport student-athletes are likely to peak in two of the intelligences due to their connection to athletic identity. They develop what Gardner refers to as laser profiles, maintaining their strength in athletic intelligence while remaining weaker in all others, including academic intelligence. Adcock (2014) dissected Multiple Intelligence Theory, further defining what is reveals about how students think and learn, and why it needs to applied in classrooms. A student lacking adequate levels of academic intelligence will likely lose motivation in the classroom, continuing the cycle of underperformance (Adcock, 2014). This weakness in academic intelligence is linked to low performance in content areas and a lack of critical thinking ability. Critical thinking requires thinking rationally and clearly, engaging in reflection and introspection (Lau & Chan, 2004-2016). It is a necessary component of a college education, across content areas, and is essential to the development of the two parts of academic intelligence: logical-mathematical and linguistic

(Holyoak & Morrison, 2005; Rashid & Hashim, 2008). Therefore, it can be inferred that revenue athletes underperform, in part, because of weakly developed logical and linguistic abilities. This theory has been further supported by the work of Pascarella et al. (1999), who found that revenue-sport student athletes underperform nonrevenue athletes and non-athletes in college-level standardized assessments even when controlling for background differences. Applying a multiple intelligence theory to the underperformance of revenue-sport student-athletes would provide an avenue to understand why they struggle and begin building supplemental education programs that can close the achievement gap between them and the rest of the student body.

CHAPTER 3

METHODOLOGY AND RESULTS

Participants

The following study was conducted using a small sample of 30 active revenue-sport student-athletes attending an FBS institution in the southeastern region of the United States. The sample consisted of 13 men's basketball players and 17 football players spanning freshmen student-athletes to fifth-year seniors. All of the participants were voluntary. All were native English speakers within the set parameters for age, including the incoming freshmen, and were able to complete the surveys without assistance under my supervision. They were all recruited through the assistance of their coaches, academic advisors, and the athletic director of academics.

Instrument

Each participant completed a survey via electronic questionnaire. The questionnaire consisted of three main sections and one experimental section that may be utilized in future research (The experimental section will be addressed in the discussion section). Each of the three main sections is defined below. Additionally, an undergraduate, university-wide GPA mean was retrieved using publically available information, distributed by the school via the Internet, that provides GPA averages and other academic data by semester.

Demographics

The demographics section consisted of a combination of multiple choice and fill-in responses including race, age, year in college, sport, academic major (if declared), and current GPA.

Athletic and Academic Identity

The second section used modifications made to the AIMS scale that was previously modified by Brewer and Cornelius in 2001. Intertwined with the AIMS was an academically-revised version in order to compare the relationship between athletic and academic identity. The original AIMS was developed as a 10-item scale for measuring athletic identity (Brewer, Van Raalte, & Linder, 1993). However, as researchers began to question its dimensionality, Brewer and Cornelius (2001) examined its structure using AIMS samples collected over 10 years and deleted three of the original items, finding that they poorly measured the scales intended factors: social identity, exclusivity, and negative affectivity. The new 7-item scale continues to be a valid and reliable measure of athletic identity, especially for English-speaking American populations (Visek, Hurst, Maxwell, & Watson, 2008). Althea Woodruff, a doctoral student at the University of Texas, Austin in 2003, academically revised the AIMS scale after finding no existing scale to accurately measure academic identity. She reworded the original 10-item AIMS to measure academic identity, i.e. changing "Sport is the only important thing in my life," to "My classes are the only important thing in my life." (Woodruff, 2003). The modified scale was tested for reliability before being used in her research (Woodruff, 2003). In keeping the symmetry with the modified AIMS scale, only the academic questions that aligned with the remaining seven items on the scale modified were utilized. The academic statements were arranged in the reverse order

of the athletic statements. Additionally, for ease of interpretation and completion, and to better align with the analysis that would combine this section with the third, the Likert scale was adjust from a 7-point to a 5-point scale.

Athletic and Academic Intelligence

The third section was intended to measure athletic and academic intelligence. Howard Gardner never designed a tool for measuring the different intelligences; he depended on observations (as cited by Conti, 2015). However, Dr. J. Keith Rogers, after thoroughly studying the work of Gardner, designed the Rogers Indicator of Multiple Intelligences (RIMI) in 2011. It is the most well-known and widely used tool for building multiple intelligence profiles (Al-Kalbania & Al-Wahaibia, 2015). It consists of 56 items that measure the now eight different intelligences identified by Gardner as of 2006. Each intelligence aligns with seven items on a Likert scale ranging from Rarely (1) to Almost Always (5) (Rogers, 2011). It is designed to identify dominant and weak intelligences (Al-Kalbania & Al-Wahaibia, 2015). When evaluating totals, a score of 15 or less defines a weak intelligence, scores greater than 15 but less than 27 equate to some level of ease with the intelligence, and scores of 27 or greater identify a dominant intelligence (Rogers, 2011). Researchers in Oman used the RIMI to test multiple intelligence theory on high school students. Cronbach's alpha was used to test the indicator's reliability, exploratory factor analysis (EFA) was used to identify the underlying dimensions of each construct of the instrument, and confirmatory factors analysis (CFA) was also used confirm the dimension and analyze the fitness of the data collected (Al-Kalbania & Al-Wahaibia, 2015). The results provided enough evidence to validate the use of the scale and allowed the researchers to

conclude that the RIMI could be used to identify students' intelligences (Al-Kalbania & Al-Wahaibia, 2015).

The survey distributed only included the four sections that align with the two intelligences of interest. Additionally, scoring will be conducted in two ways: 1) by receiving coupled intelligence totals and doubling the numerical categories established by Rogers and 2) by retrieving the mean score for each coupled intelligence for each student.

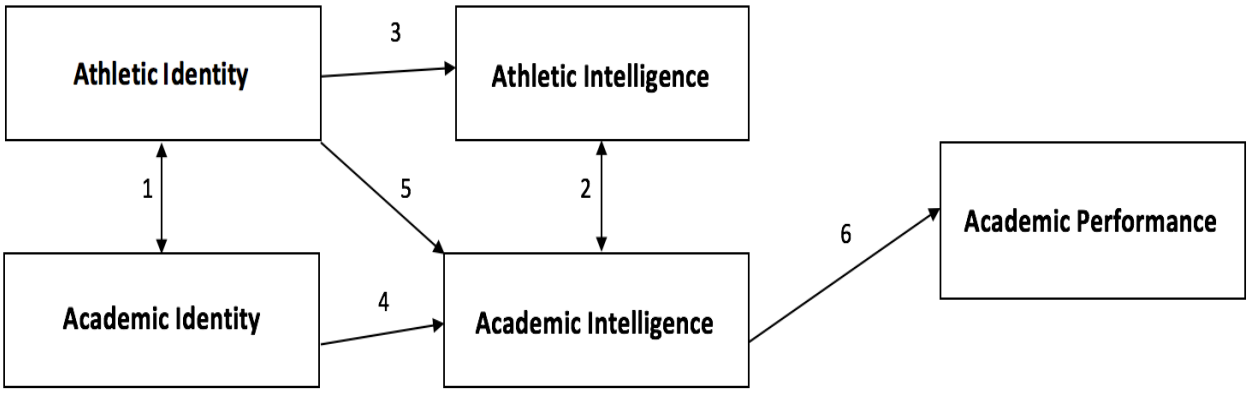
Procedures

The survey was administered electronically on two separate occasions. The first session was for the basketball participants; the second was for football. Participants reported to a computer lab in the academic section of the athletics building. Each student-athlete sat at his own computer station where he was first provided a link to complete an electronic informed consent letter. All participants were informed that they could ask questions and were not required to participate. The only direct instruction was to be honest while completing the survey. Following the submission of the consent letter, participants' computers automatically redirected to the webpage containing the survey. There was no time limit provided for completing the survey; most students completed it within 10 minutes. Survey results were received immediately and stored in a secure, password-protected electronic database. On the second day, the process was repeated for the football student-athletes.

Data Analyses and Results

Data was analyzed using the same model provided earlier:

Figure 1: Exploratory Study Model



Given the reception of the minimum required 30 surveys, the Central Limit Theorem could be utilized effectively for data analysis. Each respondent's responses were converted as necessary for analyzing the six parts that encompass the main research question. For each survey, means were generated for levels of athletic identity using the AIMS items, academic identity using the academic items added to the AIMS, athletic intelligence using a combined mean from the bodily-kinesthetic and spatial intelligence items on the RIMI, and academic intelligence using the combined mean from the logical-mathematical and linguistic items on the RIMI. Additionally, totals were generated for the athletic intelligence items and academic intelligence items, and then converted into the categories initially established by Rogers by doubling his sums. 14-30 equated to a weak intelligence, between 30 and 54 equated to some ease with the intelligence, and scores of 54 or above established a dominant intelligence. GPA data was collected from all students except incoming freshmen who had not yet completed a college-level course to have a GPA.

Athletic and Academic Identity

The first mini investigative question of the exploratory study sought to measure reaffirm to relationship between athletic and academic identity. It was analyzed using side-by-side box plots to display the sample means of both identities to check for equality and descriptive statistics to numerically show the means and a matched-pairs t-test, using an alpha level of .05. A matched pairs t-test was chosen because if the revenue-athletes were developing without identity foreclosures, there would not be a statistical disparity between the means of two identities. However, the assumed results were than the revenue athletes would have higher athletic identities. Athletic identity responses averages can be found in Table 1; academic identity data are displayed in Table 2. Figure 2 shows the boxplots created to compare the means; Table 3 includes the most relevant descriptive statistics. The assumption was that the revenue-sport student-athletes would have statistically higher athletic identities than academic. The data were analyzed using SPSS statistical software.

Table 1: Athletic Identity Responses and Means

Athletic ID 1	Athletic ID 2	Athletic ID 3	Athletic ID 4	Athletic ID 5	Athletic ID 6	Athletic ID 7	AVERAGES
5	5	3	3	4	3	2	3.571429
5	5	5	4	4	4	5	4.571429
5	4	3	4	3	4	5	4
5	5	5	4	4	5	5	4.714286
5	5	3	5	5	5	5	4.714286
5	5	5	5	5	5	4	4.857143
5	5	5	4	3	5	5	4.571429
5	4	5	4	3	5	4	4.285714
5	2	1	4	2	5	2	3
5	5	5	3	1	4	4	3.857143
5	5	5	5	4	5	4	4.714286
5	5	5	5	4	5	4	4.714286
5	4	5	4	4	3	4	4.142857
3	3	3	3	2	4	5	3.285714
5	5	5	4	3	5	5	4.571429
4	4	4	3	4	3	3	3.571429
5	5	4	5	3	5	5	4.571429
5	4	5	3	4	5	1	3.857143
5	4	3	2	3	3	4	3.428571
4	4	2	2	3	4	5	3.428571
5	4	4	4	4	4	4	4.142857
5	5	5	5	5	5	5	5
5	5	5	5	4	5	5	4.857143
5	4	4	4	4	4	5	4.285714
5	4	4	2	2	2	3	3.142857
5	5	4	5	4	5	5	4.714286
5	5	5	3	3	5	5	4.428571
3	4	3	2	2	1	1	2.285714
5	4	4	3	3	4	4	3.857143
5	5	5	4	4	5	5	4.714286

Table 2: Academic Identity Responses and Means

Academic ID 1	Academic ID 2	Academic ID 3	Academic ID 4	Academic ID 5	Academic ID 6	Academic ID 7	AVERAGES
5	5	3	4	3	5	2	3.857143
4	4	4	3	2	1	3	3
3	3	3	3	2	4	3	3
5	5	3	4	4	5	1	3.857143
5	5	4	2	4	3	4	3.857143
5	4	2	5	3	5	3	3.857143
1	4	2	2	2	3	2	2.285714
5	4	4	5	4	5	3	4.285714
3	2	2	3	2	3	2	2.428571
3	3	3	3	1	4	1	2.571429
5	4	4	3	3	4	1	3.428571
4	4	5	4	4	5	3	4.142857
5	2	3	2	2	3	1	2.571429
5	4	5	5	3	5	1	4
3	4	3	3	3	5	4	3.571429
3	3	4	2	3	3	4	3.142857
2	3	4	3	3	3	2	2.857143
4	4	4	4	3	4	2	3.571429
4	3	4	4	4	4	5	4
3	4	3	3	3	4	3	3.285714
4	3	3	4	4	4	4	3.714286
3	4	4	3	3	5	5	3.857143
4	3	4	4	3	5	1	3.428571
3	3	3	3	2	3	3	2.857143
5	3	2	2	2	4	2	2.857143
1	2	3	2	3	3	4	2.571429
5	5	3	5	3	5	3	4.142857
1	1	2	1	1	1	1	1.142857
4	4	4	4	3	5	3	3.857143
4	5	3	4	3	3	1	3.285714

Figure 2: Identity Comparison

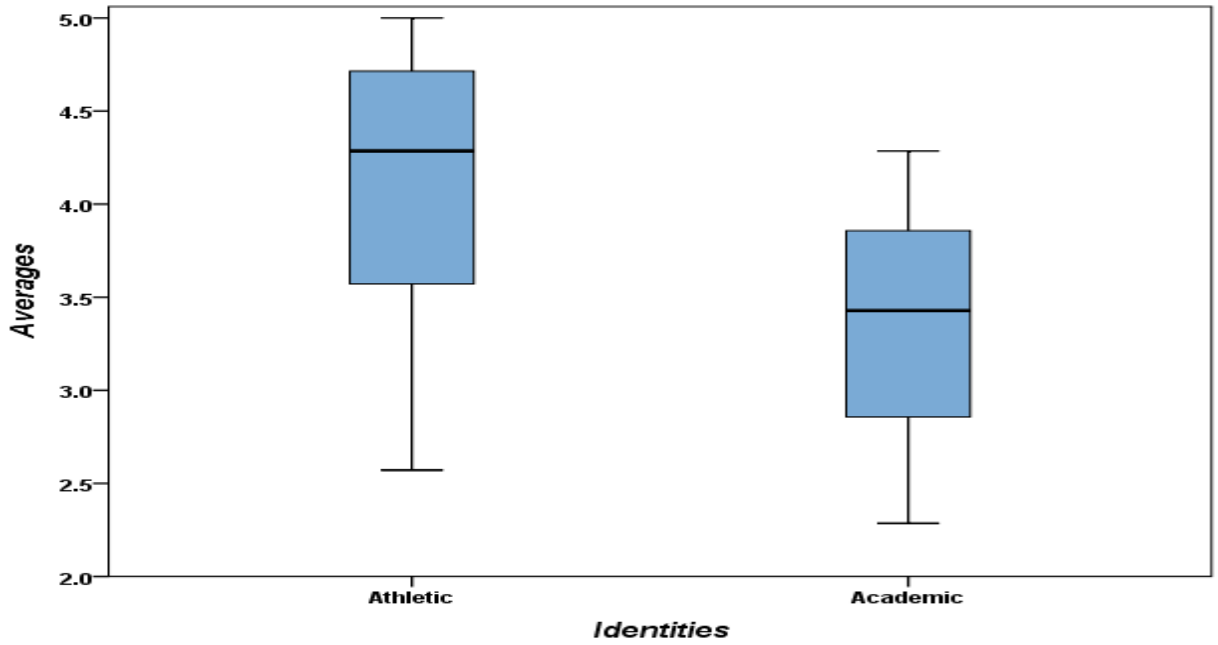


Table 3: Identity Descriptive Statistics and Matched Pair T-Test

Identity	Mean	T-Score	P-Value
Athletic	4.129	6.120	P<.001
Academic	3.310		

Just looking at the box plots, it was clear that the means were different, with a sample average of about 4.13 for athletic identity and 3.31 for academic identity. After using SPSS to run a t-test, using an alpha level of .05, results showed that there was less than .1% change of seeing results this extreme if both of these identities shared the same mean. Therefore, it would appear that, according to the sample, revenue athletes have statistically significantly higher athletic identities than academic ones. This follows generally accepted ideas, but goes a bit farther by directly measuring both identities together to form a conclusion. This conclusion satisfies the needed results of the first mini investigation

Athletic and Academic Intelligence

The same data approach used for identity was applied to analyzing the intelligence data. Additionally, intelligence totals were collected to establish the categories for the intelligences for each student, which will be analyzed with academic performance. Table 4 and Table 5 display the relevant data for each intelligence. Figure 3 displays the analysis of the intelligences; Table 6 includes the descriptive stats and matched pair results. The same assumption applied to identity was utilized a second time: the belief that the sampled student-athletes would have higher mean levels of athletic than academic intelligence. Figure 3 highlights drastically different means in the boxplots, and Table 6 provides the necessarily statistical numerical results showing that if

athletic and academic intelligence were indeed equal for these student-athletes, then the results shown would only happen .1% of the time. Therefore, it is fair to conclude that the means are not equal, and that for (these) revenue athletes, athletic intelligence trumps academic intelligence, fulfilling the needs of the second mini investigation of this exploratory study.

Table 4: Athletic Intelligence Responses, Means, and Totals

V1	V2	V3	V4	V5	V6	V7	B-K1	B-K2	B-K3	B-K4	B-K5	B-K6	B-K7	AVERAGES	TOTALS
5	5	5	4	5	5	5	4	5	5	5	5	5	5	**4.85714286**	**68**
3	5	3	3	3	3	3	3	3	3	3	3	4	4	**3.28571429**	**46**
3	4	4	3	3	3	4	5	4	5	5	3	4	5	**3.92857143**	**55**
4	4	3	3	5	4	3	5	5	5	5	3	4	5	**4.14285714**	**58**
5	5	5	5	5	5	4	5	5	5	5	3	5	5	**4.78571429**	**67**
4	5	4	4	4	4	5	4	4	5	5	4	4	4	**4.28571429**	**60**
4	3	4	3	3	3	4	4	3	3	3	3	4	3	**3.35714286**	**47**
4	3	5	4	5	4	4	4	2	5	4	5	5	4	**4.14285714**	**58**
3	5	3	3	5	2	4	5	4	5	5	2	5	5	**4**	**56**
5	5	5	5	5	2	5	5	5	5	5	4	5	5	**4.71428571**	**66**
4	5	3	3	4	3	3	4	3	5	4	2	4	4	**3.64285714**	**51**
4	3	4	4	5	4	3	3	5	5	4	4	4	4	**4**	**56**
2	4	4	3	4	2	5	5	5	5	5	3	4	5	**4**	**56**
4	3	3	3	5	5	5	5	3	4	5	3	4	5	**4.07142857**	**57**
4	5	3	3	5	5	5	5	4	5	4	5	5	5	**4.5**	**63**
3	4	3	2	4	2	5	3	3	4	5	3	4	5	**3.57142857**	**50**
3	4	4	3	5	3	4	4	4	5	4	4	4	4	**3.92857143**	**55**
5	4	5	4	4	3	3	4	4	5	4	3	3	4	**3.92857143**	**55**
3	5	3	3	5	3	4	3	3	4	4	4	3	5	**3.71428571**	**52**
3	3	3	3	5	3	4	3	4	5	5	3	5	5	**3.85714286**	**54**
4	4	4	4	4	4	5	4	5	4	4	2	3	3	**3.85714286**	**54**
5	5	5	5	5	5	5	5	5	5	5	5	5	5	**5**	**70**
4	4	4	3	4	2	3	4	3	4	5	4	4	4	**3.71428571**	**52**
4	5	3	4	5	3	4	4	5	5	4	3	3	5	**4.07142857**	**57**
2	3	4	2	4	2	4	4	2	5	5	2	4	5	**3.42857143**	**48**
5	5	4	3	5	3	4	5	3	5	4	2	4	4	**4**	**56**
5	5	4	4	4	4	4	5	5	4	4	4	4	5	**4.35714286**	**61**
3	5	4	3	4	1	4	5	3	5	5	2	5	4	**3.78571429**	**53**
3	3	3	4	5	2	5	3	3	5	5	3	4	5	**3.78571429**	**53**
4	5	4	5	5	1	4	5	4	5	5	1	5	5	**4.14285714**	**58**

Table 5: Academic Intelligence Responses, Means, and Totals

L1	L2	L3	L4	L5	L6	L7	L-M1	L-M2	L-M3	L-M4	L-M5	L-M6	L-M7	AVERAGES	TOTALS
3	5	5	4	5	4	5	1	5	5	5	2	1	5	3.92857143	55
3	3	3	3	3	3	3	2	3	3	3	3	3	3	2.92857143	41
3	3	3	3	3	3	3	1	4	3	3	3	3	3	2.92857143	41
4	4	3	4	4	3	5	5	4	3	3	5	5	4	4	56
3	2	5	3	2	1	5	4	3	5	5	3	5	5	3.64285714	51
4	4	4	4	5	5	4	4	4	4	4	4	4	4	4.14285714	58
4	4	3	3	3	3	3	4	3	3	3	3	3	3	3.21428571	45
3	2	4	2	2	1	5	4	4	4	3	1	4	4	3.07142857	43
3	5	3	3	3	1	4	4	4	4	5	1	3	4	3.35714286	47
3	5	3	3	1	1	3	3	4	3	1	1	5	4	2.85714286	40
4	5	5	2	3	3	4	3	4	5	3	2	3	4	3.57142857	50
4	2	4	4	3	2	4	2	2	4	3	1	1	5	2.92857143	41
2	3	3	2	2	2	4	1	2	3	2	1	2	3	2.28571429	32
4	5	3	3	5	3	3	1	3	3	3	1	1	5	3.07142857	43
4	5	4	3	5	4	5	2	4	4	2	4	1	5	3.71428571	52
3	3	2	2	2	3	3	3	4	3	3	2	3	3	2.78571429	39
3	3	3	4	3	4	3	3	3	3	3	3	3	4	3.21428571	45
5	3	4	3	3	4	4	4	2	4	3	4	4	3	3.57142857	50
3	5	2	3	4	2	4	2	4	3	3	3	3	3	3.14285714	44
3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	42
4	4	4	4	3	3	5	4	4	4	4	2	3	3	3.64285714	51
5	5	5	5	5	5	5	1	5	5	5	5	5	5	4.71428571	66
2	3	4	2	3	2	2	2	4	3	4	3	4	4	3	42
4	5	5	4	3	3	5	4	5	5	3	1	4	5	4	56
3	3	2	2	2	2	3	2	3	2	2	1	1	3	2.21428571	31
5	5	4	4	4	3	4	3	4	3	4	3	4	5	3.92857143	55
5	5	4	4	4	4	4	4	5	4	4	4	4	4	4.21428571	59
5	5	4	4	4	2	4	2	3	5	4	2	1	5	3.57142857	50
3	3	3	3	2	2	3	4	3	3	2	2	4	4	2.92857143	41
4	5	4	5	4	1	5	1	5	3	3	1	1	5	3.35714286	47

Figure 3: Intelligence Comparison

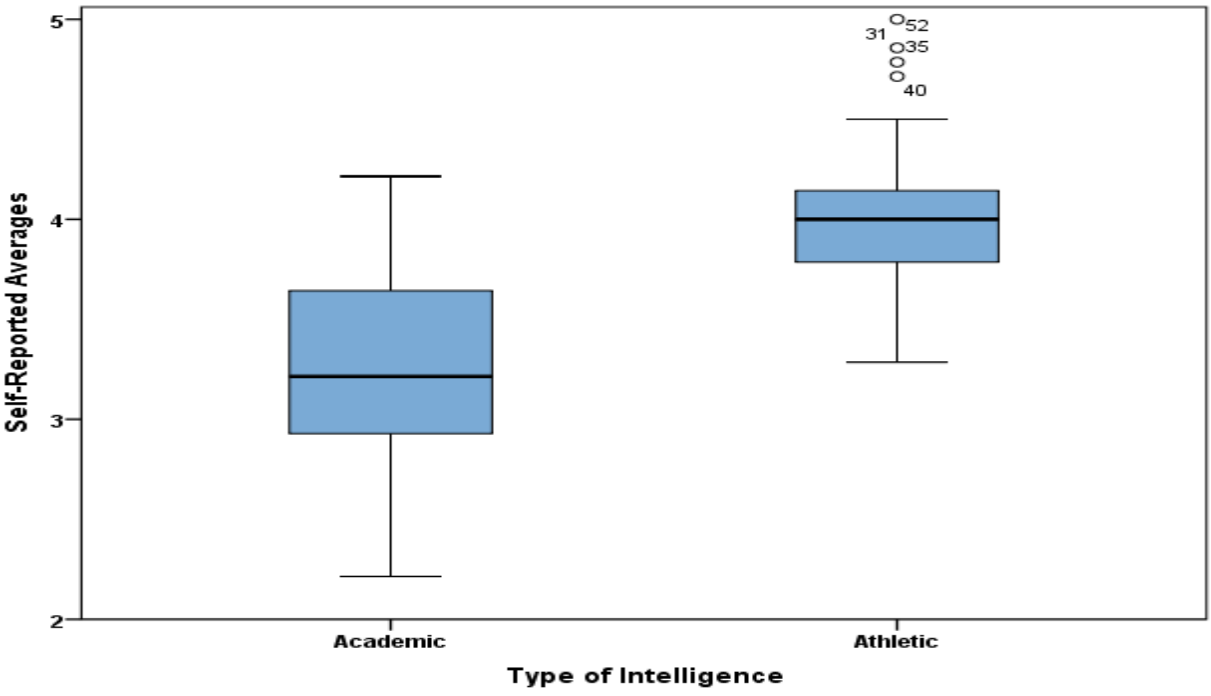


Table 6: Intelligence Descriptive Statistics and Matched Pair T-Test

Intelligence	Mean	T-Score	P-Value
Academic	3.302	-7.294	P<.001
Athletic	4.029		

Identity to Intelligence

The next step was to explore whether a relationship could be directly established between identity and intelligence, with the former as the explanatory variable and the latter as the response. These analyses would fulfill the next three mini investigations in data results confirmed the assumptions. The next two assumptions were that the means for like-named variables would be statistically equal within the sample. Figure 4 shows the side-by-side comparison of athletic identity and intelligence; Figure 5 does the same for academic identity and intelligence. Table 7 and Table 8 display the descriptive statistics and matched pair t-test data for athletics and academics respectively.

Figure 4: Athletic Comparison

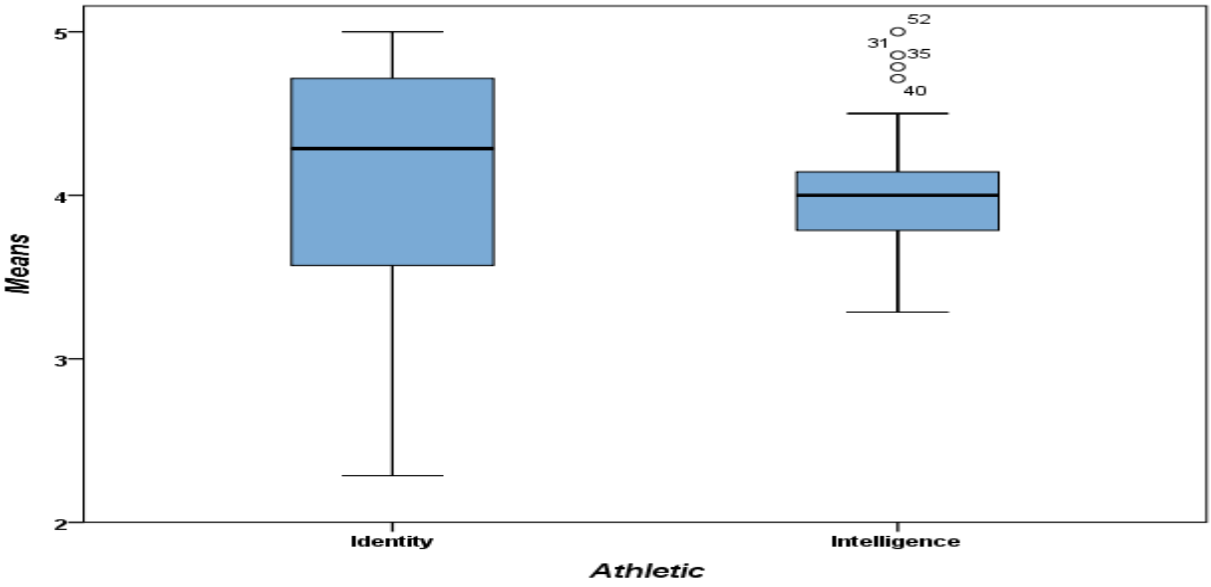


Table 7: Athletic Comparison and Matched Pair T-Test

Type	Mean	T-Score	P-Value
Athletic Identity	4.129	.775	.445
Athletic Intel	4.029		

Figure 4 shows box plots that have a slight variation in their means. Table 6 shows this to only be about .1 in difference, and the results of the matched pair t-test shows a p-value well above alpha, supporting the assumption that in general, athletic identity and intelligence levels will be equal for revenue-sport student athletes and are likely directly related.

Figure 5: Academic Comparison

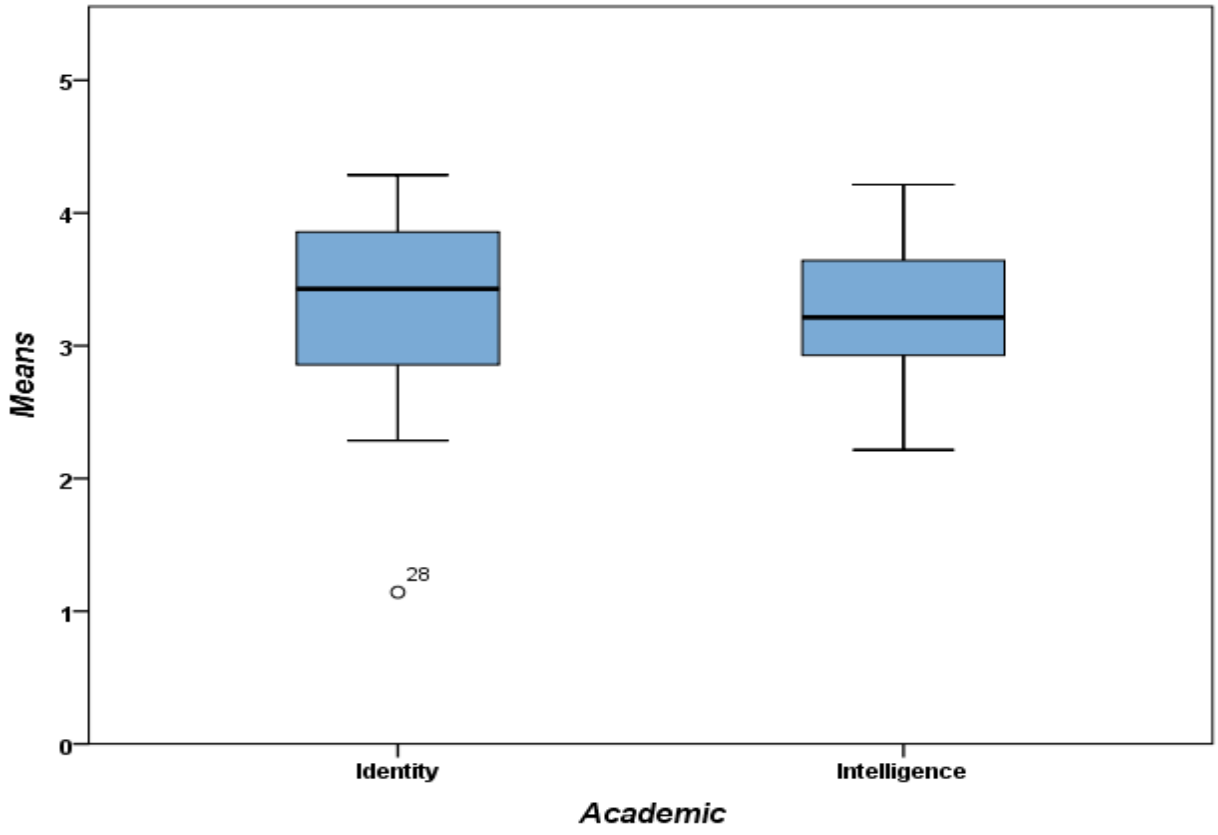


Table 8: Academic Comparison and Matched Pair T-Test

Type	Mean	T-Score	P-Value
Academic Identity	3.310	.049	.961
Academic Intel	3.302		

The same conclusion exists for academic identity and intelligence. The means vary only by .007 and the p-value is just over 96%, strongly supporting the relationship between athletic identity and academic intelligence. Seeing the connection between the two athletic variables and two academic variables, which supports the assumptions of mini investigations 3 and 4, presupposes the relationship that should exist between athletic identity and academic intelligence. That is to say, assuming the aforementioned results hold true, identity directly correlates with intelligence, so that athletic identity will, on average, be higher than academic intelligence in revenue-sport student-athletes, at least according to this sample. Though this extension can arguably be made without visuals, they are still provided in Figure 6 and Table 9 (which uses a two-sample t-test).

Figure 6: Athletic Identity and Academic Intelligence

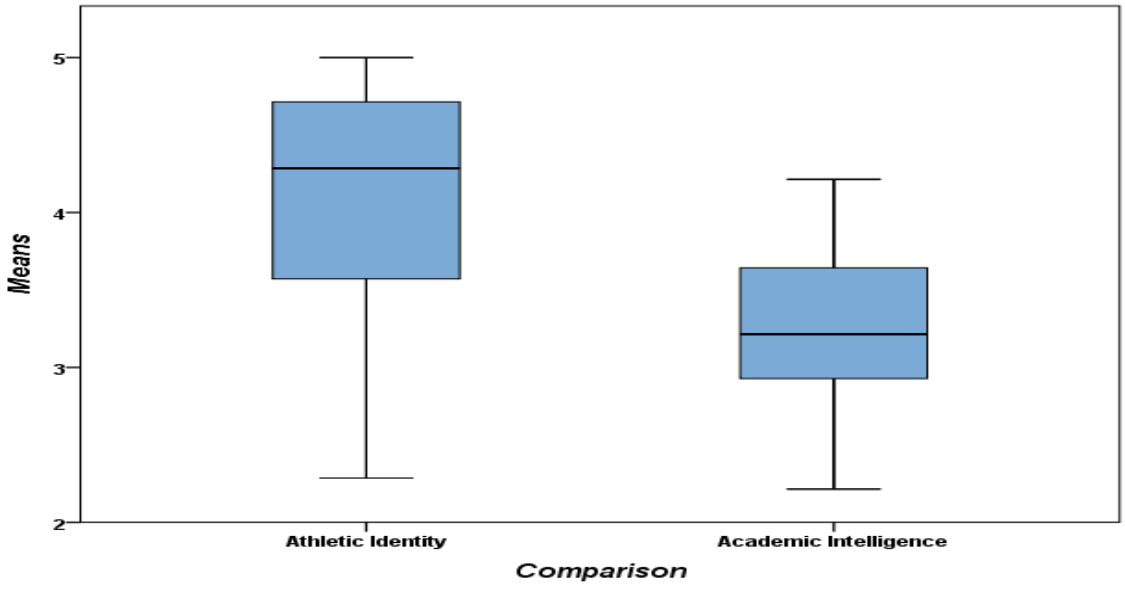


Table 9: Group Statistics and Two-Sample T-Test

Type	Mean	T-Score	P-Value
Athletic Identity	4.129	5.358	P<.001
Academic Intel	3.302		

This support the fifth prong of this exploratory study: high athletic identity correlates with low academic intelligence. The final assumption involves making the connection between low academic intelligence and low academic performance. First, analyses were conducted on academic performance alone.

Academic Performance

The average GPA at this particular university is a 3.02 as of the end of the Spring 2016 Semester. As of that same time period, the student-athletes averaged a GPA of 2.741. (N/A apply to incoming freshmen who have not yet completed a course to establish a college GPA).

Table 10: Self-Reported GPAs

ATHLETE GPA
3.3
2.4
N/A
3.5
2.1
3
2.7
N/A
3.2
3.2
N/A
N/A
2.1
2.8
2.9
2.3
2.6
2.3
3
2.5
3.1
N/A
N/A
2.8
3
2.3
N/A
2.4
N/A
2.8
2.740909091

In order to test for any glaring disparity between the two GPAs, a one-sample t-test was conducted, using the sampling distribution of the student-athletes and the general student body GPA as a test value. If both were generated from the same data, it would be likely that the general GPA would fall within three standard deviations, a 99% confidence level range, established by the athletes' GPAs. This increase from the usual 95% was to ensure the results. Table 11 shows the results of the analysis.

Table 11: One Sample T-Test with a Test Value of 3.02

Number of GPAs	**Athlete GPA Mean**
22	2.741
T-Score	**P-Value**
-3.257	.004

With a .4% of seeing a 3.02 GPA given the provided sampling distribution, it is safe to say that, on average, these revenue athletes are, statistically speaking, performing significantly below the average student at this university. This supports the conclusions of most existing research. It was then expected to be connected back to academic intelligence to fulfill the sixth mini investigation.

Academic Intelligence to Academic Performance

It was not possible to correlate academic intelligence to academic performance as seamlessly as one would hope because of the lack of anticipation of missing GPAs. The even smaller sample reduced the usefulness of the Central Limit Theorem. Questions arose about how to analyze the two variables. In order to provide some information that could inform steps for the

future, the 22 GPAs were analyzed with the RIMI totals. These totals were then converted to reflect the category of intelligence they represented. This is seen in Table 12.

Table 12: Academic Intelligence Scores and Categories

Academic Total	RIMI Category	GPAs
31	some ease	3
32	some ease	2.1
39	some ease	2.3
40	some ease	3.2
41	some ease	2.4
42	some ease	2.5
43	some ease	2.8
44	some ease	3
45	some ease	2.6
45	some ease	2.7
47	some ease	2.8
47	some ease	3.2
50	some ease	2.3
50	some ease	2.4
51	some ease	2.1
51	some ease	3.1
52	some ease	2.9
55	dominant	3.3
55	dominant	2.3
56	dominant	2.8
56	dominant	3.5
58	dominant	3

It is interesting to see that the majority of the athletes who reported GPAs have only some ease with academic intelligence, which suggests medium to lower levels. Looking at the numbers, at least two are much closer to having weak levels. Figure 7 and Table 13 are more inconclusive that previous analyses, with Table 13 showing a 13.3% chance of seeing such results. However, it is possible that this percentage would decrease, possibly below alpha, with a bigger sample, especially considering that though not currently deemed statistically significant, the 17 student-athletes who reported only some ease with academic intelligence averaged a lower GPA than the

5 that believed they had high/dominant levels. This trend suggests that it could be possible to connect lower academic intelligence to lower GPAs averages in revenue-sport student-athletes if provided with a large enough sample.

Figure 7: Connecting Academic Intelligence to Academic Performance

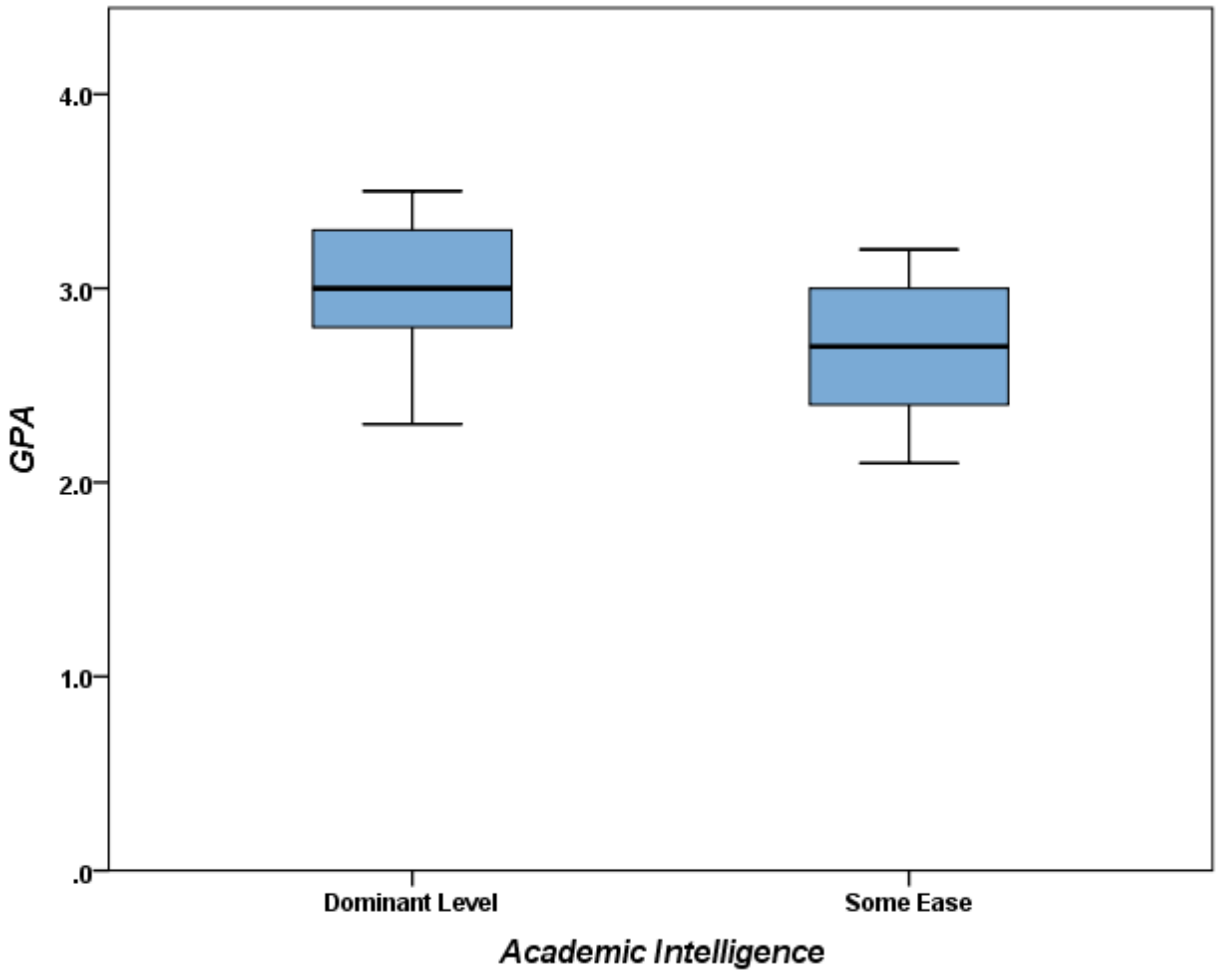


Table 13: Connecting Academic Intelligence to GPA

	# Reported	Mean GPA	T-Score	P-Value
Some Ease	17	2.671	-1.564	.133
Dominant	5	2.980		

Based on the final data analysis, the final mini investigation of this exploratory study cannot be confirmed nor denied. But there is enough evidence to suggest the likelihood that it would be confirmed with a larger sample. A relationship was established between identity and intelligence, and the data leans towards a connection between academic intelligence and academic performance, with the lower averages in both likely correlated, relating back to the high athletic identities found in revenue-sport student-athletes. A larger sample is necessary for deeper and more thorough analysis, but as foundational material, and with such a small sample, the results of the data analysis are very promising in establishing lower academic intelligence as a strong mediating variable between high athletic identity and low academic performance.

Race

Racial analysis could not fully be conducted in this study due to the small size coupled with the overrepresentation of African American males compared to the other racial groups included in the sample. However, that majority does inform the continually increasing presence of African Americans in revenue-generating sports. It also supports research about the larger presence of African American males in college basketball compared to football (considering that within the sample, almost the entire basketball team was represented). Five students identified as biracial, Black and White. Therefore, two pie charts are included, one (Figure 8; Table 14) with multiracial as a separate category, and one (Figure 9; Table 15) that filters them into both the Black and White categories. Either way, African Americans are still the dominant population, and it can be assumed that their presence must have some significant effect on the research results. This shall be further investigated when a larger sample is collected. Making it up 70% of the sample when multiracial is set as a separate category, and 74% when it is filtered in.

Figure 8: Racial Composition of Sample, including Multiracial

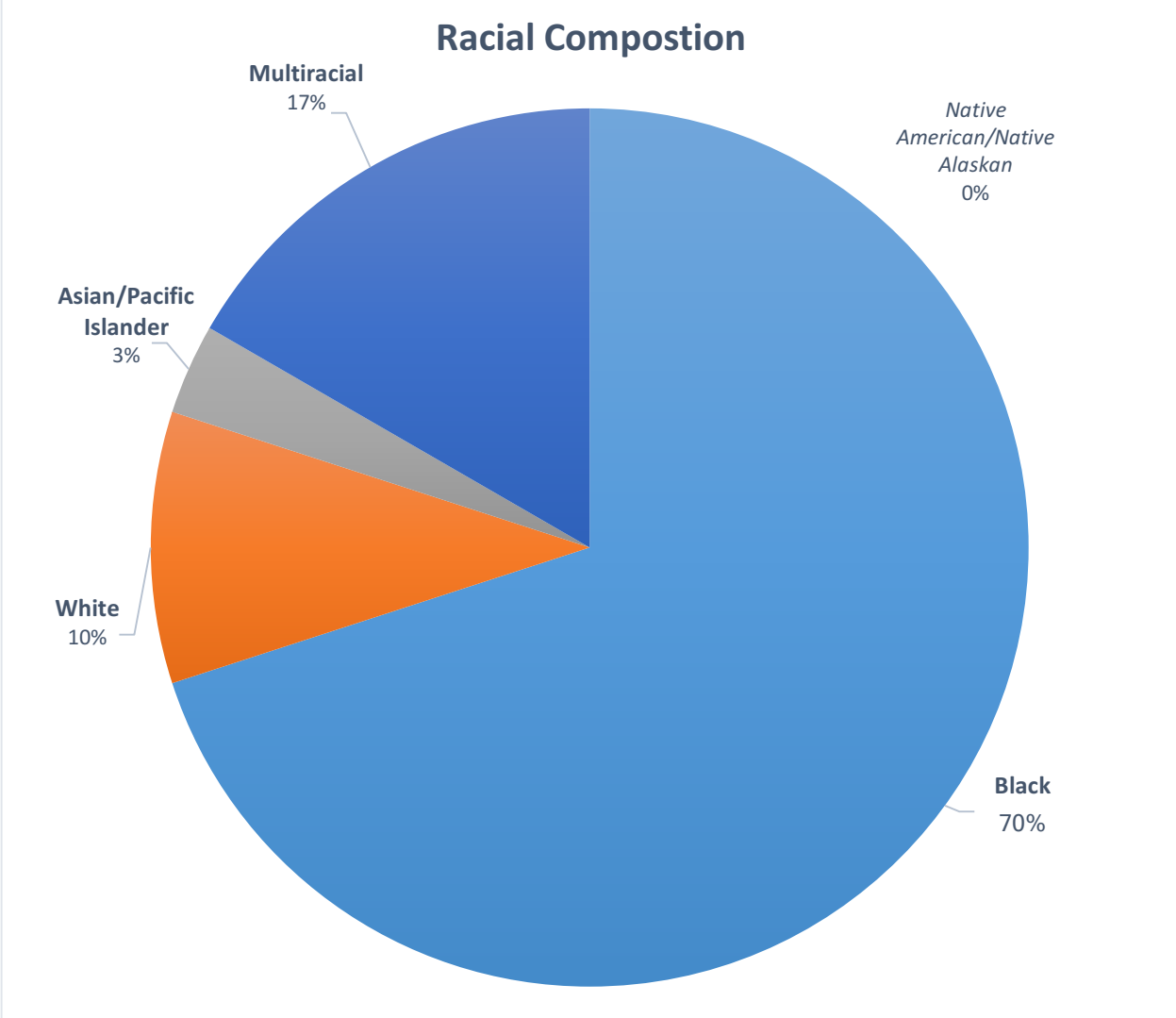


Table 14: Racial Composition of Sample, including Multiracial

Race	Quantity
White	3
Black	21
Asian/Pacific Islander	1
Native American/Native Alaskan	0
Multiracial	5

Figure 9: Racial Composition of Sample, Multiracial Filtered In

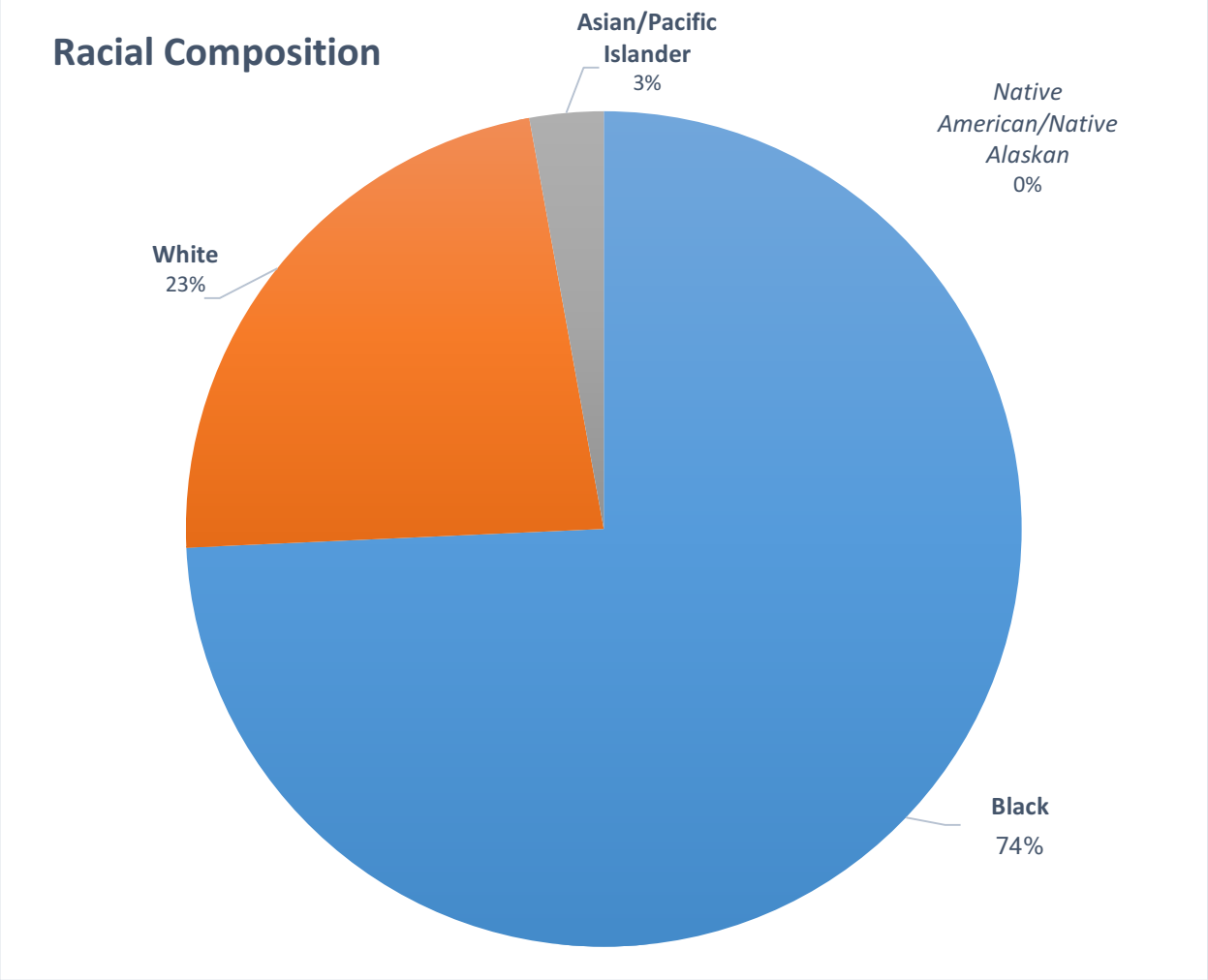


Table 15: Racial Composition of Sample, Multiracial Filtered In

Race	Quantity
White	8
Black	26
Asian/Pacific Islander	1
Native American/Native Alaskan	0

CHAPTER 4

DISCUSSION

Much has been stated about the underperformance, in general, of revenue-sport student-athletes and the need to pinpoint what may be causing it in order to put in place appropriate interventions. Disproportionately high athletic identity is commonly accepted as the starting point, and it obviously leads to low academic performance, but lies in between these two variables, what mediates this relationship, is the purpose of much of the current research in student-athlete education. Many researchers have settled on motivation. But it is unlikely that these athletes just naturally have low motivation; something got them to that point. Something that is not only sociological, but also cognitive. Intelligence, following Howard Gardner's definition, would not only fill the void and open the door for new, innovative research in the field, but would also provide a response that is much more tangible than motivation, and more cognitively focused. If it is cognitive, then it is a teachable, trainable, management variable. It also takes away the victim-blaming factor that exists in relegating poor academic performance to a lack of motivation. Focusing on actual ability, and how to build that ability by bridging strongly developed intelligences with underdeveloped ones creates a pathway for supplemental education programs to finally reach this population.

At the collegiate level, these athletes are not likely to overcome identity foreclosure. It should instead be the goal to work within that framework, to use their athletic intelligence to build academic intelligence, which should eventually improve academic performance. If one

chooses to accept the theory that identity and academic performance are connected through intelligence, then developing cognitive approaches to building intelligence that utilize athletic content may have the required credence to kick-start the process.

Summary and Conclusions in Context

The goal of this exploratory study was to answer six mini investigative questions that would serve as the foundation for future, large-scale research. The data analysis was purposely kept simple: with such a small sample, it could only reveal but so much, so it was important to stick to drawing broader, yet poignant conclusions that would give credibility to the proposed hypotheses/assumptions, and establish the groundwork for more complex quantitative analysis.

Five of the six questions were successfully addressed, and the six, though not as well confirmed, had enough evidence to believe that, with a large enough sample, the connection would be complete, connecting high athletic identity to low academic performance through the mediator of lower academic intelligence.

This overarching research question was first explored by seeking out a relationship between athletic and academic identity. Data analysis supported the expected results: revenue-sport student-athletes have higher athletic than academic identities. The second question asked the same of intelligence, and reached the same conclusion: athletic intelligence was the dominant of the pair. Through these two assumptions, it seemed promising that athletic identity and intelligence would have fairly equal means and collectively trump academic identity and intelligence; data analysis showed this to be so. The four mini investigations were the preliminary work needed to support a relationship between high athletic identity and low academic intelligence. This mediator now needed to establish a direct connection with lower than

average academic performance. Self-reported student data helped conclude that the student-athletes underperform the general student body at this particular university, just like the revenue-athlete population at large. However, the smallness of the sample was too large of an obstacle at this point, and alternate views of the data had to be applied. In context, however, it is still likely that with a sufficient sample, the final relationship would be established in order to safely assume that academic intelligence levels can be researched as a mediating variable between athletic identity and subpar academic performance for men's basketball and football players, especially considering that the majority of those included in the sample did not feel comfortable with the academic skills, and those same students averaged the lowest GPA (though not statistically so, but this is, again, likely due to the sample size of 22).

Contributions to the Field

At the minimum, this study should inspire research into Multiple Intelligence Theory and its implications and applications for student-athlete education. Much of the reason for this study was to introduce athletic education researchers to a new theory, one that is scarcely written about in general, let alone in relation to student-athletes. With what is currently in existence, revenue-sport athletes are still struggling in the classroom. Therefore, instead of simply building on or refining what is in existence, it was time to introduce something new and make it adaptable for the field. Though all conclusions were not confirmed, the study did not seek to be generalizable; it was intended to be a new beginning, to establish the potential outline for a large-scale research that should confirm the usefulness of Multiple Intelligence Theory in the field and confirm the assumptions raised in the exploratory study, making them generalizable to the population, and redirecting existing supplemental educational approaches for these struggling athletes.

Limitations

Though the background research was thorough, the study's intended data analysis was purposely limited in complexity. The reasoning behind this was to, as quickly and efficiently as possible, establish whether the proposed theory and mediator variable were viable. Expended time and effort on a complex study that could collapse midway through was not advisable, especially when working with a theory that has never been applied in the field. However, this does require that the research be carried out again, on a larger scale, in hopes that preliminary results will hold in order to make it generalizable. Expectations were much lower for this exploratory study and data analysis was very surface-level. A research question was established, a six assumptions were added to the framework, but there is still much to be discovered about how Multiple Intelligence Theory manifests itself during the learning process. Additionally, this study depended entirely on self-reported information. With such a small sample, this suggests a larger margin of error reinforcing the needs for repetition and larger samples.

Future Research

If Multiple Intelligence Theory is to exist in a cognitive realm, it cannot be relegated to self-reported data on questionnaires; instruments must be developed and/or adapted that directly measure (cognitive) ability within the two relevant intelligence categories. Future research would likely swap out self-reported GPAs with standardized critical thinking tests and some form of experiential athletic ability testing; there needs to be objective measures of at least the mediating and response variable. This would remove some of the imperfectness of GPA data and have students actually "do" as opposed to thinking about how they "do." It is easy to think one has one of the intelligence qualities; it is another thing to get tested on it to see whether it actually

exists. Further, there has to be a redefining of academic success. In addition to moving away from GPA, there should also be qualitative, thematic approaches to categorizing academic intelligence, likely by reaching out to those who measure the success, to provide verbal context to the numbers given. Interviews would need to be conducted with professors and high school teachers to look for commonalities *and* discrepancies. There will likely be cross-curricular, overarching themes, but there also may be a disconnect when moving beyond the post-secondary, possibly at K-12 schools that highly value athletics; it would also be interested to compare that to universities that value revenue-athletes differently.

Future research will also engage in broadening the sample to include non-revenue athletes, and possibly look at Olympic athletes versus revenue athletes, both athletically-high performing groups. This would likely involve qualitative work, and involve much more sociocultural research.

Extension: Academic Engagement

In following with cognitive emphasis, and experimental portion was included in the questionnaire though it was not intended to receive full analysis; it was just to be observed and considered. The students completed a section on academic engagement, inspired by the fact that they spend numerous hours on academic work though continue to underperform. Participants completed the cognitive section of the Student Engagement in Schools Questionnaire (Hart, 2011) and averaged a Likert-scale score of 3 out of 5. This neutral score assumes some understanding of one's cognitive abilities and how one learns in the traditional classroom. In the future, this will be directed integrated into the research. For now, it could suggest the strength of the relationship between cognitive ability and academic intelligence, and support the need for

objective testing of academic intelligence using cognitive and critical thinking-focused assessments. A solid command of cognitive abilities is required to succeed in higher education.

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APPENDICES

Appendix A: Recruitment Letter

Dear Student-Athlete:

I am a graduate student, under the direction of Dr. James Zhang, in the Department of Kinesiology at The University of Georgia. I invite you to participate in a research study entitled "**An Exploratory Study of the Mediating Variable between Athletic Identity and Academic Performance in Revenue-Sport Student-Athletes.**" The purpose of this study is to explore the possible factor connecting identity to academic performance. I believe this to be intelligence, or specifically, distinct intelligences, "sets of abilities, talents, or mental skills." For this study, I am focused on athletic and academic intelligence. All intelligences may not develop to the same degree due to lack of identification; the strongest identity, athletic or academic, aligns with the most strongly developed type of intelligence.

You are being contacted by way of your Associate Athletic Director for Academics, Brad Horton. You are eligible to be in this study because you are a men's basketball or football player between the ages of 18 and 23, actively on the team roster, and not academically classified as a graduate student. You at least attended high school in the United States and are fluent in English.

Your participation will involve completing an electronic survey consisting of a demographics section, a brief academic profile, and the two main sections: one about athletic and academic identity, and the other about athletic and academic skill sets. The survey will be completed, under my supervision, in the Sports Arena's 4th floor Academic Learning Lab on a single

weekday in June. The entire process should only take about 20-25 minutes. There are no risks to you for participating. Instead, study results should help develop a new hypothesis that intends to remove negativity associated with participating in revenue-generating sports and academic performance.

If you would like additional information about this study, **and/or if you would like to participate**, **please call or text me at (201) 344-9042 or send an e-mail to akuoma.nwadike@uga.edu.**

Thank you for your consideration!

Sincerely,

Akuoma Nwadike

Appendix B: Informed Consent Letter

Dear Student-Athlete:

I am a graduate student under the direction of Dr. James Zhang in the Department of Kinesiology at The University of Georgia. I invite you to participate in a research study entitled "An Exploratory Study of the Mediating Variable between Athletic Identity and Academic Performance in Revenue-Sport Student-Athletes." The purpose of this study is to hypothesize about the key factor connecting identity to academic performance, which I believe to be intelligence, "a set of abilities, talents, or mental skills." Results should reveal whether student-athletes' identities develop in such a way that dictates the development of distinct skill sets, which then correlate with their classroom performance.

To participate, you must be a men's basketball or football player between the ages of 18 and 23, actively on the team roster, and cannot be academically classified as a graduate student. You must have at least attended high school in the United States and be fluent in English. You do not have to be receiving athletically-related financial aid to participate.

Your participation will involve completing an electronic survey questionnaire. The survey will take about 12 to 15 minutes but you can take as much time as you need to complete it. The survey includes a demographics section, current major and GPA, and questions about athletic and academic identities, and academic and athletic skill sets. You will only be able to take the survey once. I also request you not talk to anyone while taking the survey except the

facilitators. Your involvement in the study is voluntary, and you may choose not to participate or to stop at any time without penalty or loss of benefits to which you are otherwise entitled. Your grades or participation on your sports team will not be affected whether you participate or not in this study.

Your answers will be sent to a spreadsheet on my Google Forms where the data will be stored in a password- protected electronic format. Google Forms does not collect identifying information such as your name, email address, or IP address; it instead codes your submitted data using a timestamp. I will not have the ability to trace this timestamp back to you, and when entering data for analysis, all timestamps will be removed and replaced with a number based on the order in which the data was received. No one will be able to identify you or your answers, and only I will have direct access to your responses. The results of the study will be included in my thesis, and may be published and/or utilized in later research, but your anonymity will remain; the results will be presented in summary form only.

Study results should help develop a new hypothesis that intends to remove negativity associated with participating in revenue-generating sports and academic performance. There are no known risks or discomforts associated with this research.

If you have any questions about this study, please feel free to call me or text me at (201) 344-9042 or call Dr. Zhang at (706) 542-4420 or send an e-mail to akuoma.nwadike@uga.edu. Questions or concerns about your rights as a research participant should be directed to The

Chairperson, University of Georgia Institutional Review Board; telephone (706) 542-3199, email address irb@uga.edu. Thank you for your consideration!

Sincerely,

Akuoma Nwadike

Appendix C: Survey Questionnaire

Revenue-Sport Student-Athlete Survey

* Required

Consent Form

I have had the study procedures thoroughly explained to me and all of my questions, if any, have been answered or can be addressed later using the contact information provided. I understand that I can only take the survey once, cannot talk to anyone during its administration except the facilitators, and cannot leave the testing area until formally dismissed. I also understand that my involvement is voluntary, and I may choose not to participate or to stop at any time without penalty. If I decide to withdraw from the study, the information that can be identified as mine will be kept as part of the study and may continue to be analyzed, unless I make a written request to remove, return, or destroy the information.

I understand that my answers will be sent to a spreadsheet on Google Forms where the data will be stored in a password-protected electronic format. I understand that Google Forms does not collect identifying information such as my name, email address, or IP address; my responses will remain anonymous and no one will be able to identify me or my answers; only members of the research team will have direct access to my responses. I understand that the results of the study will be included in a graduate thesis, and may be published and/or utilized in later research, but my anonymity will remain; the results will be presented in summary form only.

I understand that there are no known risks or discomforts associated with this research.

By clicking "I consent," I am further validating my signature on the Informed Consent Letter, agreeing to participate in the study and adhere to the policies described in the aforementioned document.

1. **You may only proceed by clicking "I consent."** *
   Mark only one oval.
   - ◯ I consent.

Demographic Information

2. **Do you identify as Hispanic/Latino?** *
   Mark only one oval.
   - ◯ Yes
   - ◯ No

3. **Race** *
   Mark only one oval.
   - ◯ White
   - ◯ Black
   - ◯ Asian/Pacific Islander
   - ◯ Native American/Native Alaskan
   - ◯ Multiracial

4. **If multiracial, explain.**

_____

_____

_____

_____

_____

5. **Age** *

Mark only one oval.

- ◯ 18
- ◯ 19
- ◯ 20
- ◯ 21
- ◯ 22
- ◯ 23

6. **Year in College** *

Mark only one oval.

- ◯ Freshman
- ◯ Sophomore (Including Redshirt Freshman)
- ◯ Junior (Including Redshirt Sophomore)
- ◯ Senior (Including Redshirt Junior)
- ◯ Fifth Year (Including Redshirt Senior)

7. **Sport** *

Mark only one oval.

- ◯ Football
- ◯ Basketball

8. **College Major** *

Mark only one oval.

- ◯ Social Sciences (Psychology, Sociology, etc.)
- ◯ Hard Sciences (Biology, Chemistry, etc.)
- ◯ English/Humanities (History, Philosophy, etc.)
- ◯ Education
- ◯ Business
- ◯ Fine Arts
- ◯ Performing Arts
- ◯ N/A
- ◯ Other: _____

9. **Current GPA (round to the nearest tenth)** *

Mark only one oval.

- ◯ Below 2.0
- ◯ 2.1
- ◯ 2.2
- ◯ 2.3
- ◯ 2.4
- ◯ 2.5
- ◯ 2.6
- ◯ 2.7
- ◯ 2.8
- ◯ 2.9
- ◯ 3.0
- ◯ 3.1
- ◯ 3.2
- ◯ 3.3
- ◯ 3.4
- ◯ 3.5
- ◯ 3.6
- ◯ 3.7
- ◯ 3.8
- ◯ 3.9
- ◯ 4.0
- ◯ N/A

Student-Athlete Identity Scale

Brewer, B.W., Van Raalte, J. L., & Linder, D. E. (1993); Brewer, B. W., & Cornelius, A. E. (2001); Woodruff, A.L. (2003).

Select a number from 1 to 5 to show how much you agree with each statement. Selecting a 3 assumes a neutral response.

10. **I consider myself an athlete.** *

Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

11. **I would be very depressed if I were sick and could not attend school.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

12. **I have many goals related to sport.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

13. **I feel bad about myself when I do poorly in my classes.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

14. **Most of my friends are athletes.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

15. **Academics are the most important part of my life.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

16. **Sport is the most important part of my life.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

17. **Most of my friends are good students.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

18. **I spent more time thinking about sport than anything else.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

19. **I have many goals related to academics.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

20. **I feel bad about myself when I do poorly in sports.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

21. **I consider myself a student first.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

22. **I would be very depressed if I were injured and could not compete in sport.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

23. **I spend more time thinking about my education than anything else.** *
Mark only one oval.

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

Student Engagement Survey

*Combined and modified version of scale created by Hart, S.R., Stewart, K., & Jimerson, S.R. (2011).

Select a number from 1 to 5 to show how much you agree with each statement. Selecting a 3 assumes a neutral response.

24. **When I study, I try to understand the material better by relating it to the things I already know.** *

Mark only one oval.

	1	2	3	4	5	
Strong Disagree	◯	◯	◯	◯	◯	Strongly Agree

25. **When I study, I figure out how the information might be useful in the real world.** *

Mark only one oval.

	1	2	3	4	5	
Strong Disagree	◯	◯	◯	◯	◯	Strongly Agree

26. **When learning new information, I try to put the ideas in my own words.** *

Mark only one oval.

	1	2	3	4	5	
Strong Disagree	◯	◯	◯	◯	◯	Strongly Agree

27. **When I study, I try to connect what I am learning with my own experiences.** *

Mark only one oval.

	1	2	3	4	5	
Strong Disagree	◯	◯	◯	◯	◯	Strongly Agree

28. **I make up my own examples to help me understand the important concepts I learn from school.** *

Mark only one oval.

	1	2	3	4	5	
Strong Disagree	◯	◯	◯	◯	◯	Strongly Agree

29. **When learning things for school, I try to see how they fit together with other things I already know.** *

Mark only one oval.

	1	2	3	4	5	
Strong Disagree	◯	◯	◯	◯	◯	Strongly Agree

30. **When learning things for school, I often try to associate them with what I learned in other classes about the same or similar things.** *
Mark only one oval.

	1	2	3	4	5	
Strong Disagree	◯	◯	◯	◯	◯	Strongly Agree

31. **I try to see the similarities and differences between things I am learning for school and things I know already.** *
Mark only one oval.

	1	2	3	4	5	
Strong Disagree	◯	◯	◯	◯	◯	Strongly Agree

32. **I try to understand how things I learn in school fit together with each other.** *
Mark only one oval.

	1	2	3	4	5	
Strong Disagree	◯	◯	◯	◯	◯	Strongly Agree

33. **I try to match what I already know with things I am trying to learn for school.** *
Mark only one oval.

	1	2	3	4	5	
Strong Disagree	◯	◯	◯	◯	◯	Strongly Agree

34. **I try to think through topics and decide what I'm supposed to learn from them, rather than studying topics by just reading them over.** *
Mark only one oval.

	1	2	3	4	5	
Strong Disagree	◯	◯	◯	◯	◯	Strongly Agree

35. **When studying, I try to combine different pieces of information from course material in new ways.** *
Mark only one oval.

	1	2	3	4	5	
Strong Disagree	◯	◯	◯	◯	◯	Strongly Agree

The Rogers Indicator of Multiple Intelligences

The following questionnaire has been modified, with sections omitted to fit the purposes of this survey.

Read each of the following statements, and select the circle that matches the degree to which each

statement applies to you.

1 = Rarely
2 = Occasionally
3 = Sometimes
4 = Usually
5 = Almost Always

36. **I am careful about the direct and implied meanings of the words I use in speaking and writing.** *

Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Almost Always

37. **In my mind, I can visualize clear, precise, sharp images.** *

Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Almost Always

38. **People come to me when they need help with math problems or any calculations.** *

Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Almost Always

39. **I am physically well-coordinated.** *

Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Almost Always

40. **I confidently express myself well in words, written or spoken, privately or publicly.** *

Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Almost Always

41. **I have a good sense of direction.** *

Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Almost Always

42. **When I have a problem, I use a logical, analytical, step-by-step process to arrive at a solution.** *

Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Almost Always

43. **I have skills in handling objects such as scissors, hammers, needles, etc.** *

Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Almost Always

44. **I am grammatically accurate and sensitive.** *

Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Almost Always

45. **I am good at putting together jigsaw puzzles, and reading instructions, patterns, and blueprints.** *

Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Almost Always

46. **I am rigorous and skeptical in accepting facts, arguments, reasons, and principles.** *

Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Almost Always

47. **I excel in physical activities such as sports, games, climbing, etc.** *

Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Almost Always

48. **I am able to use spoken or written words to influence or persuade others effectively.** *

Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Almost Always

49. **I can use graphs and maps easily and accurately.** *
Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Almost Always

50. **I require scientific explanations of physical realities.** *
Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Almost Always

51. **I work well with my hands.** *
Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Almost Always

52. **I am sensitive to the sounds, rhythms, inflections, and meters of words, especially as found in poetry.** *
Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Almost Always

53. **I relieve stress or find fulfillment in physical activities.** *
Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Almost Always

54. **I would like to do the work of people such as chemists, engineers, physicists, astronomers, or mathematicians.** *
Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Almost Always

55. **I am able to produce graphic depictions of the spatial world as in drawing, drafting, painting, etc.** *
Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Almost Always

56. **I enjoy reading frequently and widely.** *
Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Almost Always

57. **In my mind, I can see patterns and relationships. I can remember, imagine, and invent what things look like or might look like in reality.** *
Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Almost Always

58. **I find personal satisfaction in dealing with numbers.** *
Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Almost Always

59. **I have quick and accurate physical reflexes and responses.** *
Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Almost Always

60. **My "body language" is a vital method of communication.** *
Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Almost Always

61. **I can accurately estimate distances and other measurements.** *
Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Almost Always

62. **I prefer questions that have definite "right" and "wrong" answers.** *
Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Almost Always

63. **I have accurate aim when throwing balls or participating in other ball-required activities.** *
Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Almost Always

Powered by Google Forms

Appendix D: Additional Demographic Information

Race	Age	Year in College	Sport	College Major
Black	20	Junior (Including Redshirt Sophomore)	Football	Business
Black	19	Sophomore (Including Redshirt Freshman)	Football	Social Sciences
White	18	Freshman	Football	Business
Black	21	Junior (Including Redshirt Sophomore)	Football	Business
White	20	Sophomore (Including Redshirt Freshman)	Football	N/A
Black	21	Senior (Including Redshirt Junior)	Football	Social Sciences
Multiracial	22	Fifth Year (Including Redshirt Senior)	Football	Social Sciences
Black	18	Freshman	Football	Hard Sciences
Black	18	Sophomore (Including Redshirt Freshman)	Football	Business
Black	19	Sophomore (Including Redshirt Freshman)	Football	Business
Black	18	Freshman	Football	Journalism
Black	18	Freshman	Football	Exercise Science
Black	20	Sophomore (Including Redshirt Freshman)	Football	Other
Black	20	Senior (Including Redshirt Junior)	Football	Humanities
White	20	Junior (Including Redshirt Sophomore)	Basketball	Social Sciences
Multiracial	20	Junior (Including Redshirt Sophomore)	Basketball	N/A
Multiracial	21	Junior (Including Redshirt Sophomore)	Basketball	Social Sciences
Black	19	Sophomore (Including Redshirt Freshman)	Basketball	N/A
Black	23	Senior (Including Redshirt Junior)	Basketball	Social Sciences
Black	20	Junior (Including Redshirt Sophomore)	Basketball	N/A
Black	21	Senior (Including Redshirt Junior)	Basketball	Social Sciences
Multiracial	18	Freshman	Basketball	N/A
Multiracial	18	Freshman	Basketball	N/A
Black	20	Junior (Including Redshirt Sophomore)	Basketball	Other
Black	19	Sophomore (Including Redshirt Freshman)	Basketball	Social Sciences
Black	22	Fifth Year (Including Redshirt Senior)	Basketball	Humanities
Asian/Pacific Islander	18	Freshman	Football	N/A
Black	21	Junior (Including Redshirt Sophomore)	Basketball	Social Sciences
Black	18	Freshman	Football	N/A
Black	19	Sophomore (Including Redshirt Freshman)	Football	Other

Appendix E: Student Engagement – Cognitive Responses

C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12
5	5	5	4	4	4	5	5	3	5	3	5
3	3	3	3	3	3	3	3	3	3	3	3
4	5	4	3	3	3	3	3	3	3	3	3
4	3	4	4	4	3	4	3	3	3	4	3
5	5	5	5	5	5	5	5	5	5	5	5
5	4	4	4	4	4	4	4	4	4	4	5
3	3	3	3	3	3	3	3	3	3	3	3
4	2	4	3	4	4	2	2	2	4	2	1
2	2	2	1	2	2	2	2	2	4	2	2
4	1	4	1	5	5	1	1	1	1	1	1
4	4	4	4	3	3	3	3	3	3	3	4
4	3	4	3	4	4	4	4	4	4	4	4
2	1	3	3	3	2	3	3	3	2	2	3
3	5	5	5	5	4	4	3	4	4	4	4
5	4	3	4	3	3	4	2	3	4	2	2
3	4	3	4	4	3	3	3	3	3	3	3
3	4	3	3	4	3	3	4	4	3	3	4
3	3	3	3	3	3	3	3	3	3	3	3
3	3	3	4	3	3	4	3	3	3	3	3
3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	2	4	4	4	4	4	3	3
5	5	5	5	5	5	5	5	5	5	5	5
4	4	3	3	4	4	4	4	4	3	3	4
4	3	4	4	4	3	3	3	3	3	3	3
4	4	4	4	3	3	4	4	4	4	4	2
3	3	3	4	3	4	4	4	4	3	3	3
5	5	5	5	5	5	5	5	5	5	5	5
2	2	3	3	2	2	2	2	2	2	2	1
3	3	3	3	3	4	4	4	3	3	3	3
3	4	3	3	2	2	2	3	3	3	3	3
3.63333333	**3.46666667**	**3.63333333**	**3.5**	**3.5**	**3.43333333**	**3.43333333**	**3.33333333**	**3.3**	**3.4**	**3.13333333**	**3.2**

Appendix F: IRB Approval

Phone 706-542-3199

Office of the Vice President for Research
Institutional Review Board

APPROVAL OF PROTOCOL

May 4, 2016

Dear James Zhang:

On 5/4/2016, the IRB reviewed the following submission:

Type of Review:	Initial Study
Title of Study:	An Exploratory Study of the Mediating Variable between Athletic Identity and Academic Performance in Revenue-Sport Student-Athletes
Investigator:	James Zhang
IRB ID:	STUDY00003287
Funding:	None
Grant ID:	None

The IRB approved the protocol from 5/4/2016.

In conducting this study, you are required to follow the requirements listed in the Investigator Manual (HRP-103).

Sincerely,

Dr. Gerald E. Crites, MD, MEd
University of Georgia
Institutional Review Board Chairperson