High School Interscholastic Athletic Participation Influence on Student Educational Outcomes: A Retrospective Mixed-Methods Analysis of the High School Interscholastic Athletic Experiences of Undergraduate College Students

by Andrew J. Maguire

B.S. in Athletic Training, May 2011, The George Washington University
M.T.A. in Tourism Administration, May 2013, The George Washington University

A Dissertation Submitted to

The Faculty of
The Graduate School of Education and Human Development
of The George Washington University
in partial fulfillment of the requirements
for the degree of Doctor of Education

May 20, 2018

Dissertation directed by

Kelly Sherrill Linkous
Assistant Professor of Educational Administration

The Graduate School of Education and Human Development of The George Washington University certifies that Andrew J. Maguire has passed the Final Examination for the degree of Doctor of Education as of March 12, 2018. This is the final and approved form of the dissertation.

High School Interscholastic Athletic Participation Influence on Student Educational Outcomes: A Retrospective Mixed-Methods Analysis of the High School Interscholastic Athletic Experiences of Undergraduate College Students

Andrew J. Maguire

Dissertation Research Committee

Kelly Sherrill Linkous, Assistant Professor of Education Administration, Dissertation Director

Amanda J. Visek, Associate Professor of Exercise and Nutrition Sciences, Committee Member

John A. Banbury, Adjunct Professor of Education Administration, Committee Member

Dedication

This research effort in pursuit of a better understanding of the perceived influence of experiences associated with high school interscholastic athletic programs from the student perspective is dedicated to all past, present, and future students that participated in and will participate in athletic programs during high school. It is the hope of the researcher that school policymakers and leaders of the future may better understand athletic participation experiences from the student perspective to better serve future generations of students. Reflection upon our collective strengths and weaknesses as school leaders will be the best guide for growth and progress in the development of future generations of students.

Acknowledgements

My most sincere gratitude for which I hope to be able to repay someday is due to my family, both direct and extended, and especially my wife, Jamie. Jamie endured the entire dissertation process by my side and should receive an award simply for that! This document is as much a product of my doing as a product of her patience and understanding throughout the process and her drive to guide me to the finish line. Jamie, you are the perfect teammate - for life!

Along the same thread, it has been a blessing to be surrounded by incredibly intelligent and supportive friends during this journey. Many of those friends stepped away from their own pursuits for hours at a time to assist with review and guidance of this document in its many stages or simply have a conversation progress I had made. These friends pushed me to become a person that I would have never believed I could become and to consistently strive to be better each and every day.

Finally, to the GW academic community. In my eleven years of classes at the university, countless members of the academic community methodically guided me to where I am today. To that extent, I would be remiss not to specifically acknowledge Dr. Kelly Sherrill Linkous and Dr. Amanda J. Visek:

- Dr. Sherrill – I would have never enrolled or continued in a doctoral program without your guidance … thank you!
- Dr. Visek – I am beyond grateful to have reconnected with you and for the exceptional guidance that you provided throughout this research endeavor… thank you!

Abstract of Dissertation

High School Interscholastic Athletic Participation Influence on Student Educational Outcomes: A Retrospective Mixed-Methods Analysis of the High School Interscholastic Athletic Experiences of Undergraduate College Students

The present study sought to identify and determine the influence of high school interscholastic athletic participation experiences on the educational outcomes of students. The relationship between athletic participation and various student educational outcomes has been well documented from a quantitative approach in existing literature. Research has yet to explore this relationship at length from the participant perspective qualitatively. The extensive focus on quantitative means has limited the results of existing literature to a multitude of correlational statistics, yielding little substantive evidence to support a causal relationship between athletic participation and student educational outcomes.

To address the identified void in qualitative research, the present study implemented a mixed-methods approach through the use of concept mapping to elicit the voice of the study participants through the collection of participant generated, sorted, and rated data. The present study successfully obtained such data, contributing seminal progress in the identification and determination of the influence of experiences associated with interscholastic athletics participation on student educational outcomes.

Representing the first application of the concept mapping methodology to this area of research, the present study captured the student voice and perspective, yielding notable findings in regard to (1) the development of a framework for the understanding of experiences associated with interscholastic athletics participation, (2) the homogeneity of perception of similar interscholastic athletic experiences of boys and girls, and (3) discrepancies in the frequency of occurrence and perceived influence of interscholastic athletic experiences by students.

Table of Contents

List of Figures

List of Tables

Chapter One

Introduction

The relationship between athletic participation in schools and student educational outcomes has been a topic of research for more than a century. Research in recent years has primarily indicated a positive correlation between a wide variety of student educational outcomes and participation in athletics. Nearly all research has taken strict quantitative approaches to data collection and analysis. Even studies over longitudinal periods of time and studies focused on specific subgroup populations have been primarily quantitative in nature.

The present study offers a different approach. Following a mixed methods procedure to identify and determine the influence on student educational outcomes of student experiences associated with high school interscholastic athletic participation, previously unrecorded qualitative perspectives were captured. Participants of the present study included undergraduate college students who participated in a minimum of three years of high school interscholastic athletics. The participants provided a reflective personal perspective concerning the influence of interscholastic athletics participation on their educational outcomes.

The broad term of *educational outcomes* used throughout the study comprises of the parameters by which high school students have frequently been measured and compared to one another by previous researchers. Hwang, Feltz, Kietzmann, and Diemer (2016) also used the term *educational outcomes* as a catch-all term in referring to academic achievement, educational aspirations, and other various educational measures in an analysis of data captured by the National Educational Longitudinal Study of 1988

(NELS-88). Some examples of educational outcome measures include student grade point averages, graduations rates, standardized test performance, educational aspirations, attendance, and discipline. This list of student educational outcomes includes the most common measures described in research, yet, is not exhaustive. The present study aimed to gain a greater understanding of the influence of interscholastic athletic participation from the student perspective on the educational outcome measures of student success listed above, and any other measures as identified by the study participants. For this reason, the term *educational outcome* will be utilized to represent the umbrella of standard educational parameters and measures that may be influenced by student participation in interscholastic athletics.

The mixed methods approach of the present study was implemented through the concept mapping design of Kane and Trochim (2007). This study represents the first application of the concept mapping methodological approach to this specific field of study. This concept mapping methodology allowed for a unique collection and representation of data to assist with capturing the participant voice and perspective, which is underrepresented in existing literature. The concept mapping methodology presented quantifiable findings of the qualitative and quantitative data collected in a visual way that provided substantive insight into the perceived influence of experiences of the participants, which consequently, was also underrepresented in existing literature.

Overview

During the 2016-17 academic year, more than 7.9 million high school students participated in school-sponsored extracurricular interscholastic athletic programming according to the National Federation of State High School Associations (NFHS)

representing just over half of the 15.1 million high school students enrolled in public, private, or charter schools nationally (NCES, 2017a; NFHS, 2017). Chapter Two will elaborate on the extensive history of athletic participation in high schools and the existing research that has explored the relationship between participation in athletics and various educational outcomes. Literature has yet to clearly identify experiences that would explain a causal relationship between participation in interscholastic athletics and positive or negative educational outcomes. Research has quantitatively identified trends and examined these trends across various demographic groups, however, research has not specifically sought the identification and determination of the influence of experiences from the student perspective.

The present study sought to complete two objectives. First, to expand upon existing research by qualitatively gaining the perspective of the participant voice through a mixed-methods approach; and secondly, to identify and determine the influence of which specific experiences associated with high school interscholastic athletic participation influenced student educational outcomes. Both of these objectives were met by the researcher.

Situating the Present Study

Two significant trends in American society helped situate the need for the present study. First, school districts and school boards across the country have found themselves experiencing tighter budgeting restraints on an annual basis. Operational costs, combined with the ever-growing cost and need for advances in technological equipment, paired with an intensified scrutiny on student academic performance, have demanded increased resource allocation and funding (Else, 2016). With this, resources for extracurricular

activities have been cut from schools to make financial ends meet (Deford, 2011; Hinton, 2016).

Secondly, the culture of athletics during adolescence has shifted from an extracurricular means of personal development to a highly prioritized physical pursuit of performance (Krumrie, 2016; O'Sullivan, 2016). Despite growth in the rates of athletic participation amongst high school students, these two trends have resulted in a nationwide system of interscholastic athletics that is purging programming to accommodate budgets and emphasizing physical performance over developmental progress.

Given these trends, American high schools have begun to lose one of the most valuable contributors to overall student success in quality extracurricular interscholastic athletic programs that focus on the development of students through athletics. The present study intended not only to conceptualize and quantify the perceived influence of interscholastic athletic participation experiences on student educational outcomes, but to determine which of these experiences are perceived to be the most influential and impactful from the student perspective. In accomplishing this, the present study will inform policymakers of tomorrow to be able to make better informed decisions when structuring extracurricular interscholastic athletics programs for decades to come.

Statement of the Problem

Despite an abundance of quantitative studies, the voices of the student population have not been documented at length in identifying experiences associated with interscholastic athletic participation and the influence of those experiences on student educational outcomes. The present study focuses on identifying the lived experiences of

undergraduate college students with at least three years of interscholastic athletic participation experience in high school.

Problem of research. The problem identified in existing research in the relationship between athletic participation and associated educational outcomes is not a lack of overall research, but a lack of in-depth qualitative research and presence of the participant voice. The lack of qualitative research in this field has created a gap in substantiating the findings of the proposed correlative relationship between interscholastic athletics participation and mostly positive educational outcomes. Through decades of quantitative research, a relationship between participation in athletics and various educational outcomes has been acknowledged, however, a definitive casual linkage of the relationship has yet to be identified.

Problem of practice. The problem of practice in the creation and maintenance of athletic programming in high schools is that programming is often put in place as a means of school tradition or per request of the school community without a firm understanding of the positive or negative influences that participation in the such programs may actually impart on the student participants. Supported by anecdotal accounts and broad quantitative data, schools frequently misappropriate funding on athletic offerings that translate less effectively to the greater educational objectives of the schools. In these cases, schools have not only used resources ineffectively, but also lost opportunities to positively impact the educational outcomes of students by not supporting programs that students identify themselves as meaningful influential experiences.

Statement of Potential Significance

Summarized below, the present study represents the seminal work in the use of the concept mapping methodology to examine the relationship between high school interscholastic athletic participation and educational outcomes of students. With the NFHS (2017) reporting that 7.9 million students participated in high school interscholastic athletics in high school in the 2016-17 academic year, application of the findings from the present study will be widespread. The results of this study will inform and influence policymakers, school administrators, school leaders, students, and parents across the United States. Findings regarding the influence of high school interscholastic athletic experiences on student educational outcomes will inform policy and practice changes throughout the nation so that school systems can better serve students. With this, the results of the present study yield importance in regard to the following domains.

Policy. The results of the present study hold significance by allowing for policymakers to make more informed decisions regarding high school interscholastic athletic programming; informed through clearly represented data from the student perspective. Policymakers will be able to emphasize policies and programs known to be perceived positively by students and limit those known to be perceived negatively. Policy implementation and use of this data can be utilized at the district, state, and federal levels.

Practice. The results of the present study hold significance by allowing for school administrators and staff to make more informed decisions in regard to high school interscholastic athletic programming and implementation. School leaders will be able to emphasize program areas identified as influential on educational outcomes by the study participants and work to address areas that were identified as less influential. Data on the

frequency of positively or negatively rated influential experiences by students will also aid in best-practice decisions.

Participants. Participation in the present study held significance to the study participants in the exposure to the benefits of the concept mapping methodology. The reflective and organizational sorting components of the concept mapping methodology introduced the participants to a structured way of viewing and making sense of experiences that can be utilized in other dimensions of their lives. Specific to this study, the reflective component may have also provided the opportunity for participants to realize influences on their personal educational outcomes that may have otherwise gone unnoticed. The researcher recognized the risk for emotional disturbances spurred by reflective thoughts, yet, determined that the benefits of discovering these thoughts outweighed any potential disturbances.

Professional literature. The implementation of the concept mapping methodology and the results of the present study hold significance in professional literature as the present study represents the first application of concept mapping to examine the relationship between interscholastic athletic participation and educational outcomes. As noted previously, the mixed methods approach will also contribute to existing literature through the additional qualitative contribution of the participant voice, which has not been previously recognized at length.

Personally. For the researcher, the present study has helped to launch a passion in academic work and influence on policy and practice. With more than half of the 15.1 million students grades nine through twelve in American high schools participating in some form of interscholastic athletics, the need for the development of policies and

practices to best prepare students for the next chapters of their lives through athletics is paramount (NCES, 2017a). The researcher recognizes this need and plans to utilize the present study as a springboard for gaining academic influence in this field.

Purpose Statement and Research Questions

In an effort to understand the influence of high school interscholastic athletic participation on student educational outcomes – ranging from grade-point averages and disciplinary action to college aspirations and competence as a college student – the purpose of this study was to identify and determine the influence of high school interscholastic athletic participation experiences on the personal educational outcomes of undergraduate college students.

There were two major research questions directing this study. The questions:

As perceived and reflected upon by undergraduate college students;

1) *What experiences associated with high school interscholastic athletic participation do participants identify as influencing their educational outcomes? And;*
2) *How influential were the identified high school interscholastic athletic experiences on the participants' educational outcomes?*

These research questions were operationalized by two key procedures. First, the identification of experiences by the participants were primarily obtained through personally reflective in-person interview brainstorming sessions regarding participation in interscholastic athletic programs. Secondly, the determination of influence of the identified experiences was accomplished through a Likert-scale rating activity by the participants.

Theoretical Perspective

In seeking to identify and understand the retrospective influence on educational outcomes of experiences associated with interscholastic athletic participation of undergraduate college students, theoretical models based on learning through experiences were identified to explain the relationship. The foundational work on learning through experiences can be traced to Dewey's theory of experience (1915; 1916; 1938) and its principles of continuity and interaction; as well as the theory's recognition of experiences as being educative and mis-educative. More recent evolutions to Dewey's theory have been exhibited through Kolb's experiential learning theory (1984) and Lave and Wenger's situated learning theory (1991). The contributions of these theories to the theoretical perspective used to guide the present study are examined and explained at the end of Chapter Two.

Conceptual Framework

The conceptual framework of the present study intertwined with the theoretical perspective to illustrate the direction in which student interscholastic athletics participation experiences contributed to educative and mis-educative influences that resulted in positive, negative, or neutral student educational outcomes. Figure 1.1 on the next page represents the conceptual framework for this study that will be expanded upon at the end of Chapter Two.

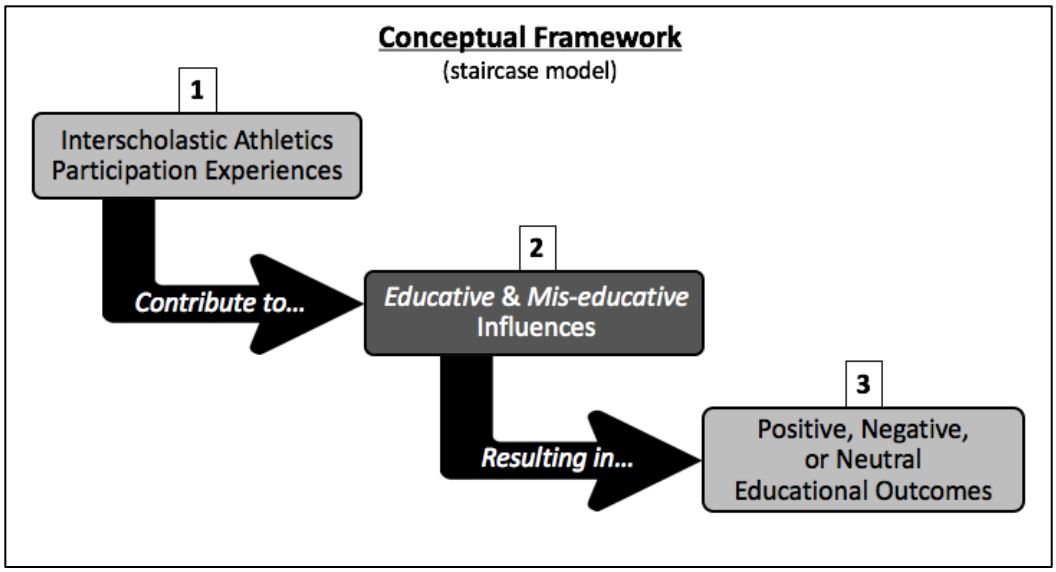


Figure 1.1. Conceptual framework.

Methodology

The purpose of the present study was to identify and determine the influence on student educational outcomes of experiences associated with high school interscholastic athletic participation from the retrospective perceptions of college students that participated in a minimum of three years of interscholastic athletics. The present study followed the concept mapping design as described by Kane & Trochim (2007). The concept mapping design was selected as a mixed methods approach due to its unique ability to generate participant-driven data and represent the voice of the participants. Concept mapping involves a series of steps that must be executed in order to ensure the validity and reliability of the methodology and results (Kane & Trochim, 2007; Rosas & Kane, 2012). Throughout the concept mapping process, the Concept Systems Global MAX software was utilized to facilitate data collection and organization; as well as the generation of visual representations of the data.

Once prepared with a participant sample, the concept mapping process followed the strict protocol set forth by Kane and Trochim (2007). Below, Figure 1.2 visually displays the concept mapping process, the activities of each phase, and identifies the qualitative and quantitative components of each phase.

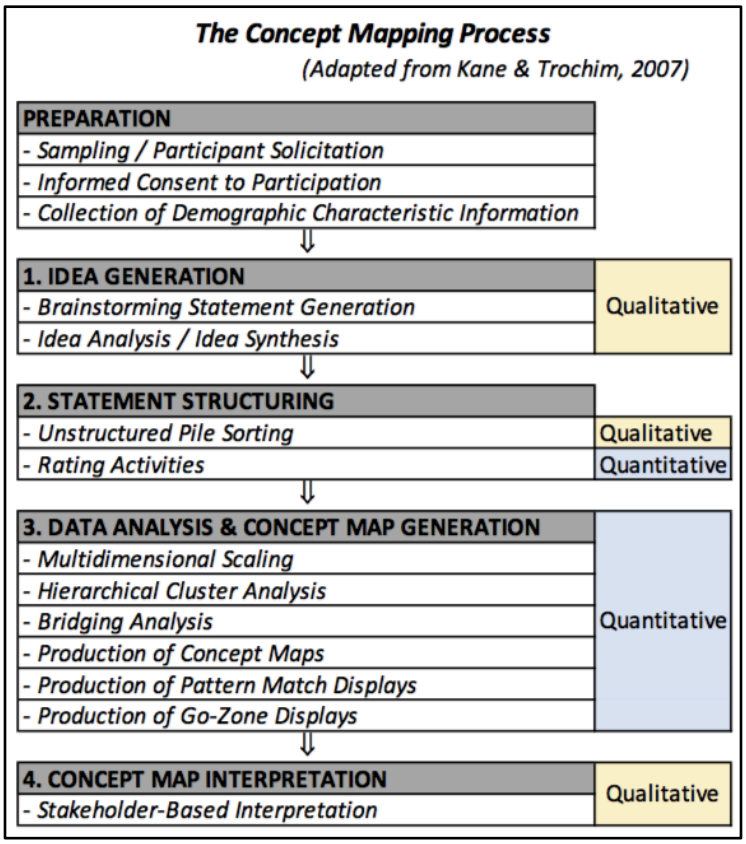


Figure 1.2. The concept mapping process.

The concept mapping design of the present study provided a unique opportunity to (1) qualitatively identify, and (2) quantitatively determine the influence of, experiences associated with high school interscholastic athletic participation on the educational outcomes of the participant sample. The concept mapping approach has never been used to examine the relationship between high school interscholastic athletic participation and associated educational outcomes. Although concept mapping has been utilized in numerous educational studies (Donnelly, 2016), and one youth sport study (Visek et al.,

2015), its application into the specified relationship between high school interscholastic athletic participation and educational outcomes in the present study is seminal.

Importance of qualitative research. Through in-person interview sessions in the idea generation phase, sorting activities in the statement structuring phase, and stakeholder interpretation of the concept maps, an understanding of the influence on educational outcomes of experiences associated with interscholastic athletic participation will be gained. Qualitative data collection aids in understanding the experiences through the perspective of the participants to allow their voices to be heard (Creswell, 2013); as well as allowing researchers to study individuals that have experienced a common phenomenon (Merriam, 2002). Qualitative research is also unique in its ability to provide a rich description of the social worlds of study participants, capture their individual points of view, and make meaning of specific influences on their everyday life (Denzin & Lincoln, 2005). The use of qualitative techniques in the present study allowed the individual experiences as perceived by the participants to be identified and understood.

Importance of quantitative research. The rating of statements activity of the statement structuring phase of the study and the data analysis through the Concept Systems Global MAX software and IBM SPSS Version 22.0 software represent the quantitative components of the present study. Quantitative methods have been touted for the ability to approach solutions deductively, generate reliable data through the assistance of technology, and yield generalizable results to the greater population beyond the participant pool itself (Steckler et al., 1992). Survey implementation is a primary means for collecting data in quantitative research, and quantitative study results frequently remove the researcher from the role of interpreter (Creswell, 2014). The rating scores and

the demographic and characteristic data collected from the study participants by means of a survey embody the quantitative data component of the present study. This data was processed electronically through the Concept Systems Global MAX and IBM SPSS Version 22.0 software programs to produce visual representations and tables of the data to display generalizable trends applicable to the greater population of college-bound high school students who participated in three or more years of high school interscholastic athletics. The quantitative analyses utilized, in conjunction with the participant generation of data and statement structuring elements of the concept mapping methodology, allowed for the researcher to be removed as the primary interpreter of data.

Delimitations

This study only permitted participants who had attained the status of a full-time undergraduate student in college and participated in at least three years of athletics programming in high school. These parameters were set to provide a purposeful sample to inform policymakers as to the experiences of students who participated in athletics to a significant degree and also achieved significant educational outcomes in their ability to attain the status of a full-time undergraduate college student.

Athletic participation in high schools can vary greatly in regard to commitment and ability required to participate. Requiring a minimum of three years of interscholastic athletic participation for inclusion in the present study ensured that a significant portion of time was dedicated to participation in athletics, notwithstanding any differences between high schools or individuals. Important to note, inclusion in the present study required athletics participation to have been *interscholastic* during high school – comprising of sport participation individually or on a team in a school-sponsored athletic

program that competed against other schools. Participants were permitted to participate in the present study as long as they participated in a minimum of three years of interscholastic athletics as part of a school-sponsored athletic program. Notable is that simultaneous participation in non-school-sponsored athletic activities outside of school did not disqualify participation from the present study.

School-based educational outcomes can also differ greatly based on high school environments and other situational factors. For this reason, a full-time undergraduate student status at the same mid-Atlantic university was determined to more equally identify students that had attained a similar educational outcome. Other measures, such as comparing a high school GPA range or disciplinary statistics that could vary greatly would not have been beneficial to the study. For this reason, only one research site, the mid-Atlantic university, was utilized. Status as an undergraduate student at the mid-Atlantic university research site also reflected a more holistic representation of the participants as several measures of academic achievement were taken into consideration for admittance to the university per the university's admissions website.

Another delimitation of the study was that the research site was a large public university. A large public university was chosen with the intention of creating a characteristically diverse participant pool, representative of high school students participating in high school interscholastic athletics nationally. As previously mentioned, the research was also conducted at one university to represent a consistent educational outcome as well as to make the data collection process most feasible for the researcher.

Similarly, in terms a feasibility for the researcher, the cap on participation and the total number of participants in Cohort B was restricted by the Concept Systems Global

MAX software license purchased by the researcher. The present study was self-funded by the researcher and the software license selected was determined to allow for sufficient participation in the present study. As will be mentioned in Chapter Five, there are options for and expanded software license for future funded research.

The last delimitation of the present study was that no members of any varsity athletics programs at the mid-Atlantic university were permitted to participate in the study. The reason for the exclusion of varsity collegiate student-athletes was that the athletic and educational experiences of this population at both the university and secondary school levels can differ greatly from that of the traditional high school student population, and therefore, would not necessarily be representative of the typical high school student experience. This delimitation was critical to the present study due to the previously mentioned Concept Systems Global MAX software license limit on participation. However, as will be discussed again in Chapter Five, this delimitation offers a direction for future research to include the population of collegiate varsity athletes to either compare with the results of the present study or include in a new study with higher participation limits.

Limitations

The researcher actively took steps to address and limit anticipated limitations of the present study. The greatest anticipated limitation faced in this experimental design was obtaining truthful and meaningful answers from the student participants to reach data saturation. The retrospective design of this study presented a time gap that could have been several years from when the participants had last participated in high school interscholastic athletics and the time of the data collection for this study. Although ideal

for reflection, this time gap may have also contributed to less detailed descriptions of participant experiences and the potential for inadvertent omissions in the participant idea generation phase. Despite this anticipated limitation, in the actual execution of the study, the point of data saturation was achieved.

Obtaining a characteristically diverse pool of participants was also a goal for the present study. This goal was limited by the demographics and characteristics of the students who met the participant criteria and agreed to voluntarily participate. Notably, however, the researcher was fortunate to obtain a varied sample across most measures.

Per the participation criterion and delimitation of requiring study participants to be enrolled as full-time undergraduate students, another limitation was that the present study did not gain insight into the perceived influence of high school interscholastic athletic participation of student populations that did not attain the status of an undergraduate college student. Although the undergraduate student population was purposefully selected by the researcher, recognizing college matriculation as the idealized educational outcome for a high school student in congruence with the College and Career Readiness initiative of 21st century high schools, it must be recognized as a limitation that the perspective of students that do not matriculate to college from high school is not identified through the present study (Achieve, 2016, US DOE, 2010; Mathis, 201).

Outside of school participation. Another limitation of the present study was the ability to ensure that study participants were able to compartmentalize influences on educational outcomes from athletic experiences that are specifically associated with interscholastic athletic participation on behalf of their secondary schools, and not on behalf of any outside-of-school club team athletic activities or athletic activities prior to

high school. The popularity of club team or Amateur Athletic Union (AAU) team participation outside of high school has grown over the past decade as a means for greater sports participation within a specific sport and the higher chance for kids to be recruited to play a specific sport at the college level (Drotar, 2015; AAU, 2016). In the present study, the researcher acknowledged that the positive correlation between club and AAU team participation outside of high school and the eventual participation in varsity college athletics likely assisted in limiting the number of study participants that participated on club or AAU teams outside of high school given the delimitation study criterion that varsity college athletes were not permitted to participate in the study.

Generally, the number of students that participate in club sports outside-of-school decreases across all sports from youth to middle and middle to high school. Reasons for this attrition from club sport participation as students get older can be attributed to having more school-sponsored sport offerings become available at the high school level that provide an opportunity for interscholastic participation that was not present at earlier ages (NFHS, 2018). The brainstorming statement generation activity instructions given to each participant asked participants to identify if they also participated in organized athletic activities outside of school and informed the participants that the present study was only concerned with participation on behalf of their respective high school. During the brainstorming statement generation phase, study participants were prodded to explain any statements that were unclear regarding experiences stemming from out-of-school athletic experiences compared to school-sponsored athletic experiences.

Important to note, is that some high school sports are associated with a greater likelihood of simultaneous participation on outside-of-school club teams. For example,

the sports of soccer, basketball, lacrosse, and swimming feature extensive regional and national club team programs at the high school level, whereas sports such as football, cross country, and track feature relatively fewer opportunities for club team participation outside of school (AAU, 2016; USA Football, 2017; USA Swimming, 2017; USATF, 2017; US Lacrosse, 2017; US Youth Soccer, 2017). The researcher was aware of the potential limitations and implications of outside-of-school club team participation on the results of the present study. As will be reported in Chapter Four, under 38% of study participants reported also participating in their primary sport for a team outside of school. This figure indicated that the number of study participants that needed to bracket athletic experiences from outside of high school was not overly high. Still, the researcher utilized techniques, such as bracketing and probing, to remind study participants that only experiences associated with school-sponsored athletics were pertinent to the present study.

Lastly, it is important to note the parameters of the research that also guided the decision to have study participants only recall experiences associated with interscholastic athletic participation. The goal of the research was to understand the influence of interscholastic athletic experiences on the educational outcomes of high school students for effective policymaking decisions by school leaders and administrators. Although outside-of-school sport participation may also contribute positively or negatively to student educational outcomes, school administrators and leaders have very little influence on outside-of-school club sport policymaking and practices. This reasoning also contributed to the parameters of the research in an effort to generate findings that could be most relatable and best implemented by school administrators and leaders.

Ethical Considerations

Qualitative research creates a minimal risk for human participants. The student participants were asked to identify personal experiences associated with high school interscholastic athletic participation that influenced personal educational outcomes in as much detail as possible to the researcher, acknowledging the potential for the results to be published in academia. With this, the risk that current or former members of a participant's school community may recognize the voice of a participant within this study was present. The risk of disturbing individual participant emotions through reflection on past experiences was also possible. For these reasons, and for many other ethical considerations of human subject research, the highest professional standards for collecting and storing qualitative and quantitative data were utilized. The design and implementation of the study respected the safety of the participants and was conducted ethically.

Subjectivity Statement

Glesne and Peshkin (1992) claimed that subjectivity is the basis for a story to be told and the strength from which to build upon as a researcher, acknowledging that subjectivity itself is "something to capitalize on rather than to exorcise" (p. 104). Strauss and Corbin (1998) determined that researchers "bring to the investigation biases, beliefs, and assumptions . . . [and] it is not possible to be completely free of bias" (p. 97).

The researcher brought to the present study the experiential knowledge of an individual with experience in athletics in multiple arenas. Aside from seventeen years of participation in competitive swimming, including four years at the Division I collegiate level; the researcher earned academic degrees in Sport Management, and Exercise

Science; while also working professionally as an athletic trainer and athletic administrator at the collegiate and secondary school levels. In working at the collegiate and secondary school levels, the researcher became increasingly interested in students graduating from high school and entering college; with special attention given to documenting the influence of high school interscholastic athletic participation on the prowess of students to excel in all aspects of the collegiate environment. The researcher's innate beliefs in the benefits and detriments of athletic participation piqued initial interest in researching the perceptions of high school students participating in interscholastic athletics. Nonetheless, a subjective stance was regulated through the balanced educational and professional experiences of the researcher.

Given the potential for bias with the background of the researcher, it was critical that all steps be taken to ensure the methodological trustworthiness of this present study. Strict adherence to the concept mapping procedures of Kane and Trochim (2007) was essential. The researcher took several steps to ensure standards of validity and reliability for the study were exceeded, as well as having study protocols reviewed by the dissertation committee members.

Definitions of Key Terms

For the purposes of this research study, the following key terms are defined:

Academic achievement. This term will be used frequently in Chapter Two as many previous studies examined the correlation between academic achievement and athletic participation. In this sense, academic achievement typically corresponded to student grade-point averages (GPA) or test scores.

Educational aspirations. This term will be used frequently in Chapter Two as many previous studies examined the correlation between educational aspirations and athletic participation. In this sense, educational aspirations typically corresponded to the intention or action of students to attend college after graduation from high school.

Educational outcomes. This term represents a wide variety of outcomes that have been measured in previous studies in regard to athletic participation and student success. These outcomes include, but are not limited to, student GPA, student attendance, disciplinary action towards students, standardized test scores, high school graduation, college/educational aspirations, acceptance to college, and academic competency with college coursework. The use of the term in the present study is consistent with use of the term in existing research and will be used to represent the umbrella of measures of student educational success (Hwang, 2016).

Educative and mis-educative. These terms originate from the work of John Dewey (1915, 1916, 1938) and explain how experiences in education may reinforce positive growth (educative) for the student, or negative growth (mis-educative). These terms are essential to the theoretical perspective and conceptual framework of the present study, described in-depth at the end of Chapter Two.

High school. For the purposes of the present study, this term refers to the grades nine through twelve of secondary school.

Interscholastic athletic participation. A variety of definitions exist, however, for the purpose of the present study, this term describes voluntary season-long participation in a school-sponsored athletic program that competes against other schools. It is assumed that this term refers to participation in athletics during grades nine through

twelve of secondary school to allow for consistency despite discrepancies in the grade levels included at individual high schools and secondary schools. The term includes high school participation on freshmen, junior varsity, and varsity athletic teams, including individual and team sports – however, excludes required physical education classes and intramural club sports.

School. For the purposes of the present study, this term in synonymous with *academic*, especially in Chapters Three, Four, and Five. Despite the stronger prevalence in research to use the term academic, many participants exhibited a natural tendency to refer to anything relating to academics with this term.

School administrator. For the purposes of the present study, this term represents any member of the school community that holds a formal administrative position. The individuals in many of these positions should also be considered school leaders. Example positions of school administrators could be: superintendent, principal or head of school, assistant principal or assistant head of school, dean of students, or various director-level positions, such as the director of athletics.

School leader. For the purposes of the present study, this term represents any member of the school community that has the ability to assume a role of leadership. Specific leadership roles for specific members of the school community are identified in Chapter Five.

Sport participation. For the purposes of the present study, this term in synonymous with *athletic participation*, especially in Chapters Three, Four, and Five. Despite the stronger prevalence in research to use the term athletic, many participants exhibited a natural tendency to refer to anything relating to athletics with this term.

Undergraduate college student. Per the Academic Policies catalog for the mid-Atlantic university used for the site of participant solicitation; this term represents a student enrolled in a minimum of twelve credit hours per semester that has not yet graduated from the university in a bachelor's degree program.

Summary

The depth of research on athletic participation in schools and various student educational outcomes is extensive. Existing research has yielded correlational results derived primarily through quantitative methodological approaches. The present study contributes to existing literature in two notable ways. First, methodologically through the addition of a qualitative component in the first use of the concept mapping methodological approach to data collection and analysis in the field of study; and secondly, through the generation of participant-driven data from the student perspective, which was lacking significantly in existing research.

The following chapters will expand upon the basis for and implications of the present study. Chapter Two will provide a review of literature to situate the study. Chapter Three will elaborate in detail on the research methods and design implementation by the researcher. Chapter Four will display results in the same methodological order as introduced in Chapter Three through a series of tables and figures; and Chapter Five will offer discussion as to the meaning of the results, other notable findings, and the related applicability to policy and practice.

Chapter Two

Introduction

Research in the regard to the associated benefits to student populations from athletic participation in schools is extensive. This review of literature begins by chronologically examining the evolution of research to allow for understanding of the wealth of quantitative methodological approaches and the need for qualitative explanations utilizing the participant voice.

The execution of this review of literature was facilitated by a variety of internet research databases and the ability of the researcher to utilize resource reference lists and citations to trace backwards to find more dated work. Primary databases utilized included ProQuest, ArticlesPlus, ERIC, and JSTOR; along with basic library catalog searches through the Washington Research Library Consortium. Search terms used by the researcher included a combination of: interscholastic, high school, athletic(s), sport, participation, benefit(s), detriment(s), influence(s), education(al), aspirations, outcomes, achievement, and experience(s). After collecting a primary round of sources, the researcher backtracked through relevant citations noted in the primary sources to discover secondary and tertiary resources. The researcher found this method of backtracking through resources to be especially helpful in situating the existing research and identifying the gap in research to be addressed. In total, more than 200 relevant sources were consulted by the researcher, including, but not limited to books, journal articles, archived news articles, web-based articles, and other print media.

Literature Overview

Athletic programs have been incorporated into the extracurricular programming of schools for more than 100 years. Scholars have repeatedly attempted to determine whether interscholastic athletic participation contributes as a benefit or detriment on student educational outcomes. Early accounts of the benefits of athletic participation were primarily subjective with little substantive footing upon which to stand. As participation and research abilities expanded during the middle of the 20th century, studies reflected positive, negative, and inconclusive results in relation to the benefits of athletic participation on various educational parameters. Most notably, the effects of athletic participation on academic achievement and educational aspirations, the primary objectives of educational systems, were studied. At the turn of the 21st century, research evolved into an assessment of subgroups of students participating in athletics at the high school level. This review of the literature serves to inform the direction of research and situate the present study in reference to the evolution of findings on the influence of athletic participation on student educational outcomes.

Chronological Developments

With a great deal of research informing the relationship between athletic participation and student educational outcomes, the following review of literature has been compiled chronologically to facilitate a foundational understanding of the research developments to date.

Early Interest and Attention

The earliest mention of a relationship between athletic participation in high school and its associated benefits was recorded by Noyes (1908) in *The Journal of Education*.

Noyes (1908) noted the benefits of overall body health, school spirit and comradery, and moral character rewards. Noyes (1908) wrote, “the moral strength gained thus is a priceless reward that sport bestows upon those who follow it in truth and sincerity” (p.431). Noyes (1908) did not cite any data or specific research methods, and the work read more as a list of suggested best practices. Noyes (1908) placed a heavy emphasis on the critical importance of health and development of young boys and suggested that athletics programs needed to fall under the supervision of schools for effective implementation. At the time of this study, participation in extracurricular athletic programs in schools was primarily limited to male students; as indicated by Noyes (1908) writing about the developmental influence of athletic participation on young boys, but not young girls. O’Hanlon (1980), noted that most high schools in the early 1900s simply offered traditionally male-oriented sports, such as baseball, football, and basketball. Noyes (1908) suggested that a wide array of sport offerings and levels of participation should be sponsored by a school, with faculty support and supervision, as well as the enforcement of academic eligibility requirements. Noyes (1908) wrote that “the ideal [school] condition will be present only when every boy is engaged in sport” (p.430) due to the developmental, structural, and disciplinary benefits to be derived through sport participation within an organized system provided by the school.

As interest in the relationship between athletic participation in school and academic achievement continued to expand into the 1930s, research slowly began to incorporate more empirical forms of data. Interscholastic athletic participation had received widespread support following World War I from initiatives surrounding the development of qualities through athletics that were thought to be essential to the next

generation of soldiers (O'Hanlon, 1982). During the 1930s, methods of data collection and analysis were limited in comparison to modern day standards. The relationship between athletic participation and academic achievement, and eventually education aspirations, were examined through smaller studies with limited sample sizes. Eaton and Shannon (1934) published the first study examining the relationship between high school athletic participation and academic outcomes post high school by studying male students that attended the Indiana State Teachers College between 1900 and 1932. Despite the range of 32 years in the dates of attendance, this was not an accurate longitudinal study as most data was retrieved through the recollection of facts by interview subjects and provided a weak measure of validity as individual participants were not specifically followed. However, this longitudinal effort was the first to examine the relationship between high school athletic participation and future academic successes.

Notable, is that a true longitudinal methodology was not accurately implemented until the turn of the 21st century when multiple data set sources began to be utilized. Some of these data sets were comprised of data from the High School and Beyond and National Educational Longitudinal Study databases from the 1980s; with more recent studies comprised of data from the Educational Longitudinal Study (ELL) from the early 2000s (Fredricks, 2012; Yeung, 2015). The ELL data compiled longitudinal data on more than 13,000 students across the United States.

Another weakness in early works in conjunction with the lack of longitudinal studies was the lack of representation of female students in the research (Cook & Thompson, 1928; Cormany, 1935; Eaton & Shannon, 1934; Geer, 1924; Reals & Reess, 1939). This lack of representation was a product of the time period and did not diminish

the conceptual basis for the progress in research. Emphasis on gender roles in athletic participation and educational outcomes research began to evolve after the passage of Title IX as a component of the Educational Amendments Act of 1972. Rogers (1930) identified female students in studying physical education programs in schools through the realization of physical and emotional development processes for each gender, however, this research did not examine interscholastic athletic participation specific to female students (Rogers, 1930).

Developing Relationship: Athletic Participation and Educational Outcomes

Moving forward into the latter half of the 20th century, more extensive, specific, and all-inclusive research in regard to athletic participation and its benefits, or lack of benefits, was published. For ease of clarity, this chapter will next divide a wealth of research findings into sections illustrating evidence from a wave of inconclusive studies on the relationship between athletic participation and educational outcomes, and research that begins to overwhelmingly show conclusive evidence to support a positive relationship.

Inconclusive findings. Coleman (1961), published the most notable research and frequently referenced study in opposition of a positive relationship between athletic participation and academic achievement; which concluded that athletic participation detracts attention from academic endeavors. Coleman (1961) found the primary goal of athletic participation to be its associated popularity rather than an enhancement of skills translatable to academic work. This seminal research has been viewed as the foundation in disproving a positive relationship between athletic participation and academic performance. However, in analyzing Coleman (1961) more thoroughly, the study was

more focused on discovering which activities within schools elicited greater enthusiasm amongst students, not specifically the relationship between the two variables of athletic participation and academic performance. Coleman (1961), determined that activities in high schools acted to dampen enthusiasm for student concentration on academic matters. Coleman's work in this area eventually became the theoretical model referred to as the "Zero-Sum Model," representing the hypothesis that student resources and energy that could have been devoted to academic endeavors were instead depleted through participation in sports and other extracurricular activities (Marsh, 1992; Otto and Alwin, 1977). Hardly discounting the potential benefit of athletic participation on educational outcomes, this determination held merit, and continued to be referenced well into the 21st century. Despite lacking a specific focus on a relationship between athletic participation and academic achievement, Coleman's work spurred follow-up studies for decades that attempted to sustain or discredit his Zero-Sum Model.

Ballantine (1981) reviewed more than forty studies from the middle of the 20th century and concluded that non-athletes tended to perform slightly better academically than students who participated in athletics. These findings supported the research of Coleman (1961). However, once again, the time period must be taken into account when referencing the review of literature by Ballantine (1981). As identified in Ballantine (1981), the time period of publication of the studies reviewed represented an era when the societal emphasis for achieving higher grades in school was not strong and many students did not aspire to attend college as it was not essential to finding a career. In contrast to modern times, higher academic achievement and educational aspirations are not only receiving more attention on and individual basis, but also becoming a national priority

through the College and Career Readiness initiative behind the creation of the Common Core State Standards (Achieve, 2016, Mathis, 2010, US DOE, 2010).

Several scholars of this era also claimed a lack of causal evidence to positive findings between athletic participation and academic achievement. Of note, Lueptow and Kayser (1973) and Rehberg (1969) cited that no evidence existed to refute the idea that higher achievement by a student that participated in athletics could be attributed to the athletic participation and not simply the characteristics of the student that chose to participate in athletics. Lueptow and Kayser (1973) and Rehberg (1969) also proposed that a true longitudinal study would be the only method of study to determine that the relationship between athletic participation and academic achievement and educational aspirations could not be attributed to pre-existing individual characteristics.

Progressing into the late 20th century, some studies continued to yield inconclusive evidence to the relationship between athletic participation and academic achievement. Melnick, Vanfossen, and Sabo (1988) found that athletic participation did not correlate with increased academic performance. Melnick, Sabo, and Vanfossen (1992) concurred that most students that participated in athletics did not achieve higher grade point averages as a result of athletic participation, falling into agreement with the earlier findings Lueptow and Kayser (1973) that participation itself may not be the determining factor in academic achievement of students participating in athletics. In a more recent study, Rees and Sabia (2010), continued to conclude that any positive relationships amongst the variables were likely due to individual characteristics, and not the athletics participation itself. Rees and Sabia (2010) concluded that the "associations

may simply be a reflection of unobservables correlated with both sports participation and the outcome under study as opposed to causal in nature" (p. 751).

More recently, Yeung (2015) completed an analysis of national longitudinal data from the 1980s on athletic participation in high schools, summarizing the findings and recognizing a "general benefit to athletic participation" that is "far from universal" (p. 380). One noteworthy finding from Yeung (2015) was that in Math and Civics courses specifically, "the negative conditional effect is large enough to more than cancel out the positive main effect of athletic participation" (p. 379). Although this is a recent study, the data reflects student participation from more than 30 years ago, which make the findings less applicable to modern policymaking at the state, district, and school levels.

Lastly, in the most recent decade, several researchers have examined the relationship between academic measures for high school students when the students were either "in-season" or "out-of-season" for their respective sports. Schultz (2017) performed an extensive study to explore the in-season versus out-of-season relationship, yielding little conclusive findings. The results of Schultz (2017) revealed that academic measures varyied between varsity and junior varsity teams across various academic subjects both during sport seasons and during off seasons.

Positive relationship. A consistent shift in research findings indicating a positive relationship between interscholastic athletic participation and educational outcomes began with the work of Holland and Andre (1987). Holland and Andre (1987) reviewed work from earlier decades and determined that when controlling for several factors and taking into account inconclusive and improperly supported data there tended to be a stronger positive relationship between both athletic participation and academic

achievement, as well as athletic participation and educational aspirations. Marsh (1988) took suggestions of previous researchers and expanded the scope of study, using a national sample of data from 4,000 students that consisted of records from 10th grade, 12th grade, and two years post-12th grade. Marsh (1988) found athletic participation to be related positively to academic achievement, educational aspirations, and subsequent college attendance. Marsh (1988) also analyzed the influence of participation in extracurricular activities other than athletics, such as community service or school subject-matter clubs, and determined participation in athletics to hold the most prominent positive correlations to academic achievement and educational aspirations. Despite yielding results that indicated a positive relationship, the work of Marsh (1988) was not conclusive in proving a causal association as it simply compared data from each variable group and did not analyze the change in achievement of individuals over time. The work of Marsh (1988) did not prove or disprove the work of Lueptow and Kayser (1973) and Rehberg (1969) and the hypothesized influence of innate individual characteristics on the relationship.

Although not all longitudinal in nature, a series of studies in the 1990s continued to find a positive relationship stemming from athletic participation in schools. Snyder and Spreitzer (1990) discovered that students who participated in athletics attended college at higher rates than their academically equivalent peers through a national longitudinal study of more than 11,000 high school seniors. Lamborn, Brown, Mounts, and Steinberg (1992) determined that athletic participation in school promoted student engagement and contributed to student achievement; while Reis and Dias (1999) found an association between athletic participation in female urban students and the development of student

support groups to support a high-achieving ideology through an ethnographic study of nine female students – one of the few qualitative studies on record.

At the turn of the 21st century, Stephens and Schaben (2002) argued that a positive relationship between interscholastic athletic participation and academic achievement should better inform school systems in regard to budget and staffing allocations. Stephens and Schaben (2002) illustrated how school staff, students, and parents should be able to advocate against diminishing school athletic resources as the benefits associated with student athletic participation outweighed the monetary cost of athletic programming. The importance of athletic program funding in school budgeting can be seen in the inclusion of research in this area contained in several economic-based research journals in conjunction with sociological and education-based journals (Eide & Ronan, 2001; Lipscomb, 2007; Rees & Sabia, 2010). In support of the benefits outweighing the costs, Crispin (2017) determined that high school sports participants were significantly less likely to drop out of high school than if they had been unable to participate, indicating a significantly positive correlation between athletic program participation in high school and high school graduation for both at-risk and not-at-risk student populations.

Further detailing benefits, Broh (2002) discovered a link between athletics participation and improved Mathematics and English grades, as well as increased time spent on homework. Marsh and Kleitman (2003) also published findings about a linkage between athletic participation in high school and increased enrollment and achievement in college. Marsh and Kleitman (2003) controlled for several notably influential factors in the predictability of academic achievement that had not previously been controlled. These

factors included family socioeconomic status; racial, gender, and ethnic characteristics; and prior academic ability levels of the students. The work of Marsh and Kleitman (2003) influenced the direction of research to begin studying subgroups of student populations that participated in athletics more closely, rather than simply recognizing the entire student population as a homogeneous entity.

Subgroup Population Research

The most recent studies in the arena of athletic participation and academic achievement and educational aspirations have blossomed to encompass more distinct subgroups in identifying populations that may be underserved through athletic participation offerings. Shifrer, Pearson, Muller, and Wilkinson (2015) utilized longitudinal data to assess the relationship of athletic participation in high school on gender and race groups of boys and girls of White, Black, and Latino/Hispanic populations. Research into various student subpopulations has garnered attention over the last twenty years, and the following sections discuss relevant findings.

Research on gender. As evidence of the positive correlation between athletic participation and academic achievements strengthened and the prevalence of female student participation increased, the differences and similarities in the influence of athletic participation on male and female populations began to be studied. In these studies, the results pertaining to gender have been mixed, some showing benefits for both females and males, some suggesting a greater benefit for males, and others suggesting a stronger benefit for females (Veliz & Shakib, 2014).

Athletic participation is correlated with positive outcomes for both female and male athletes. However, research yields that there may be additional benefits for athletic

participants that are female. Snyder and Spreitzer (1977) first looked at the different influences of athletic involvement of females on academic achievement and found a positive relationship. Since the passing of Title IX, female participation in interscholastic sport has only continued to grow, having increased for 28 years in a row through the 2016-17 academic year with no signs of slowing down (NFHS, 2017). Pfister (2000), noted that in the 1990s women increasingly participated in types of sports that had traditionally been perceived as masculine sports, influencing what Kloumsten, Marsh and Skaalvik (2005) remarked as a decreasing gender gap in sports participation, despite boys and girls continuing to primarily participate in different sport activities. Despite this trend of improvements in participation, girls still experience a lower percentage of participation across the female population, indicating that the population-wide selection process into sport participation is still not yet consistent between male and female students, as proposed by Miller, Melnick, Barnes, Farrell, and Sabo (2005). This was apparent in a longitudinal study from Sabo and Veliz (2011) that identified numerous inequities between the sport opportunities being offered to boys and girls at varying rates throughout the United States with only some improvement from the1993-94 academic year through the 2005-06 academic year.

Although consistent growth in overall participation was experienced in the past decade, the trend of lower participation for girls as compared to boys in relation to the entire student population has remained relatively the same. However, important to note is that the number of girls participating nationwide experienced the largest one-year increase in 2016-2017 for the first time in 16 years (NFHS, 2017). A recent hypothesis behind lower sport participation for girls than that of boys examined the role of parental

gender role beliefs in supporting and providing access to sport opportunities (Heinze et al., 2017). Heinze et al (2017) found small, yet statistically significant, differences between both the ideological and financial values placed on sport participation by the parents of boys as compared to the parents of girls, which was reflected in the sport opportunities made available to girls.

Earlier studies looking into the differences between genders and athletic participation found that females that participated in interscholastic athletics to some degree experienced lower levels of depression and higher than average levels of self-esteem (Gore, Aseltine, & Colton 1992). Studies have shown that participation in athletics improves not only the academic, but the psychological and social outcomes of girls as well (Crosnoe, 2002; Hanson & Kraus, 1998; Pearson, Crissey, & Riegle-Crumb, 2009). Research has also indicated that adolescent female athletes are less likely to smoke, less likely to experience suicidal tendencies, less likely to use drugs, and more likely to feel positive about their body image than female students not participating in athletics (Miller, Melnick, Barnes, Farrell, & Sabo, 2005). Dissimilarly, it has been hypothesized that males that participate in high school sports have a higher propensity for alcohol or substance abuse activity both during and after high school, although the causation behind this may actually be more heavily influenced by the type of sport an individual participates in, with contact sports reporting higher alcohol and substance abuse tendencies (Veliz et al., 2017).

One of the more recent studies assessing the gender role in athletic participation examined Advanced Placement (AP) enrollment rates and sports participation rates at the macro school level using national longitudinal data from the 2012 Civil Rights Data

Collection by the Department of Education and the Common Core Data by the National Center for Educational Statistics (Veliz & Shakib, 2014). The findings revealed that school rates of male and female participation in sports have a positive association with the school rates of male and female enrollment in AP courses overall, most notably in AP Math, AP Science, and AP Foreign Language. (Veliz & Shakib, 2014). The findings also suggested that "females benefit more than males in regard to the positive relationship between interscholastic sports and AP enrollment" (Veliz & Shakib, 2014, p. 101). In a review of existing literature, Veliz and Shakib (2014) identified two major themes, (1) that "sports participation is positively associated with most academic outcomes, suggesting that interscholastic sports and the academic mission within secondary schools are not mutually exclusive domains at odds with each other" (p. 105), and (2) that "although the research is mixed on which gender benefits the most from participating in sports, female sports participants appear to reap some additional academic advantages in regard to enrolling and successfully taking courses in the math and sciences" (p. 105).

Additionally, although not specifically studied in regard to sport, Zell, Krizan, and Teeter (2015) conducted a large meta-synthesis study examining gender differences between males and females, with results substantially supporting the gender similarities hypothesis of Hyde (2005) that hypothesized through meta-analysis that males and females are similar on most, but not all, psychological variables. Zell, Krizan, and Teeter (2015) found that the average absolute difference between females and males for cognitive, social and personality, and well-being variables to be limited. In the minimal instances where differences were found, the effect size of those differences were either classified as small or very small. Data from Zell, Krizan, and Teeter (2015) reflected

about an 84% overlap in distributions of males and females, and these findings were consistent across age, culture, and decade. Although not specific to sport, these findings hold great significance in the realm of educational instruction and ultimately extracurricular school activities, including sport.

Research on race and ethnicity. Braddock (1981), determined that data from the 1970s revealed that the rates of college enrollment for Black and White young men were equally improved through high school athletic participation. Since that time, greater variations in results have been identified, especially when combined with the increasing interest in research on the participation in athletics of female students. Eide and Ronan (2001) and Snyder and Spreitzer (1990) discovered that data from the 1980s determined boys of all races to have benefited from participation in athletics, noting that Black girls and Black boys benefited less than their White peers (Melnick, Sabo, & Vanfossen, 1992). Spreitzer (1990) found that the percentage of Black boys participating in athletics was the highest percentage of any other race, gender, or ethnic subgroup; citing an emphasis on sport as a means of social mobility within the Black community. Supporting this, the social capital theory has frequently been used to explain this sociological phenomenon of social mobility though sport for minority communities (Portes, 1998). Neutral findings from Marsh and Kleitman (2003) determined that data from the 1990s showed no gender or race variation in college-going benefits of participation in high school athletics. However, using data from 1988 to 1992 from the National Educational Longitudinal Survey, Eitle and Eitle (2002) found that participation in athletics for Black students was found to have a negative effect on grades, highlighting math and reading deficits amongst Black high school basketball and football players.

Despite varying differences in achievement amongst subgroups, Whitley (1999) found that populations of Black and White female and Black and White male high school athletes to all perform statistically significantly better academically than their non-athletic participant peers. In analyzing national longitudinal data from the National Longitudinal Study of Adolescent Health collected from 1994-1995, Videon (2002) discovered that very little research to date had focused on athletic participation of subgroups consisting of Black girls and Hispanic boys and girls. Since then, research has found Black and Hispanic girls to engage in lower levels of physical activity, as well as fewer sports; citing socioeconomic status as a significant barrier to participation (Shifrer et al., 2015).

Shifrer et al. (2015) completed an analysis of multiple sets of longitudinal data dating back to the 1980s, concluding that, "the positive benefits of sports on four-year college going were still evident in the 2000s… [but had] not increased since the 1980s," and that "Black female athletes were the only group who experienced significantly lesser college going benefits compared to White male athletes during the 1980s and 1990s" (p. 312). Shifrer et al. (2015) summarized that the findings revealed that "a good part of the benefit of sports participation can be explained by the greater likelihood of more advantaged students participat[ing] in sports", continuing that "the positive estimated effect of sports on four-year college matriculation remain[ed] in the 1980s, 1990s, and 2000s, even after accounting for athletes' prior characteristics with propensity modeling techniques" (p.312).

Writing that "persistent racial and gender differentiation in college-going since the 1980s is evident, with Whites and women disproportionately represented among college matriculates" (p. 306), Shifrer et al. (2015) concluded that "it remains unclear

whether the benefits of sports extend into contemporary times and apply equally to female and racial minority athletes" (p. 295). Despite decades of correlational linkages between athletic participation and educational outcomes, very little conclusive evidence supports that a racial or ethnic identification specifically influences student educational outcomes; with more evidence indicating that the socioeconomic background of a student's family may actually influence student educational outcomes more significantly.

Research on socioeconomic status. With that, the socioeconomic status of subgroups within schools has been another recent focus of studies researching the overall influence of athletic participation on educational outcomes in schools. This focus is of critical importance given that some research has suggested family socioeconomic status to correlate more significantly with student educational outcomes as compared to student gender, ethnic, or racial identities (Shifrer et al., 2015). Trends in academic achievement of students participating in athletics mirror the general student population with respect to socioeconomic status and are consistent with research on gender and race. Shifrer et al. (2015) found that the socioeconomic status gap has become a greater barrier to academic achievement in athletic populations in recent years as compared to previous decades. One selection criteria into athletics identified by Shifrer et al. (2015) was that of family socioeconomic status, determining that students participating in athletics tended to have a higher family socioeconomic status than students in the general population. Shifrer et al. (2015) wrote that "in general, having higher socioeconomic status has become increasingly positively associated with participating in sports" (p.297). The study by Shifrer et al. (2015) posited that these above average socioeconomic backgrounds of athletic participants contributed to the higher rates of college enrollment amongst athletic

populations. Research assumes that this correlation results from a lack of time and money among households with a lower socioeconomic status, putting a greater strain on students to contribute to the household and pulling them away from participating in extracurricular academic or athletic pursuits (Crosnoe, Smith, & Leventhal, 2015; Fredricks & Eccles, 2005; Im, Hughes, Cao, Kwok, 2016; Shrifrer et al., 2015).

In terms of research validity regarding subgroups of athletic participants, it must be realized that schools with a lower mean socioeconomic status will typically be underrepresented in national data. For example, Veliz and Shakib (2014) performed a study researching AP enrollments in association with athletic participation, noting that the findings were not representative of many lower socioeconomic communities as AP courses were rarely offered in those school communities and often underreported if the courses were offered. This scenario is an example of an area where qualitative research is needed to better serve researchers aiming to understand these communities where accurate quantitative data is difficult to obtain.

Socioeconomic status has also been found to be a critical determinant in the participation of students in athletic programs associated with schools as compared to participation in athletic programs outside of schools. Guèvremont, Findlay, and Kohen (2014) found a substantive association between out-of-school athletic program participation and higher socioeconomic status, citing that programs associated with schools often appeared as the cheaper and more convenient options for participation. Shifrer et al. (2015) noted that the association of lower socioeconomic status students participating in school-based athletics as a result of their socioeconomic status should be a major focus of education policymakers as a means positive contributor to greater school

engagement amongst traditionally disadvantaged student populations, as well as a targeted area to shrink inequities in athletic participation opportunities.

Most Recent Directions of Research

Most recently, research has attempted to understand another vaguely documented area in prior literature – the variables specific to the practice of athletic activities and the influence of these variables have on various educational outcomes. Some of these variables include assessing the difference in the influence of athletic participation during in-season as opposed to out-of-season time or team versus individual sport participation.

Research comparing academic performance and several behavioral indicators during in-season versus out-of-season semesters for students participating in sport have been performed on several occasions. Notably, Laughlin (1978) and Silliker and Quirk (1997), both found that in-season academic performance and behavioral indicators of athletes to outperform achievement and behavior during out-of-season semesters. More recently, Schultz (2017) found small negative and significant in-season effect on academic performance for varsity athletes and a small positive and significant in-season effect on academic performance for junior varsity athletes. Schultz (2017) found these differing measures of academic performance for junior varsity participants to improve in Math and Science courses and to decrease for varsity participants in English and History courses.

At the turn of the 21st century, researchers began to identify the need for more sport specific research, with several researchers noting that a likely difference in achievement correlations existed between team and individual sports (Broh, 2002; Marsh & Kleitman, 2003; McNulty, Eitle, & Eitle, 2002). Research also suggests breaking the

differences down further between team sports, suggesting differences between basketball and football as compared to other team sports (Eitle & Eitle, 2002; Marsh & Kleitman (2003).

The recommendation for analysis between participation in team and individual sports and the difference in associated benefits between them has been highlighted by some researchers, yet, little examination into the phenomena has been executed in the United States (Yeung, 2015).

The only American study that loosely examined this was Veliz et al. (2014) in comparing substance abuse amongst contact versus non-contact sport participants. Otherwise, American literature is still recommending future research approaches to assess the different educational outcomes and associations between different sports in more depth, in tandem with a greater emphasis on subgroup participation levels and gender roles (Veliz & Shakib, 2014; Shifrer et al., 2015).

One of the few studies to examine individual versus team sports participation originates from research performed in Ireland. Bradley, Keane, and Crawford (2013) found participants in individual sports to perform better than team sport participants to a statistically significant degree. This research yielded that achievement by both individual and team athlete groups did outperform the general student population as well, in accordance with the majority of American research. However, the study did feature several methodological flaws including a small sample size and very few sport options for participation in the schools researched.

Trends and Gaps for Future Research

In summarizing the developments in research on the influence of athletic participation on educational outcomes spanning more than a century, the major developmental trends in the research have evolved in unison with societal trends. In the beginning, research focused on narrowed populations of primarily male participants, whereas, research has more recently expanded over the past few decades to include more findings on female participants and other subgroups of minority and traditionally underserved populations. Most recently, this trend has expanded into research attempting to identify more individualistic differences between in-season vs. out-of-season student performance and differences between individual and team sport participation. Research has continuously evolved, closing some gaps and opening others. All the while, the work of Coleman (1961), Lueptow and Kayser (1973), and Rehberg (1969) has subtly continued to be referenced in support that the innate characteristic traits of individuals that choose to participate in athletics may influence individual educational outcomes more so than athletic participation experiences.

With this, two gaps that had not been addressed included a gap recognizing the student voice and perspective, and a gap in the use of qualitative methodological practices in research. The qualitative approach pursued in the present study incorporated the student voice and perspective, contributing to findings in dissent of the characteristic trait explanation, and providing more traction for a causal explanation to substantiate the abundance of existing correlative findings.

Research Theoretical Perspective and Conceptual Framework

As referenced in Chapter One, the following theoretical perspective and conceptual framework was utilized to guide the methodological procedures of the present study. The theoretical perspective of experiential learning informed the conceptual framework in which situational factors contributed to participant identification of interscholastic athletics participation experiences and the educative and mis-educative influences of those experiences.

Theoretical Perspective

In seeking to better identify and understand the retrospective influence of experiences associated with high school interscholastic athletic participation on the educational outcomes of undergraduate college students, the use of theoretical models based on learning through experiences were determined to best explain the relationship. The foundational work on learning through experiences is rooted in the career work of John Dewey. Originating in *The School and Society* (1915) and *Democracy and Education* (1916), Dewey's theory of experience, explained best in *Experience and Education* (1938), highlights two essential principles, and the role that each principle plays while learning through experiences (Dewey, 1938). Dewey (1938), identifies these principles of experience as the *continuity* and *interaction* principles. The principle of continuity explains the cumulative process that educational and life experiences build upon to frame the perspective of an individual towards future experiences and learning opportunities. The principle of interaction represents the influence of situational and environmental factors on the experiences of an individual. These principles have evolved

and can be broken down and understood through Kolb's experiential learning theory (1984) and Lave and Wenger's situated learning theory (1991).

As illustrated in Figure 2.1 on the next page, Kolb's experiential learning theory is a further development of Dewey's continuity principle, while Lave and Wenger's situated learning theory is a further development of Dewey's interaction principle. With this considered, the most important aspect to note of Dewey's theory of experience is that experiences can be both educative and mis-educative (Dewey, 1938). According to Dewey, experiences that influence student learning, likely through the interaction principle, may be educative if they are generally positive experiences that contribute positively to the continuity principle and allow for the building upon of experiences and growth of a student intellectually, socially, emotionally, or in any other scope. Oppositely, experiences that influence student learning may be mis-educative if they can be classified as more negative in nature and likely to contribute negatively to the continuity principle and not only inhibit growth of the student, but potentially guide them in a direction of decline. In viewing interscholastic athletic participation as an extracurricular component of the formal education process, an example of an educative influence of athletic participation could be a student indicating that they have become more goal-oriented through athletic participation and have carried that to the classroom, setting goals to complete assignments. Whereas, an example of a mis-educative influence of athletic participation could be a student choosing, especially habitually, to not do their homework because they were too tired after an athletic practice. This notion of educative and mis-educative experiences is further noted in the conceptual framework in this

chapter and reflected in the idea generation brainstorming prompt described Chapter Three.

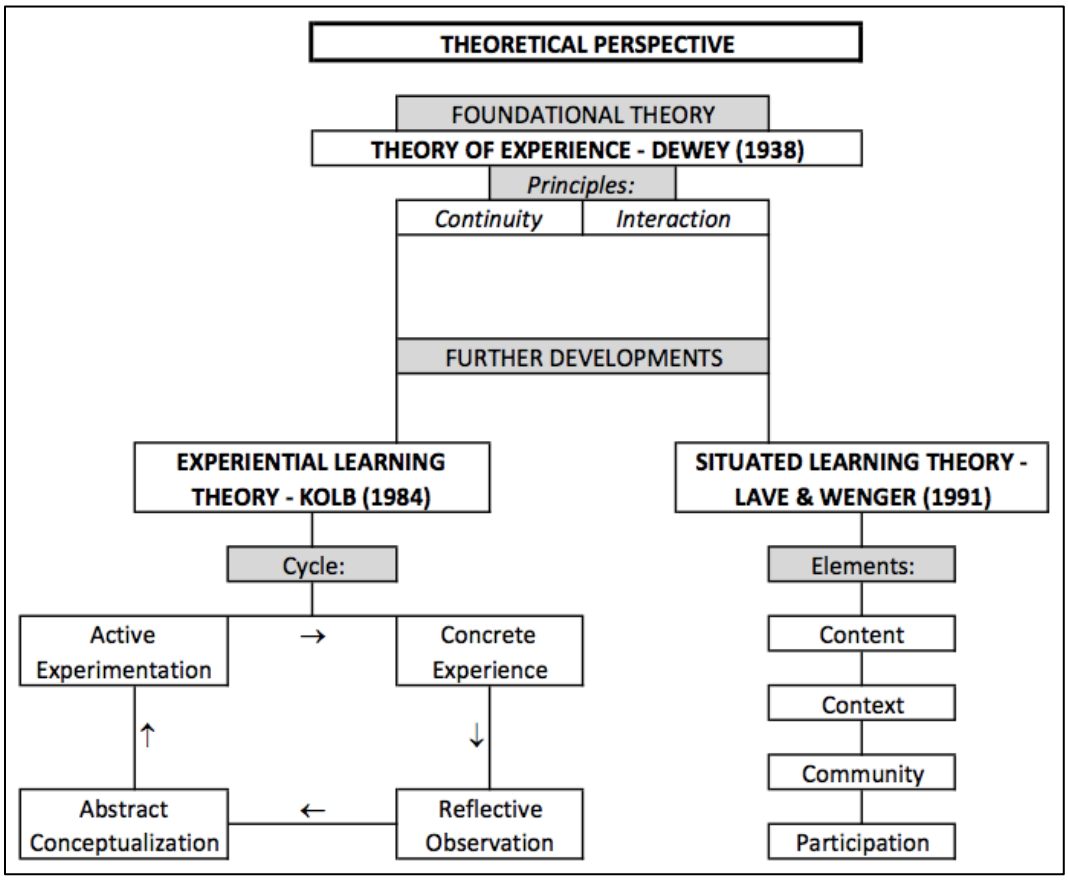


Figure 2.1. Theoretical perspective.

The work of Lewin, Piaget, and especially Dewey, formed the foundation of Kolb's 1984 experiential learning theory (Miettinen, 2000). The experiential learning theory emphasizes the ability of individuals to obtain new knowledge through experiences, ideally, through a cycle of experience, reflection, conceptualization, and experimentation. Kolb's 1984 four-stage model, illustrated as a portion of Figure 2.1 above, is the best illustration of the cyclical process of the experiential learning theory. Important, is that Kolb (1984) identifies that experiential learning does not need to occur through formal education, but also manifests through participation in informal

educational opportunities, of which athletic programs would be considered. Of note, Wikeley and Bullock (2006) identified that Kolb's experiential learning theory should be of "particular interest to coaches and trainers" (p. 15) due to its application in the acquisition of skills and internalization of knowledge.

The situated learning theory of Lave and Wenger further developed the work of Vygotsky and Cole (1978) as well as Dewey (1915; 1916; 1938), in relating the situational and environmental factors of lived experiences to the learning process (Wikeley & Bullock, 2006). As seen in Figure 2.1, the situated learning theory is composed of the elements of content, context, community, and participation. These elements emphasize the influence of what Lave and Wenger (1991) describe as communities of practice on learning (Wenger, 1998). These elements each play a critical role in what is learned by an individual through a certain experience and how the experiences are interpreted and conceptualized into knowledge by the individual. Penney (2006) also notes the merits of Lave and Wenger's 1991 situated learning theory application, insisting on a "need for greater acknowledgement of teachers' and coaches' shared interests in facilitating 'legitimate peripheral participation' in sport and physical activity as 'communities of practice'" (p. 26) in accordance with the theory.

The choice to use Dewey's theory of experience as the foundation for the theoretical perspective of the present study was obvious to the researcher in an effort to best link school-sponsored athletic participation to the greater educational processes and objectives of schools. Participation in athletic programs in high schools provides experiences for student participants that can be perceived in countless educative or mis-educative ways. With more than half of high school students in the United States

participating in interscholastic athletic programs, student exposure to these educative and mis-educative experiences and influences is extensive, yet severely understudied and understood – which created a need for the present study. The extensions of Kolb's experiential learning theory and Lave and Wenger's situated learning theory to the continuity and interaction principles of Dewey's theory of experience align well. The noted applicability of the work of both Kolb and Lave and Wenger to informal education, athletics, and coaching made the inclusion of the experiential learning theory and the situated learning theory in the researcher's theoretical perspective essential. The ultimate selection of these three theories to comprise of the theoretical perspective was driven by the proposed research questions, seeking to uncover experiences and the influence of those experiences on students. Early in the study design phase, other constructivist, social, and critical theories were proposed, however, the chosen theories were selected by the researcher as they were identified to best explain and answer the research questions.

The theoretical perspective of this study informs the conceptual framework. Dewey's theory of experience creates the foundation for the conceptual framework, with the more recent experiential learning and situated learning theoretical applications identified as well.

Conceptual Framework

The conceptual framework operationalizes the theoretical framework to illustrate the direction in which student participation in interscholastic athletic programs contributes to educative and mis-educative experiences that influence student educational outcomes. Figure 2.2 on the next page is identical to Figure 1.1 in Chapter One and is included here for ease of comparison with the theoretical perspective, Figure 2.1, and the

integrated theoretical and conceptual model, Figure 2.3. Figure 2.3 on the next page represents a more detailed conceptual framework for this study that is integrated with the theoretical perspective that was described in the previous section. For ease of comparison, the steps numbered one through three in the conceptual framework are identical to the steps in the integrated conceptual and theoretical graphic. In accordance with the conceptual framework description in Chapter One, the focus of the data collection of the present study focused on better understanding steps one and two of the conceptual framework. The idea generation phase and sorting component of the statement structuring phase of the concept mapping protocol will address step one, identifying interscholastic athletics participation experiences of the conceptual framework; and the rating component of the statement structuring phase of the concept mapping protocol will address the degree and frequency of experience of educative and mis-educative influences in step two of the conceptual framework.

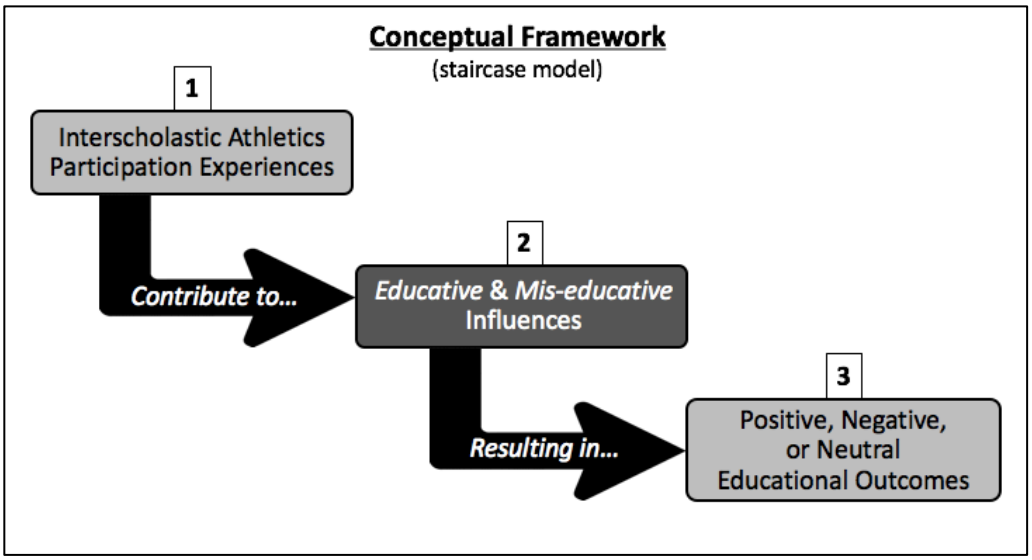


Figure 2.2. Conceptual framework – identical to figure 1.1 in Chapter One.

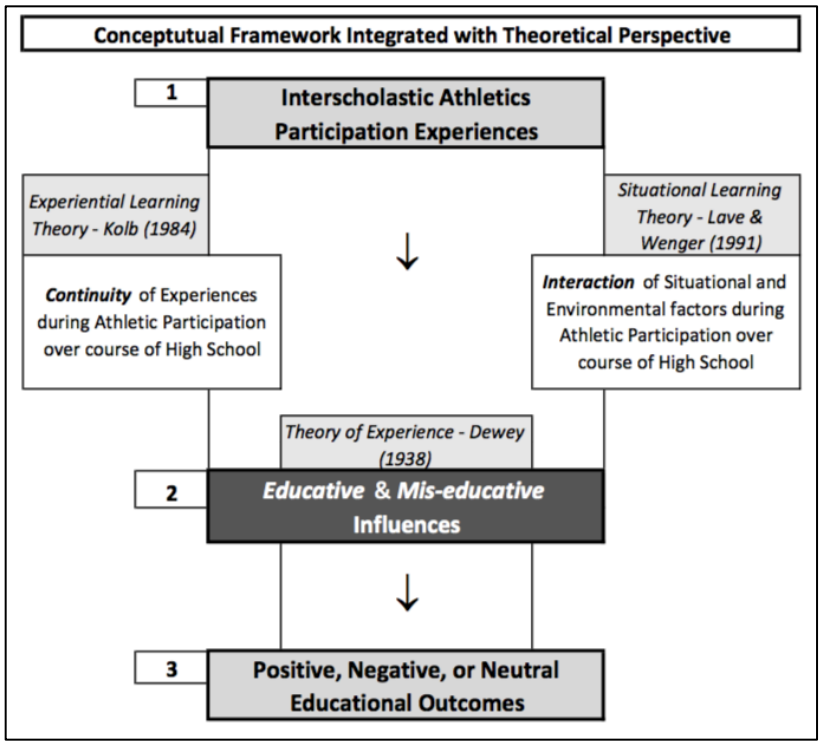


Figure 2.3. Integrated theoretical and conceptual model.

Summary

This chapter presented findings from existing research on the influence of athletic participation on a variety of educational outcomes while identifing trends and gaps within the research. The theoretical and conceptual lenses necessary to situate and make sense of the present study were also identified and explained. The present study addresses the need for a qualitative component to data collection and interpretation, as well as the need for a presence of the student perspective and voice through the application of the concept mapping methodological approach. The methodological approach, research design, and reasoning for implementation, will be explained in depth in the following chapter, Chapter Three.

Chapter Three

Introduction

This chapter serves to explain the mixed methods concept mapping methodology and research design that was implemented by the researcher. The use and implementation of concept mapping by the researcher provided exceptional insight into the perceived influence of experiences associated with high school interscholastic athletic participation on student educational outcomes.

The concept mapping approach utilized for the present study was heavily based on the recommendations of Kane and Trochim (2007). Trochim developed what is now the concept mapping methodology through an investigative approach at analyzing group data through aggregated sorting matrices, multidimensional scaling, and cluster analysis in the 1980s (Kane & Trochim, 2007; Trochim, 1989). This methodological discovery for the quantitative visual representation of participant-driven qualitative data became the devotion of Trochim's scholarly work for the past thirty years and has become a widely expanding and accepted methodological approach in the social sciences over the past twenty years (Donnelly, 2016).

Overview of Methodology and Research Design

Concept mapping is an applied social research method to data collection, analysis, and interpretation (Kane & Trochim, 2007). The methodology utilizes a unique mixed methods approach to generate participant driven data and findings. Concept mapping begins with a structured qualitative group data collection; followed by a quantitative multivariate analysis to generate visual displays of group-specific conceptualizations; and

concludes with a final qualitative interpretation of the data by stakeholders, including the researcher (Kane & Trochim, 2007).

The present study utilized concept mapping to identify and determine the influence on educational outcomes of student experiences associated with high school interscholastic athletic participation from the retrospective perceptions of college students. The benefit of utilizing a concept mapping approach was that the data, findings, and interpretations were all directly derived from the study participants. The study participants first identified experiences via statement generation brainstorming. Secondly, the participants sorted a finalized list of brainstormed statements categorically into groups. Next, the participants rated the statements according to the degree of perceived influence of each identified experience, the frequency of occurrence of each identified experience, and the perceived length of impact of each identified experience. These participant activities yielded several multidimensional representations of the participant generated data referred to as concept maps. This process answered and addressed the research questions of the study and yielded other notable findings for education leaders.

Purpose Statement and Research Questions

Restated from Chapter One, the purpose of this study was to identify and determine the influence of high school interscholastic athletic participation experiences on the personal educational outcomes of undergraduate college students.

There were two major research questions directing this study. The questions:

As perceived and reflected upon by undergraduate college students;

1) *What experiences associated with high school interscholastic athletic participation do participants identify as influencing their educational outcomes?*

   And;

2) *How influential were the identified high school interscholastic athletic experiences on the participants' educational outcomes?*

The purpose statement and research questions above provided unrelenting guidance to the researcher throughout the entirety of the present study.

Research Participants

To answer the research questions posed, the participants of the present study were purposively sampled and solicited for voluntary participation in the study. Per guidance of Kane and Trochim (2007), the total number of participants in the study was not as significant as the total number of brainstormed statements derived from the participants and the saturation of the statements generated. Researcher sampling procedures and participant criteria for participation in the study are outlined in the following sections. Due to study logistics, there were two distinct participant groups that participated in the study. Participants in Cohort A (n=38) completed the brainstorming statement generation phase of the data collection, while participants in Cohort B (n=100) completed the sorting and rating exercises of the data collection. Per Kane and Trochim (2007), as long as all participants met the criteria for inclusion in the study, utilizing multiple groups of participants was permitted.

Sample population and criteria for participation. The present study recruited undergraduate students from a large mid-Atlantic public university for participation in the

study. Access to study participants was primarily gained through the university recreation center for Cohort A participants, and through an academic department of a foundational course required of all undergraduate students for Cohort B participants. The recreation center was accessible to more than 22,000 undergraduate students at the university, while nearly 2,500 of those students were enrolled in the foundational course during the semester of data collection. With these large populations of potential participants, a characteristically diverse participant sample was achieved for voluntary participation in the study. The descriptive statistics of the study participants will be displayed in Chapter Four. The use of a large public university as the site for participant solicitation was purposefully intended to yield results of a characteristically diverse participant pool that was more representative of national interscholastic athletic participants than those of smaller private colleges and universities. The researcher had left the possibility open for intentional purposive sampling to obtain a characteristically diverse sample based on participant demographics and descriptive characteristics, however, this was not necessary as the students that responded to the research solicitation and met the participation criteria naturally comprised a characteristically diverse sample. The only purposive sampling that took place was conducted to ensure study participants met the participation criteria. In the present study, all participants self-identified as meeting the three required criteria for participation:

1) Participants were enrolled as current full-time undergraduate students at the university.
2) Participants had participated in interscholastic athletics in at least three years of high school.

3) Participants were NOT a member of a varsity athletics team at the university.

The first criterion was identified by the researcher as a benchmark of similar achievement for the study participants. All participants accomplished a series of structured and individualized educational achievements and outcomes to have been accepted and admitted as an undergraduate student at the mid-Atlantic public university. Status as a current undergraduate student represented competency as a university student and the successful attainment of the idealized educational outcome for a high school student to matriculate to college in congruence with the College and Career Readiness initiative of 21st century high schools (Achieve, 2016, US DOE, 2010; Mathis, 2010).

The second criterion, requiring participation in at least three years of interscholastic athletics, was critical to the purpose of the present study in measuring the influence of high school interscholastic athletic participation experiences on educational outcomes from the student perspective. This criterion was determined to aid in identifying participants that had experienced a significant degree of interscholastic athletic participation during their high school years. This requirement represented a substantial degree of participation, yet, allowed for students that may not have participated in athletics for four years due to early graduation from high school, a transfer between schools, an athletic injury, a high school beginning in 10th grade, or various other personal or situational factors. In the present study, 74.6% of the participants reported participating in four or more years of interscholastic athletics during high school, with the remaining 25.4% of participants participating in at least three years of interscholastic athletics. The high percentage of participants participating in four or more years of interscholastic athletics, with the remaining participants still participating in

three years of interscholastic athletics, confirms the use of this participant criterion in its purpose of soliciting participation from students who experienced a significant degree of athletic participation during high school.

The third criterion was established to retain a focus of the study on the general student population that participated in interscholastic athletics. According to several statistical studies over the last decade by the National Collegiate Athletic Association (NCAA, 2016) and the NFHS (2017), the chance of a high school athletic participant moving on to compete as part of a Division I collegiate program hovers around 2%. The mid-Atlantic public university chosen as the site for participant solicitation sponsors NCAA Division I athletic programs. These Division I programs would likely include many student-athletes that experienced interscholastic athletics in a unique way that would not translate similarly to the interscholastic athletic experiences of students that did not matriculate to participate at the Division I level collegiately (Bergman, 2016; Harris, Hines, Mayes, Thomas, & Bagley, 2016). Competing as a student-athlete at the Division I level is considered highly elite participation in most sports (Ownings, Burton, & Daniel, 1996). Although the inclusion of elite student-athletes in the study could have provided a unique insight, there are frequently opportunities, such as relaxed academic standards or greater access to tutoring, made available to this small tier of elite student-athletes that likely would have skewed the data for the entire group and masked the results of the study.

Sampling. As previously described, the selection of participants involved purposive sampling only to identify participants that met the criteria for participation. Kane and Trochim (2007) noted that "it is usually preferable to do purposive sampling

for heterogeneity" (p.36); also, that "broad, heterogeneous participation helps to ensure the consideration of a wide variety of viewpoints [and] provides more information for the statistical analyses, thus improving the clarity and resolution of the maps" (p. 35). Fortunately, the participant sample varied greatly. Data on these demographic and descriptive characteristic categories for use in the present study were obtained through a brief paper and pencil questionnaire for Cohort A participants and a brief electronic questionnaire for Cohort B participants, available for reference in Appendix A. The questionnaires were completed after acknowledging the informed consent, and before any other data collection.

Access to sample. Access to study participants was gained primarily through staff and faculty of the mid-Atlantic university in the recreation and foundational course academic departments, respectfully. The researcher solicited Cohort A participants on site at the recreation center for the brainstorming statement generation exercise and posted a call for participants electronically through the academic department for Cohort B participants. Solicitation materials for Cohort A and Cohort B can be found in Appendix B and Appendix C, respectfully.

Sample size. The limits on the numbers of participants were determined by the guidance of Kane and Trochim (2007) for Cohort A and by the Concept Systems Global MAX software license for Cohort B. In working with participants in person, as was the case with Cohort A, Kane and Trochim (2007) suggested participant samples of no more than 40 participants for logistical coordination, indicating however, that the concept mapping design could be used with hundreds of participants if brainstorming sessions were replaced with a survey method electronically. Kane and Trochim (2007) stated that

there was no strict limit to the number of participants in a concept mapping study, however, recognizing that there would "likely be diminishing returns as the sample size increases beyond a certain point" (p. 36).

The guidance of Kane and Trochim (2007) was heeded in conjunction with observed data saturation, completing this activity with a sample of 38 participants in Cohort A. The saturation point as best described by Creswell (2013) was recognized when the brainstorming sessions yielded the aforementioned diminishing returns as described by Kane and Trochim (2007). Diminishing returns began to be recognized around the 30th participant in the brainstorming activity and were fully realized after the 38th participant, which resulted in a total of 283 raw statements that featured several duplicates.

For Cohort B, the researcher achieved soliciting the upper limit of 100 current undergraduate student participants. This limit was capped by the Concept Systems Global MAX software license that limited the sorting and rating activities to a maximum of 100 participants. The 100th participant completed participation near the end of the date range allotted for data collection, it is unclear if demand for participation would have been much greater with a longer date range, regardless of the software license cap.

IRB participation limit. The study protocol was submitted to the Institutional Review Board (IRB) of the George Washington University. The IRB acknowledged the proposed study to involve minimal risk and initially approved the study to include a maximum of 100 total participants. Upon finalizing the timeline for data collection and determining the potential for greater than 100 total participants due to the logistical adjustment of the two participant cohorts, the researcher submitted a modification request

for a new maximum total of 200 participants to be included in the study. The modification request was approved, with the approval letter evidenced for reference in Appendix D.

Participant compensation. Participants in both cohorts were compensated. Cohort A participants from the recreation department solicitation received a $10.00 Amazon.com gift card for participating in the brainstorming statement generation phase. Participants recruited from the academic department in Cohort B were all enrolled in a foundational course. The Cohort B participants received compensation in the form of an assignment credit as an assignment of the foundational course included participation in any research study throughout the semester. Assignment credit was the only form of compensation permitted by the academic department for students enrolled in the foundational course. These participants from Cohort B were given a certificate of completion upon completing the sorting and rating phases. An example of the certificate can be seen in Appendix E. The researcher was prepared to solicit additional participants for Cohort B from outside of the academic department if necessary and prepared to enter these participants into a drawing for a $100.00 Amazon.com gift card for completing the sorting and rating phases, however, this proved unnecessary as the limit of 100 participants was reached solely through solicitation within the academic department.

Data Collection and Analysis Procedures

Concept mapping involves three relatively task intensive participant activities: brainstorming, sorting, and rating. (Kane & Trochim, 2007). The concept mapping methodology can be conducted in person with participants or remotely via the internet using the Concept System Global MAX software. Given the logistical components of

coordinating voluntary student participants, the researcher used both in-person and remote methods for data generation and collection for the present study. The researcher conducted the brainstorming statement generation sessions through in-person interviews, while the ensuing sorting and rating activities were administered remotely for the logistical convenience of study participants and researcher. Due to obstacles that prevented the intended focus group set-up for the brainstorming statement generation, all statement generation data was collected by means of in-person interviews that primarily occurred one-on-one between the researcher and the participant, with the exception of two instances that occurred between the researcher and two participants simultaneously. Despite the method of individualized interviews being executed effectively, the researcher also left open the possibility for remote collection of statement generation data if the saturation point had not yet been met, however, this was unnecessary.

Combining means of data collection is common when utilizing concept mapping methodologies, especially in studies with larger participant pools (Kane & Trochim, 2007). A pooled study analysis of concept mapping projects observed no meaningful differences between the in-person or remote data collection modes, with respect to measures of reliability and validity (Rosas & Kane, 2012). Notable, and applicable to the present study, Kane and Trochim (2007) determined that the concept mapping approach to data collection does not necessitate each participant to be involved in every phase of the data collection process.

Brainstorming

The objective of the brainstorming component in a concept mapping study is to generate a comprehensive list of ideas in response to a prompt that is tied to the research

question. With the guiding research question intended to identify and determine the influence of high school interscholastic athletic participation experiences on educational outcomes as perceived and understood by undergraduate college students, the prompt used to initiate the brainstorming activity was;

"An experience from participating in high school interscholastic athletics that influenced my educational outcomes was _____."

Given the broad prompt, the researcher emphasized in the directions that responses may be positive, negative, or neutral in nature. This emphasis was derived from the conceptual framework and theoretical perspectives described in Chapter Two. For the ease of organizing responses by the participants, the brainstorming sheets used by the participants to record responses during the in-person interviews included language to remind the participants to respond to the prompt with interscholastic athletic experiences that influenced their personal educational outcomes positively, negatively, and neutrally. The brainstorming sheets can be referenced in Appendix F. For guidance, the researcher developed a Brainstorming Individualized Interview Protocol that is included in Appendix G.

During the brainstorming sessions, participants were instructed to think of, write down, and state all personal experiences associated with interscholastic athletics participation that may have influenced a behavior or outcome in relation to any educational outcomes. A list of example educational outcome categories was provided to spark participant recall of experiences. A sample of this list can be found in Appendix H.

Once receiving the brainstorming sheets and directions, the participants were instructed to generate an independent list of responses for 5-10 minutes before sharing

any responses with the researcher. The use of this individual period of reflection was intentional, allowing for a greater depth of response as suggested by Costa & Kallick (2008). The brainstorming sheets were collected at the end of the interview sessions for the researcher to record the participant responses and to serve as a means of data triangulation.

The in-person component of the interview also allowed the researcher to observe the process of reflection, generation, and sharing of statements. The researcher was able to identify both verbal and non-verbal behaviors and reactions to statements throughout the brainstorming process and note these behaviors in researcher memos to additionally supplement participant responses. Upon the conclusion of each statement generation interview session, the researcher explained the subsequent phases for participation in the study. The researcher collected the contact information for any of the Cohort A participants that would be willing to participate in later phases of the study if needed. However, since solicitation from the university academic department reached the limit for participants in Cohort B, no Cohort A participants were contacted for further participation.

Once the brainstorming interviews seemed to have exhausted all responses to the prompt, which was recognized by repetition in responses. The researcher concluded the statement generation data collection process citing overall data saturation as described by Creswell (2013).

The researcher then transcribed all statements generated by the participants on the brainstorming sheets into a pooled list of 283 raw statements. Microsoft Excel was utilized for ease of tracking the generated statements as the researcher prepared for the

idea analysis phase of the data analysis. During the idea analysis, the raw statement list was then refined through a type of structured content analysis referred to by Kane and Rosas (2018) as idea synthesis. The idea synthesis process proved to be the most time intensive qualitative step in the concept mapping process, taking the researcher several weeks to synthesize the participant-generated list of 283 raw statements into the finalized list of 88 statements. The researcher invoked a few colleagues and a member of the dissertation committee to supervise the idea synthesis process and approve the final list of synthesized statements as a measure to ensure the valid and reliable completion of the process.

With the interview sessions occurring primarily individually, there was a great deal of repetition in the statements generated. However, this repetition assured the researcher that data saturation of the brainstormed statements had occurred. These repetitive statements were synthesized into one statement, maintaining the wording and detail of the participants. Statements were made generalizable so that all Cohort B participants could identify with them during the subsequent sorting and rating activities. Overall, statements were retained if they were relevant to the research questions and brainstorming prompt, relatable to most participants, able to be rated, and representative of the collective saturation of brainstormed statements. The resultant collection of statements represented the final list of 88 statements to become the basis for the sorting and rating activities. The Concept Systems Global MAX software license allowed for maximum of 125 finalized statements. Despite this higher limit, if the idea synthesis process had stopped at 125 statements, statements would have been included that were repetitive. The finalized list of 88 statements were in concurrence with the

recommendation from Kane & Rosas (2018) and Kane & Trochim (2007) that that final list of statements be synthesized to 100 statements or less to best facilitate the sorting and rating processes.

In completion, the idea synthesis phase included eight passes through the participant generated statements to synthesize down to a finalized statement list that could be utilized for the sorting and rating activities. The eight passes and synthesis process is outlined in Figure 3.1 below:

Figure 3.1 - Idea Synthesis Steps: 283 Raw Statements → 88 Synthesized Statements

#	Step
1	Corrected for grammar & syntax to complete sentence prompt
2	First elimination of duplicates and incomplete statements
3	Making statements generalizable and able to be rated easily
4	Second elimination of duplicates and statements not identifying an experience from athletic participation in HS
5	Editing phrasing of statement to identify the experience clearly, attempting for neutrality where possible
6	Re-wording for simplification and to phrase leading statements neutrally where possible
7	Removal of words "and, or, not" where possible to make the statements more clearly able to be rated
8	Third and final elimination of duplicates

Figure 3.1. Idea synthesis steps

Sorting

Following the concept mapping protocol, Cohort B participants were instructed to independently sort and group the statements together into piles "in a way that made sense to them" (Kane & Trochim, 2007, p.12). These brief instructions were intentional to allow for participants to have as many or as few piles as necessary depending on their perception and ability to make meaning of each statement (Bickman & Rog, 2009; Coxon, 1999). Following this instruction, as advised by Kane and Trochim (2007), the participants needed to adhere to the three sorting rules;

1) All statements cannot be put into a single pile.
2) All statements cannot be put into their own separate piles (although *some* statements may be grouped by themselves).

3) Each statement can be placed into only one pile (i.e., a statement cannot be placed in two piles at the same time).

The sorting phase was accomplished remotely utilizing this capability of the Concept Systems Global MAX software. In doing so, participants were directed to a software interface to complete the sorting of the statements through a drag-and-drop process in which each statement appeared on a virtual card on the computer screen that could then be sorted into virtual piles. Statements were placed in a randomized identical order for all participants. Virtual piles of cards were checked by the researcher for adherence to the sorting rules and participants were asked to re-sort the statements if adherence to the rules had not been achieved.

Participants were prompted to give each virtually sorted pile of cards a name that described the collective meaning for the group of statements in each pile to the participant. These participant-given names later contributed to the determination of cluster naming by the researcher during the data analysis process when the concept maps were generated. This process will be elaborated upon in Chapter Four.

Rating

The Concept Systems Global MAX software license allowed for maximum of three rating categories for the participants to rate the finalized statements. Following the sorting of the statements, participants were asked to rate each statement on a 1-to-5 Likert-type scale relative to the following categories; (a) the degree of perceived influence of the identified experience on personal educational outcomes, (b) the frequency of occurrence of the identified experience, and (c) the length of the perceived impact of the identified experience. One rating category was completed at a time. As the

simple “never” to “always” scale, representing the rating of a 1 or 5 respectively, may have proven confusing given the categories to be rated; participants were given a rating key to aid in the understanding of what each number on the scale represented. This key can be found in Appendix I. Prior to rating, participants were also instructed to scan the entire list of statements so that they may better rate the statements relative to each other, utilizing the entire rating scale. Kane and Trochim (2007) noted that instruction prior to the rating exercise yielded more representative data of true participant perceptions; therefore, the researcher ensured complete instructions were written in an email to the participants, as well as posted within the Concept Systems Global MAX software interface.

The rating activity of the concept mapping process was completed remotely using the Concept Systems Global MAX software. Rating responses were checked by the researcher to ensure that no statements were unintentionally skipped during the rating activity. If the researcher found that a participant had unintentionally skipped rating a statement, the participant was asked to revisit and rate that statement prior to receiving their certificate of completion. Per the guidance of Kane and Trochim (2007), the rating phase took place after the sorting phase so that participants would not consciously or subconsciously sort the statements in accordance with the ratings they ended up assigning to the statements.

Of note, at this point in the data collection, it was determined by the researcher that the third rating variable question, the length of perceived impact of the identified experience, had been phrased in a confusing manner and did not yield rating responses form the participants that were accurate. As this rating question was not pertinent to

answering the research questions, determining the length of impact was no longer pursued. This rating question will not be reference again within the remaining chapters.

Statistical Analysis and Concept Map Generation

Statistical data analysis for concept mapping also utilizes the Concept Systems Global MAX software. The quantitative sorting and rating data from the qualitatively generated participant statements provided the data for statistical analysis.

Total similarity matrix. First, 100 binary similarity matrices, one for the set of data from each of the Cohort B participants, were generated within the Concept Systems Global MAX software to reflect which of the 88 statements had been sorted into piles with each other. Next, a total similarity matrix was constructed from the sorting data. The construction of the total similarity matrix represented the aggregation of the 100 binary similarity matrices from the sorting data of each participant. Given the large quantity of data, this aggregation was facilitated through the Concept Systems Global MAX software.

Point map. Secondly, a two-dimensional nonmetric multidimensional scaling (MDS) of the total similarity matrix sort data was conducted utilizing the Concept Systems Global MAX software. The MDS used a point to represent each of the finalized participant generated statements. The points were placed on a map generated by the Concept Systems Global MAX software according to their relationship and similarity to one another based on the total similarity matrix from the sorting data. In concept mapping, this map is called the point map. The point map generated for the present study can be seen in Figure 4.2 in Chapter Four. Points that were closer to each other on the point map indicated statements that were sorted together more frequently, and points that

were further from one another indicated statements that were sorted together less frequently. The point map was the first of the maps constructed from the data analysis and was the basis from which all other concept maps were derived. Per the guideline of Kane and Trochim (2007), point locations on the point map were designated by the MDS analysis directly and could not be adjusted or moved by the researcher.

Point cluster map. Thirdly, a hierarchical cluster analysis was conducted on the MDS solution using Ward's hierarchical agglomerative clustering method, abbreviated as Ward's method (Kane & Trochim, 2007). This process partitioned the points on the map into thematic clusters to create a point cluster map, illustrated in Figure 4.4 in Chapter 4. The Concept Systems Global MAX software can construct any number of cluster map solutions from one to N, with N representing the total number of statements (Kane & Trochim, 2007). For the present study, the researcher used the Concept Systems Global MAX software to generate several point cluster maps with varying numbers of clusters until it was determined that the number of clusters most accurately represented the sorting data from the participant-generated statements. The number of clusters was ultimately determined in accordance with recommendations from Kane and Trochim (2007) and was based on a combination of statistical analyses, expert judgment, and participant sorting data responses. Chapter Four will discuss the process of determining the final number of clusters for the point cluster maps specific to the present study.

Cluster rating map. After clusters had been determined, cluster rating maps for each of the two remaining rating variables, perceived influence and frequency of experience, were generated using the Concept Systems Global MAX software. The cluster rating map for perceived influence can be found in Figure 4.6 in Chapter Four,

and the cluster rating map for frequency of experience can be found in Appendix J. These maps utilized the rating data assigned to each statement by the participants during the rating activity. These maps allowed for a better understanding of the perceived influence and frequency of experience of each of the clusters relative to one another.

Pattern match displays. Next, for a visual representation of the differences or similarities between rating variables or specific groups of participants on the *cluster* level, the Concept Systems Global MAX software was used to generate pattern matching displays between two variables or groups. Pattern match displays depict a ladder graph with the vertical lines represnting a variable and the "rungs" of the ladder representing each cluster. Given the total number of participants in Cohort B and the amount of demographic and characteristic data obtained, the researcher was able to generate 26 unique pattern match displays. The researcher chose the four most notable pattern match displays for inclusion and elaboration in Chapter Four, displayed in Figures 4.7 through 4.10.

Go-zone displays. Next, for a visual representation of the differences or similarities between rating variables or specific groups of participants on the *statement* level, the Concept Systems Global MAX software was used to generate go-zone displays between two variables or groups. In the go-zone representation of the data, the statements from all or any number of clusters are plotted on an X-Y graph with their respective ratings indicated on either the x-axis and the y-axis. The mean ratings of the statements for each variable corresponded to the coordinates of the plotted statements on the graph. The go-zone display is also broken into quadrants by a vertical line and a horizontal line representing the mean rating scores of the x-axis and y-axis variables, respectfully. Given

the total number of 88 statements, combined with the total number of participants in Cohort B and the amount of demographic and characteristic data obtained, the researcher was able to generate 23 unique go-zone displays. Given overlap with the pattern match findings, the researcher chose only one go-zone display for inclusion and elaboration in Chapter Four, displayed in Figure 4.11.

Post hoc analyses. Lastly, the researcher utilized IBM SPSS Software Version 22.0 to conduct statistical significance testing in excess of the abilities of the Concept Systems Global MAX software. The notable results from this further data analysis are presented in Chapter Four.

Methodological Trustworthiness

Given the mixed methodological approach of the concept mapping design, it was possible for both the quantitative and qualitative elements of the present study to elicit concerns regarding overall trustworthiness. To best address this, the concept mapping methodology was followed strictly. Achieving this strict adherence minimized any trustworthiness concerns.

Quantitative trustworthiness. In a review of studies, concept mapping was determined to consistently yield strong internal representational validity and strong sorting and rating reliability estimates (Rosas & Kane, 2012). Despite variation in participation and task completion amongst participants in this same review of studies, validity and reliability measures were consistently trustworthy (Rosas & Kane, 2012). Thus, Rosas and Kane (2012) concluded that utilizing the concept mapping methodological approach in itself should enhance the chance of accomplishing a trustworthy study.

Also, Kane and Trochim (2007), noted that the number of individual sorting piles chosen by participants and the final number of clusters chosen by the researcher can also be compared relative to each other as a measure of validity. In the case of the present study, the researcher found the best fitting model conceptually to have eight clusters in the final point cluster map. The number of piles sorted by the participants ranged from a low of 3 to a high of 17, with a mean of 6.98 and standard deviation of 2.80. With the final determination of eight clusters falling within half of one standard deviation from the mean, the comparison of the final number of clusters selected to the mean number of piles sorted supports a valid methodology.

Lastly, supporting the multiple cohort model implemented by the researcher in the current study, Kane and Trochim (2007) acknowledged that the concept mapping procedures still yield valid and reliable results even if all participants are not involved in each task. In addition, Rosas and Kane (2012) found that the use of more sorters typically yielded more reliable sorting results and that a larger number of raters typically yielded higher inter-rater reliability estimates. With maximum participation being reached from the Cohort B participants in the sorting and rating activities, maximum reliability of the results in these phases was established.

Qualitative trustworthiness. To ensure the reliability and validity associated with the qualitative components of this study, the researcher: (1) utilized a pilot statement generation session prior to commencing the data collection, (2) closely adhered to the concept mapping protocols set forth by Kane and Trochim (2007) to ensure procedural replicability, (3) implemented a form of member checks during the statement generation phase to confirm the meaning of responses and (4) utilized peer debriefing periodically to

gain insider and outside perspectives of the study results. The researcher collected the written statements from the participants and used a process of bracketing personal thoughts through memo writing during the data collection process to serve as sources for verification and triangulation of the brainstormed statements (Tufford & Newman, 2010).

All of the steps indicated above, both quantitative and qualitative, aided in promoting a valid, reliable, and trustworthy execution of the present study.

Data Management

Raw data collection. Data was collected in-person through interview sessions with study participants, as well as electronically through the Concept Systems Global MAX software program. Hard copy participant demographic sheets and participant brainstorming sheets were collected after each interview from Cohort A participants. Data from Cohort B participants was all collected and maintained within the Concept Systems Global MAX software, with the small exception of participant characteristic information for two categories that was stored on Microsoft Excel due to limits in the number of participant questions available within the Concept Systems Global MAX software. The two categories that were kept track of on Microsoft Excel for Cohort B were (1) the number of years of sport participation and (2) whether or not the participant played for a club team for their primary sport indicated.

Data storage. Participants were identified by only a number. The researcher kept a copy of a master list of contact information and corresponding participant identification numbers in two separate locked locations through the duration of the study so that participants could be followed up with for clarification purposes or later participation in the study if warranted. All participant brainstorming sheet transcripts utilized the

identification numbers of the participants for identification purposes. All hard copies of the data transcripts were maintained in a locked cabinet in the researcher's home. There was a significant electronic data component to this research utilizing the Concept Systems Global MAX software and Microsoft Excel. The data remained on a laptop secured at the researcher's home that was designated strictly for the purpose of research. Access to the Concept Systems Global MAX software and the laptop itself were both password protected and not accessible to anyone other than the researcher.

Destruction of data. In the case of a participant wishing to stop participation in the study, or the data generated by a participant ultimately was determined to be unreliable, that data was removed from the data set and destroyed. Upon publication of the present study, the master lists of participant information will be destroyed, along with all participant brainstorming sheet transcripts and notes, to preserve the anonymity of the study participants.

Human Participant and Ethics Precautions

IRB. Risks will be present in any study of human participants. The researcher has identified minimal risk to participants in this study and reported the risk as such to the IRB of the George Washington University. Although minimal risk was identified, the researcher took steps to ensure the risk would not become elevated. The initial IRB approval process was completed before any data collection began, and the IRB modification request for additional participants was completed prior to exceeding the original maximum number of participants. As the IRB granted a waiver of signed consent, a copy of the IRB approval form was presented to all study participants accompanying the informed consent notices in place of receiving signed consent. The

researcher also contacted the IRB of the research site and was granted full approval to complete the study after providing the research site with the IRB approval letter from the George Washington University.

Informed consent. As the IRB granted a waiver of signed consent, the researcher was not responsible for obtaining signed consent by the participants, and only responsible for providing informed consent notice. All participants were presented with the informed consent notice prior to participation either in print or electronic form. The informed consent notice outlined the minimal risks and informed participants that participation was voluntary and that they had the right to stop participation at any point during the study. At the recreation center, the informed consent was posted at the data collection table, with copies to be kept by the Cohort A participants if desired. Cohort B participants were presented with the informed consent text within the Concept Systems Global Max software as soon they created an account to participate in the study, prior to any data collection activity. The document was also available via email to the participants if desired. The IRB approved informed consent paperwork can be found in Appendix K.

Risks to participants. The risks to study participants were determined to be minimal, identified as; (1) the unintentional recognition of a participant's voice by a reader of the present study when published, (2) participant emotional disruption in response to the recollection of experiences associated with high school athletics participation, and (3) the potential for embarrassment or humiliation in sharing experiences in front of the researcher or other study participants.

Participant protection. To protect the participants, identification numbers were immediately assigned to the participants upon consenting to the study. After this point,

the participants' names and any other identification information other than the assigned identification numbers were not utilized. No transcripts contained the actual names of the participants or the actual names of high schools, school districts, or locations. The participants were asked to identify their high school locations in only generic or regional descriptive terms. All additional records, transcripts, and data were also kept in a locked space in the researcher's home. Any identifying information will be destroyed following the publication of the present study. Participants voluntarily participated in the present study at their own will. Participants were informed that they could have stopped participation or requested to speak individually to the researcher at any point. Contact information for the researcher was provided to the participants, allowing for any additional or related questions to be asked of the researcher.

Conflict of interest. In order to minimize possible conflicts of interest, the mid-Atlantic university identified as the site for participant solicitation in the present study did not employ the researcher. The researcher had no opportunities to interact with the participants prior to the study. The only access to the university community the researcher had was through gatekeepers at the University that were contacted by the researcher solely for the purpose of the present study. These gatekeepers were directors and program coordinators in their respective offices.

Summary

This chapter explained the mixed methods concept mapping methodology and research design that was implemented by the researcher. The use and implementation of the concept mapping methodology by the researcher provided exceptional insight into the

perceived influence of experiences associated with high school interscholastic athletic participation on student educational outcomes.

The following chapters will relay and expand upon the results and most notable findings from the present study. Chapter Four will display results in the same methodological order as introduced in this chapter through a series of tables and figures, while Chapter Five will offer a thorough discussion as to the meaning of the results and related applicability to policy and practice.

Chapter Four

Introduction

This chapter presents and displays the results of the present study. With the concept mapping methodological approach yielding a substantial amount of data, the results of the study will be displayed succinctly in the order that the concept mapping process unfolded, with the first section presenting the descriptive statistics of the study participants to better interpret and understand later results.

Descriptive Statistics of Participants

The solicitation of voluntary participants for inclusion in the present study yielded a demographically and characteristically diverse sample that was also strongly representative of both the mid-Atlantic university research site and the national population of high school students participating in interscholastic athletic programs (College Factual, 2015; NFHS, 2017). Descriptive statistics for both Cohort A and Cohort B participants are displayed in tables on the following pages. Table 4.1 displays basic participant demographic information, Table 4.2 displays characteristics about the high school environments of the participants, and Table 4.3 displays more specific information about the sport participation of the participants. In all cases, participants were solicited at random as long as they met the participation criterion discussed in Chapter Three.

Notable from Table 4.1, the gender breakdown in Cohort A was very close to the national gender breakdown of 7.9 million students participating in high school sports, which was 57.75% male and 42.25% female during the 2016-17 academic year (NFHS, 2017). Similarly, the gender breakdown of Cohort B was very close to the gender

breakdown at the mid-Atlantic university utilized for the research site, which was of 48.66% male and 51.34% female in 2015 (College Factual, 2015). Despite the random participant solicitation, the researcher achieved an even 50-50 split between male and female participants in Cohort B by chance. Similarly, given the small sample size, the self-identified race and ethnicity breakdown was relatively similar to that of the mid-Atlantic university except for a higher representation of Caucasian participants and lower representation of Asian participants in both cohorts, which was coincidentally more representative of the national breakdown of secondary school students (Musu-Gillette et al., 2017; NCES, 2017b). Lastly, the family income breakdown was partitioned well for both cohorts across the array of income brackets, however, important to note was that the mean family income of the participants was roughly $95,000, which was substantially higher than what the US Census Bureau (2016) reported as the nationwide mean for real household income in the year 2014 at $53,700.

Table 4.1 - Participant Demographics							
		Cohort A (n=38)		**Cohort B (n=100)**		**TOTAL (n=138)**	
		n	**%**	**n**	**%**	**n**	**%**
Gender	Male	23	60.5%	50	50.0%	73	52.9%
	Female	15	39.5%	50	50.0%	65	47.1%
Year in College	Freshman	4	10.5%	57	57.0%	61	44.2%
	Sophomore	11	28.9%	24	24.0%	35	25.4%
	Junior	14	36.8%	15	15.0%	29	21.0%
	Senior	9	23.7%	4	4.0%	13	9.4%
Race/Ethnicity	White/Caucasian	22	57.9%	58	58.0%	80	58.0%
	Black/African American	5	13.2%	8	8.0%	13	9.4%
	Hispanic/Latino	4	10.5%	6	6.0%	10	7.2%
	Asian	2	5.3%	15	15.0%	17	12.3%
	Middle Eastern	2	5.3%	0	0.0%	2	1.4%
	Pacific Islander	1	2.6%	0	0.0%	1	0.7%
	American Indian	1	2.6%	0	0.0%	1	0.7%
	More than one Race	1	2.6%	13	13.0%	14	10.1%
Family Income During High School	$0 - $24,999	1	2.6%	7	7.0%	8	5.8%
	$25,000 - $49,999	5	13.2%	9	9.0%	14	10.1%
	$50,000 - $74,999	6	15.8%	17	17.0%	23	16.7%
	$75,000 - $99,999	7	18.4%	17	17.0%	24	17.4%
	$100,000 - $124,999	8	21.1%	18	18.0%	26	18.8%
	$125,000 - $149,999	5	13.2%	13	13.0%	18	13.0%
	$150,000 or more	6	15.8%	19	19.0%	25	18.1%
	No Answer	1	2.6%	0	0.0%	1	0.7%

Moving on, the descriptive statistics of the high school environments of the participants are displayed in Table 4.2. The high school population breakdown for both cohorts was partitioned well across the array of population brackets for the participant samples. The high school type and high school location responses heavily favored public and suburban representation, respectively. Despite this, the public designation is an accurate reflection of the national breakdown for students attending public high schools at nearly 90%, and the suburban designation is likely a combined product of the suburban location of the mid-Atlantic university chosen for the research site and the greater propensity of students from suburban locations to matriculate to college (CAPE, 2017; NCES, 2017a).

Table 4.2 - High School Descriptive Statistics

		Cohort A (n=38)		Cohort B (n=100)		TOTAL (n=138)	
		n	**%**	**n**	**%**	**n**	**%**
High School Type	Public	33	86.8%	84	84.0%	117	84.8%
	Independent - Day	4	10.5%	13	13.0%	17	12.3%
	Independent - Boarding	0	0.0%	1	1.0%	1	0.7%
	Charter	0	0.0%	0	0.0%	0	0.0%
	Home School	0	0.0%	1	1.0%	1	0.7%
	No Answer	1	2.6%	1	1.0%	2	1.4%
High School Location	Rural	6	15.8%	17	17.0%	23	16.7%
	Suburban	28	73.7%	71	71.0%	99	71.7%
	Urban	3	7.9%	12	12.0%	15	10.9%
	Other	0	0.0%	0	0.0%	0	0.0%
	No Answer	1	2.6%	0	0.0%	1	0.7%
High School Population	Under 500	2	5.3%	14	14.0%	16	11.6%
	500-999	12	31.6%	13	13.0%	25	18.1%
	1000-1499	3	7.9%	25	25.0%	28	20.3%
	1500-1999	11	28.9%	25	25.0%	36	26.1%
	2000 or More	10	26.3%	23	23.0%	33	23.9%

Lastly, the descriptive statistics of the sport participation details of the participants are displayed in Table 4.3. Most notably, 24 different sports are represented by study participants between both cohorts as the primary sport of participation. In addition to this, 60% of participants from both cohorts indicated playing a secondary or tertiary sport during their high school years. Twenty-four different sports were also identified as secondary and tertiary sports of the participants from both cohorts, with all but two of the sports also being indicated as primary sports. The two secondary and tertiary sports not to be identified as primary sports were Bowling and Boys Volleyball; whereas Tennis and Boys Ice Hockey were the only two primary sports that were not also indicated on the secondary and tertiary list.

Table 4.3 - Sport Participation Descriptive Statistics

		Cohort A (n=38)		Cohort B (n=100)		TOTAL (n=138)	
		n	%	n	%	n	%
Years of Participation in High School Sports	3 Years	9	23.7%	26	26.0%	35	25.4%
	4+ Years	29	76.3%	74	74.0%	103	74.6%
Club Sport Participation Outside of High School	Yes	15	39.5%	37	37.0%	52	37.7%
	No	18	47.4%	61	61.0%	79	57.2%
	Yes - not Primary Sport	5	13.2%	2	2.0%	7	5.1%
Primary High School Sport Indicated	Baseball	2	5.3%	2	2.0%	4	2.9%
	Basketball (Boys)	2	5.3%	3	3.0%	5	3.6%
	Basketball (Girls)	1	2.6%	4	4.0%	5	3.6%
	Cheerleading / Spirit	0	0.0%	5	5.0%	5	3.6%
	Cross Country	2	5.3%	4	4.0%	6	4.3%
	Dance	0	0.0%	1	1.0%	1	0.7%
	Field Hockey	2	5.3%	6	6.0%	8	5.8%
	Football	2	5.3%	6	6.0%	8	5.8%
	Golf	1	2.6%	0	0.0%	1	0.7%
	Gymnastics	0	0.0%	1	1.0%	1	0.7%
	Ice Hockey (Boys)	1	2.6%	2	2.0%	3	2.2%
	Lacrosse (Boys)	0	0.0%	6	6.0%	6	4.3%
	Lacrosse (Girls)	1	2.6%	1	1.0%	2	1.4%
	Rowing	1	2.6%	4	4.0%	5	3.6%
	Soccer (Boys)	6	15.8%	8	8.0%	14	10.1%
	Soccer (Girls)	1	2.6%	11	11.0%	12	8.7%
	Softball	0	0.0%	3	3.0%	3	2.2%
	Swimming & Diving	0	0.0%	5	5.0%	5	3.6%
	Tennis	3	7.9%	6	6.0%	9	6.5%
	Track & Field (Indoor)	1	2.6%	2	2.0%	3	2.2%
	Track & Field (Outdoor)	6	15.8%	8	8.0%	14	10.1%
	Unified Tennis	0	0.0%	1	1.0%	1	0.7%
	Volleyball (Girls)	3	7.9%	4	4.0%	7	5.1%
	Wrestling	3	7.9%	7	7.0%	10	7.2%

Note. 60% of all participants indicated also playing more than one sport at school during high school.
* Tennis and Boys Ice Hockey were replaced by Bowling and Boys Volleyball on the list of secondary and tertiary sports, all other sports were also indicated as secondary or tertiary sports.

Throughout the sport participation descriptive statistics, both cohorts presented similar percentages across most responses. Of note, more than 74.6% of all participants participated in a minimum of four years of high school sports, with 37.7% of total participants also playing their primary sport for a club team outside of school. With this, the present study obtained cohort samples that were very conducive to identifying and determining the influence of high school athletic experiences on student educational outcomes.

Statement Generation: Athletic Participation Experiences

The brainstorming statement generation process with Cohort A yielded 283 raw statements in response to the research prompt. The researcher completed the idea synthesis step of the concept mapping protocol over several weeks to obtain a finalized list of 88 synthesized statements. The idea synthesis process was discussed in detail in Chapter Three and comprised of the eight steps outlined and restated for reference in Figure 4.1 below. The finalized list of 88 statements can be seen on the next page in Table 4.4.

Figure 4.1 - Idea Synthesis Steps: 283 Raw Statements → 88 Synthesized Statements

#	Step
1	Corrected for grammar & syntax to complete sentence prompt
2	First elimination of duplicates and incomplete statements
3	Making statements generalizable and able to be rated easily
4	Second elimination of duplicates and statements not identifying an experience from athletic participation in HS
5	Editing phrasing of statement to identify the experience clearly, attempting for neutrality where possible
6	Re-wording for simplification and to phrase leading statements neutrally where possible
7	Removal of words "and, or, not" where possible to make the statements more clearly able to be rated
8	Third and final elimination of duplicates

Figure 4.1. Idea synthesis steps – identical to Figure 3.1 in Chapter Three.

Table 4.4 - List of 88 Synthesized Statements

#	Statement	#	Statement
1	I learned how to work together with teammates	45	my coach had extremely high school spirit
2	I missed taking a standardized test for a championship game	46	working hard in sports made me want to work hard in school
3	I became friends with my teammates	47	I got into a habit of being on time
4	I realized that my classmates depended on me for projects like my teammates depended on me on the field	48	I had to attend class daily to be eligible to play
5	I skipped class to watch a sports event	49	I had to time manage well around sports and school commitments
6	I was able to miss practice to take after school tests	50	I had to balance the workloads of both school and sports
7	my teammates were choosing to go to college after high school	51	I had to maintain a certain GPA to be eligible to compete
8	I was put into a leadership position on the team	52	I learned to be respectful to my teachers by having to be respectful to my coaches
9	my coach was supportive of my academics	53	participating in sports consumed too much energy
10	my coach had mandatory weekly study hours	54	I had a coach that was also my teacher
11	my coach communicated with my teachers	55	I had less time to study because of sports commitments
12	I participated in sports instead of preparing for a standardized test	56	we were not allowed to practice unless we were passing our classes
13	my coach connected me with former students that were now in college	57	the upperclassmen on the team provided academic advice on classes
14	I was so tired after sports participation that I could not concentrate in school the next day	58	my parents interacted with my coach
15	I was competitive in the classroom from being competitive in sports	59	sports participation prevented having a job during high school to pay for college
16	I mostly focused on sports over schoolwork	60	I would think about my sport rather than my school work
17	I would have to stay up late to finish homework after practice	61	I brought my school work with me to sports competitions
18	I was held to the same school standards as non-athlete students	62	I could put sports participation on high school "resume" in applying to colleges
19	my coaches taught me how to set goals	63	I had to lose or gain weight for my sport
20	my coach factored class attendance into playing time decisions	64	my coach did not allow us to do homework on the bus after a competition loss
21	I was surrounded with teammates that were successful in school	65	my team was a support system at school
22	sports participation helped relieve school stress	66	I was kept accountable by my coaches
23	I would have harder workouts from my coach if I was not doing my best in class	67	I felt that I did not have enough time to complete assignments due to participating in sports
24	my teammates tutored me in classes	68	my coach made us allocate study time in our schedules
25	teammates tried to influence inappropriate substances	69	it was hard to concentrate in class due to a sports injury
26	I went to bed late from doing schoolwork after sports	70	my coach encouraged the team to put academics first
27	my coach taught me to stay calm and focused to perform my best	71	sports participation required me to get an extension on assignments
28	I became open to going to colleges that were further away from traveling for sports	72	my teammates were helpful during exam time
29	my focus shifted more towards academics due to an injury	73	I had to adhere to team rules and school rules to participate
30	I had a hard time completing my homework because of time spent at sports	74	coaching issues were a distraction at school
31	I had to miss class for sport commitments	75	I felt stressed at school because of my coach
32	my coach informed the team about academic college scholarships	76	proper study habits were instilled by my coaches
33	I was verbally confronted by my coach for not doing my best in class	77	I slept through class because I was tired from sports participation
34	I spent time at sports rather than studying	78	my coaches taught me about perseverance
35	meeting challenges in sports encouraged me to take challenging classes	79	I built self-confidence because my teammates believed in me
36	my coach factored academic performance into playing time decisions	80	sports participation kept me in a stable routine
37	I had more team responsibilities as a team leader	81	I met people on my team that I could form study groups with
38	I had to miss class for a sports injury	82	I participated less in class because I was tired from sports participation
39	I did not have time to do other after-school activities	83	I felt confident in school when my non-athletic friends looked up to me
40	my coaches talked about the importance of college	84	I had to take my tests differently due to a sports injury
41	the whole team had to keep a good GPA	85	it was hard to focus in the classroom on the day of a competition
42	my coach did not allow participation in other after-school activities at school that interfered with practice	86	I was unable to go see teachers after school
43	I looked at more colleges that might allow me to play sports in college	87	I did not do my homework because of sports participation
44	I was able to use my excess energy outside the classroom on sports	88	I had to make up assignments that I missed due to sports participation

Note. These 88 statements were the product of the idea synthesis process that began with 283 raw statements generated by the Cohort A participants.

Sorting Activity Results

The Concept Systems Global MAX software stored all of the sorting activity data in individual similarity matrices and performed the two-dimensional nonmetric multidimensional scaling (MDS) of the total similarity matrix sort data. From these analyses, a point map was generated, assigning a specific point to each of the 88 statements. Points were derived from the MDS analysis directly and could not be adjusted or moved by the researcher (Kane & Trochim, 2007). Figure 4.2 below spatially represents each of the 88 statements as a point map, with statements positioned closer to one another on the map representing statements that were frequently sorted together. This point map is the basis from which all other concept maps and data were derived. Figure 4.3 on the next page shows the same point map, this time indicating the statement numbers associated with each point for reference.

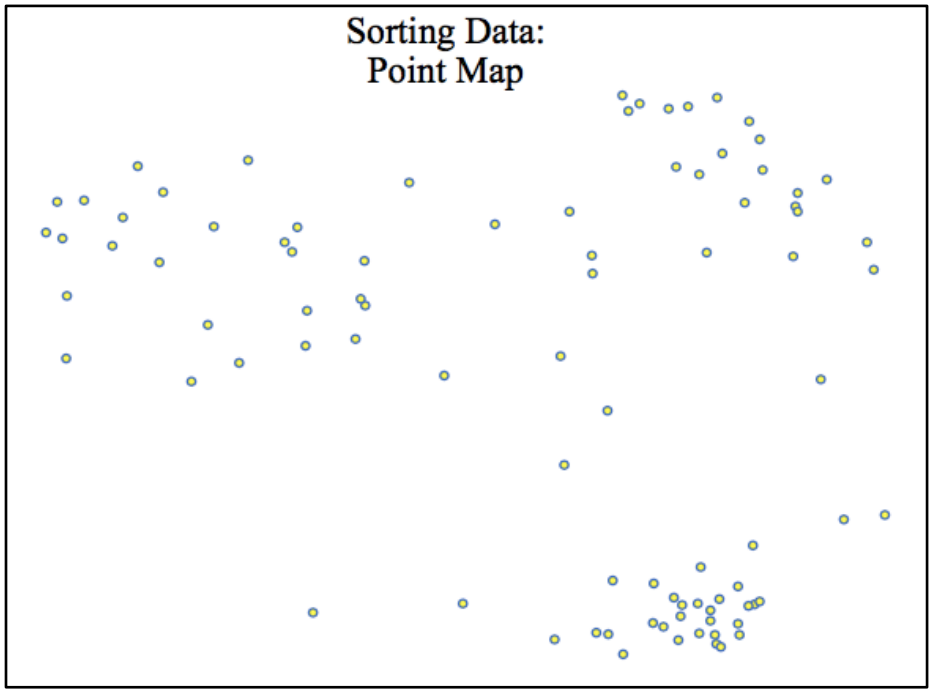


Figure 4.2. Point map with points representing each of the 88 statements.

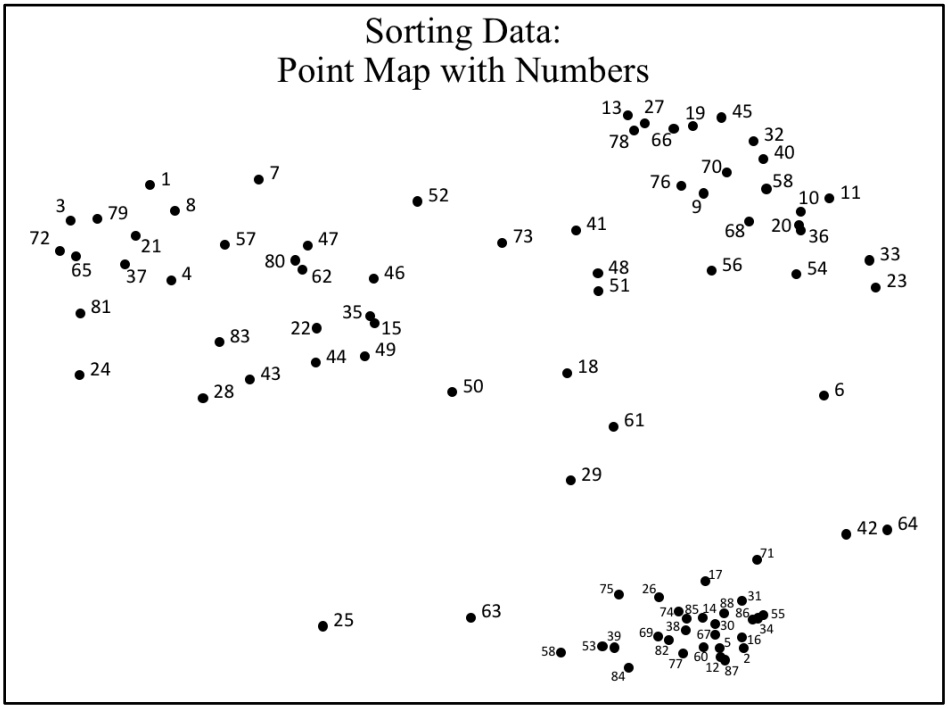


Figure 4.3. Point map with statement numbers indicated.

The goodness-of-fit of the configuration of the data on the point map is measured by its stress value. Stress values range from zero to one with lower values indicating better congruence between the raw data and the processed data. Two-dimensional MDS solutions with stress values below the upper limit of 0.39 have been found to have less than a 1% probability of having no structure or a random structure (Sturrock & Rocha, 2000). Generated by the Concept Systems Global MAX software, the stress value for the data was 0.1699, indicating that the point map was not random or without structure, and represented the complex set of multivariate data very well (Burke et al., 2005).

From the point map, a hierarchical cluster analysis was applied on the MDS solution using Ward's method to create a point cluster map. This process partitioned the points on the map into thematic clusters to create a point cluster map, which ultimately

led to the identification of eight distinct thematic clusters of statements. This point cluster map can be seen below in Figure 4.4. Important to note, specific to this document, is that each cluster was assigned a number one through eight by the researcher as a valueless identifier to facilitate continued understanding throughout the dissertation document. The final cluster titles were determined by referencing the cluster titles that were provided by the Cohort B participants during the sorting activity. The researcher, with guidance from a dissertation committee member, phrased the cluster titles to grammatically complete the research prompt and best represent all statements in each respective cluster.

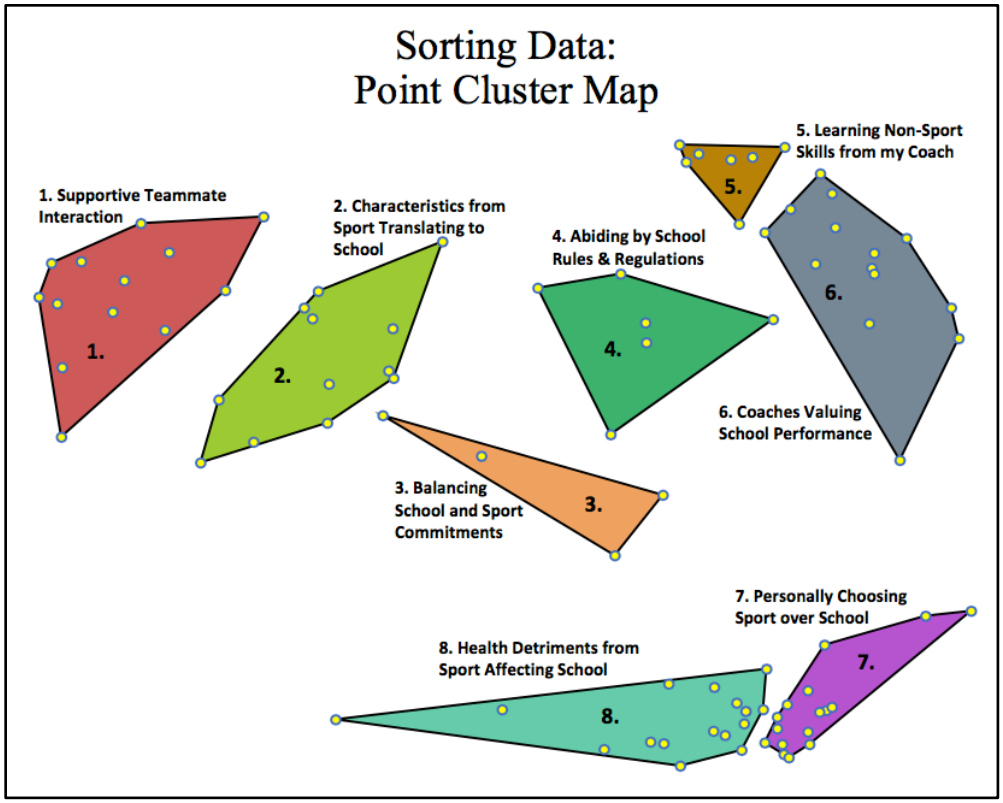


Figure 4.4. Point cluster map.

The final number of clusters was derived directly from the sorting data, with approved researcher modifications in accordance to the concept mapping methodology (Kane & Trochim, 2007). The 100 Cohort B participants sorted the 88 statements into a

wide variety of clusters. The number of clusters sorted by the participants ranged from a low of 3 to a high of 17, with a mean of 6.98 and standard deviation of 2.80. Some participants were extremely thorough in their sorting, with 16 participants sorting the statements into 10 or more clusters. All of this information was taken into account by the researcher when determining the final cluster orientation for data analysis. The researcher began with a 17-cluster orientation using the Concept Systems Global MAX software as 17 was the maximum number of clusters sorted by a participant. That 17-cluster orientation was worked downward using the Concept Systems Global MAX software, with the researcher examining the 16-cluster orientation, 15-cluster orientation, etc. and finally settling on the 9-cluster orientation as the 9-cluster orientation best partitioned the 88 statements in meaningful clusters. To create the final cluster map from the 9-cluster orientation, the edits outlined in Figure 4.5 on the next page were made. All edits in Figure 4.5 were approved by a dissertation committee member and all were executed in accordance to the recommendations by Kane and Trochim (2007) for re-drawing cluster boundaries – most notably that the statement points that were relocated needed to be neighboring the clusters to which they were re-drawn. Two analyses tools used in determining the ability to re-draw boundaries were the bridging index and the spanning analysis, both generated by the Concept Systems Global MAX software. The bridging index values were measures of whether a statement was generally sorted with nearby statements (values close to 0) or with statements located in other areas of the point map (values closer to 1). The spanning analysis displayed how many times each specific statement was sorted with every other statement on the point map. Statements and clusters with lower bridging indices indicated more stable and narrowly focused thematic

content. Therefore, the moving of statements between clusters via re-drawing of boundaries occurred when statements maintained a similar bridging value with the new cluster and featured a spanning analysis equal to or higher than the former cluster. Although the individual moves outlined in Figure 4.5 seemed to be extensive, the moves were executed in groups. For example, the meaning of small groups of statements in some clusters actually best aligned with the meaning of statements in a neighboring cluster, in this case the small group of statements was relocated to the neighboring cluster and the cluster boundary re-drawn. Understanding the meaning behind the points and statements was critical for the researcher to supplement the quantitative analyses that informed the generation of the final point cluster map.

Figure 4.5 - Re-Drawing Cluster Boundaries
Individual Moves:
Point 83 moved from cluster 1 to adjacent cluster 2 because meaning more similarly to cluster 2
Point 49 moved from cluster 2 to adjacent cluster 3 because meaning more similarly to cluster 3
Point 18 moved from cluster 3 to adjacent cluster 4 because meaning more similarly to cluster 4
Point 56 moved from cluster 6 to adjacent cluster 4 because meaning more similarly to cluster 4
Group 1 Moves:
Point 25 moved from cluster 9 to adjacent cluster 8 because meaning more similarly to cluster 8*
Point 63 moved from cluster 9 to adjacent cluster 8 because meaning more similarly to cluster 8*
Group 2 Moves:
Point 9 moved from cluster 5 to adjacent cluster 6 because meaning more similarly to cluster 6
Point 68 moved from cluster 5 to adjacent cluster 6 because meaning more similarly to cluster 6
Point 58 moved from cluster 5 to adjacent cluster 6 because meaning more similarly to cluster 6
Point 70 moved from cluster 5 to adjacent cluster 6 because meaning more similarly to cluster 6
Point 40 moved from cluster 5 to adjacent cluster 6 because meaning more similarly to cluster 6
Point 32 moved from cluster 5 to adjacent cluster 6 because meaning more similarly to cluster 6
Group 3 Moves:
Point 17 moved from cluster 7 to adjacent cluster 8 because meaning more similarly to cluster 8
Point 14 moved from cluster 7 to adjacent cluster 8 because meaning more similarly to cluster 8
** Group 1 Moves eliminated the 9th cluster to make the finalized number of clusters 8 in total.*

Figure 4.5. Steps taken in re-drawing cluster boundaries.

Of note, among the eight final clusters, the lowest bridging index values observed included “Personally Choosing Sport over School” (0.12), “Health Detriments from Sport Affecting School” (0.21), and “Learning Non-Sport Skills from my Coach” (0.37). These

lower values indicated more narrowly focused thematic content, which was also visually evidenced by the density of statements and compactness of these clusters on the point cluster map (Kane & Trochim, 2007). For reference, the bridging values for each statement and the average bridging value of the statements in each cluster are displayed in Table 4.5 in the next section.

Rating Activity Results

Quantifying the perceived value of the 88 statements came from the rating activities performed by Cohort B. Below, Table 4.5 displays the rating averages for both the perceived influence and frequency of experience ratings for each of the 88 statements, as well as the averages for each cluster. The rating values for the perceived influence rating ranged from a low of 2.08 to a high of 4.53 on the statement level and low of 2.36 to a high of 4.05 on the cluster level. The rating values for the frequency of experience rating ranged from a low of 1.25 to a high of 4.56 on the statement level and a low of 2.32 to a high of 4.11 on the cluster level.

Table 4.5 - Rating Averages by Cluster

Cluster	#	Statement	Influence Rating	Frequency Rating	Bridging Index
1. Supportive Teammate Interaction			**3.94**	**3.51**	**0.63**
	1	I learned how to work together with teammates	4.53	4.47	0.54
	3	I became friends with my teammates	4.40	4.40	0.54
	7	my teammates were choosing to go to college after high school	4.31	4.33	0.64
	79	I built self-confidence because my teammates believed in me	4.27	3.84	0.54
	8	I was put into a leadership position on the team	4.18	3.72	0.59
	21	I was surrounded with teammates that were successful in school	4.04	3.82	0.57
	37	I had more team responsibilities as a team leader	4.00	3.83	0.61
	65	my team was a support system at school	3.86	3.34	0.65
	4	I realized that my classmates depended on me for projects like my teammates depended on me on the field	3.81	3.74	0.58
	81	I met people on my team that I could form study groups with	3.61	2.78	0.72
	57	the upperclassmen on the team provided academic advice on classes	3.58	2.86	0.62
	72	my teammates were helpful during exam time	3.51	2.61	0.67
	24	my teammates tutored me in classes	3.12	1.92	0.95
2. Characteristics from Sport Translating to School			**3.98**	**3.61**	**0.51**
	47	I got into a habit of being on time	4.46	4.45	0.43
	80	sports participation kept me in a stable routine	4.36	4.17	0.46

62	I could put sports participation on high school "resume" in applying to colleges	4.28	4.38	0.48
22	sports participation helped relieve school stress	4.23	3.98	0.48
52	I learned to be respectful to my teachers by having to be respectful to my coaches	4.21	3.98	0.49
83	I felt confident in school when my non-athletic friends looked up to me	4.12	3.68	0.61
44	I was able to use my excess energy outside the classroom on sports	4.04	3.80	0.51
46	working hard in sports made me want to work hard in school	4.04	3.47	0.40
15	I was competitive in the classroom from being competitive in sports	3.72	3.26	0.45
35	meeting challenges in sports encouraged me to take challenging classes	3.69	3.16	0.42
28	I became open to going to colleges that were further away from traveling for sports	3.31	2.59	0.77
43	I looked at more colleges that might allow me to play sports in college	3.25	2.57	0.66
3. Balancing School and Sport Commitments		**3.76**	**3.69**	**0.48**
49	I had to time manage well around sports and school commitments	4.21	4.45	0.47
50	I had to balance the workloads of both school and sports	4.03	4.56	0.48
61	I brought my school work with me to sports competitions	3.57	3.03	0.49
29	my focus shifted more towards academics due to an injury	3.21	2.71	0.49
4. Abiding by School Rules and Requirements		**4.05**	**4.11**	**0.45**
73	I had to adhere to team rules and school rules to participate	4.22	4.49	0.48
51	I had to maintain a certain GPA to be eligible to compete	4.14	4.31	0.42
48	I had to attend class daily to be eligible to play	4.13	3.96	0.43
41	the whole team had to keep a good GPA	3.97	3.75	0.48
18	I was held to the same school standards as non-athlete students	3.94	4.50	0.49
56	we were not allowed to practice unless we were passing our classes	3.87	3.63	0.43
5. Learning Non-Sport Skills from my Coach		**3.80**	**3.36**	**0.37**
27	my coach taught me to stay calm and focused to perform my best	4.21	3.79	0.36
66	I was kept accountable by my coaches	4.10	4.13	0.34
19	my coaches taught me how to set goals	4.07	3.79	0.34
78	my coaches taught me about perseverance	3.95	3.74	0.36
45	my coach had extremely high school spirit	3.65	3.41	0.38
76	proper study habits were instilled by my coaches	3.42	2.30	0.34
13	my coach connected me with former students that were now in college	3.20	2.38	0.49
6. Coaches Valuing School Performance		**3.50**	**2.85**	**0.44**
9	my coach was supportive of my academics	4.36	4.33	0.33
70	my coach encouraged the team to put academics first	4.01	3.72	0.31
40	my coaches talked about the importance of college	3.73	3.25	0.38
20	my coach factored class attendance into playing time decisions	3.70	3.24	0.36
6	I was able to miss practice to take after school tests	3.61	3.53	0.62
11	my coach communicated with my teachers	3.53	2.73	0.42
36	my coach factored academic performance into playing time decisions	3.51	2.83	0.38
32	my coach informed the team about academic college scholarships	3.41	2.40	0.39
58	my parents interacted with my coach	3.38	2.87	0.56
68	my coach made us allocate study time in our schedules	3.30	2.33	0.34
10	my coach had mandatory weekly study hours	3.22	2.01	0.38
54	I had a coach that was also my teacher	3.16	2.51	0.56
23	I would have harder workouts from my coach if I was not doing my best in class	3.04	2.12	0.61
33	I was verbally confronted by my coach for not doing my best in class	3.04	1.98	0.57
7. Personally Choosing Sport over School		**2.36**	**2.32**	**0.12**
71	sports participation required me to get an extension on assignments	2.79	2.06	0.27
64	my coach did not allow us to do homework on the bus after a competition loss	2.52	1.25	0.57
60	I would think about my sport rather than my school work	2.45	2.64	0.03
31	I had to miss class for sport commitments	2.44	2.65	0.10

67	I felt that I did not have enough time to complete assignments due to participating in sports	2.41	2.83	0.00
42	my coach did not allow participation in other after-school activities at school that interfered with practice	2.40	2.56	0.50
88	I had to make up assignments that I missed due to sports participation	2.36	2.66	0.04
86	I was unable to go see teachers after school	2.35	2.19	0.07
12	I participated in sports instead of preparing for a standardized test	2.33	2.36	0.01
5	I skipped class to watch a sports event	2.30	1.42	0.00
34	I spent time at sports rather than studying	2.29	2.70	0.08
55	I had less time to study because of sports commitments	2.29	3.32	0.09
16	I mostly focused on sports over schoolwork	2.24	2.26	0.03
2	I missed taking a standardized test for a championship game	2.22	1.34	0.05
30	I had a hard time completing my homework because of time spent at sports	2.16	2.82	0.01
87	I did not do my homework because of sports participation	2.15	2.10	0.01
8. Health Detriments from Sport Affecting School		**2.38**	**2.45**	**0.21**
63	I had to lose or gain weight for my sport	2.78	2.21	0.58
84	I had to take my tests differently due to a sports injury	2.59	1.45	0.16
69	it was hard to concentrate in class due to a sports injury	2.49	2.05	0.07
59	sports participation prevented having a job during high school to pay for college	2.45	3.17	0.33
38	I had to miss class for a sports injury	2.45	2.01	0.04
82	I participated less in class because I was tired from sports participation	2.40	2.18	0.04
53	participating in sports consumed too much energy	2.39	2.67	0.18
25	teammates tried to influence inappropriate substances	2.37	1.73	1.00
26	I went to bed late from doing schoolwork after sports	2.34	3.85	0.12
39	I did not have time to do other after-school activities	2.34	3.08	0.17
17	I would have to stay up late to finish homework after practice	2.32	3.90	0.14
77	I slept through class because I was tired from sports participation	2.30	2.02	0.01
75	I felt stressed at school because of my coach	2.27	2.00	0.31
85	it was hard to focus in the classroom on the day of a competition	2.27	2.49	0.06
74	coaching issues were a distraction at school	2.18	1.95	0.19
14	I was so tired after sports participation that I could not concentrate in school the next day	2.08	2.47	0.02

Note. The clusters are presented in numerical order by cluster identification number. Statements within each cluster are presented from highest to lowest values in regard to the mean *Influence Rating* value. The statement number corresponds to its placement on the point map and cluster maps.

The Concept Systems Global MAX software was used to generate a variety of maps and displays to further illustrate the implications of the rating results. In the following sections, the rating data is used as the foundation for the cluster rating map, pattern match comparisons, and go-zone displays.

Cluster rating map. First, Figure 4.6 depicts a three-dimensional cluster rating map to visually compare the perceived influence of experiences associated with high school athletic participation. The cluster rating map displays the rating data for each cluster in three-dimensional space, using a cluster layering effect in which layers are used to represent the cluster's influence in relation to the other clusters. The cluster rating map

features a different number of layers applied to each cluster to visually indicate the rating means of the clusters. In Figure 4.6 on the next page, the cluster legend can be referenced to see which range of rating means correspond to the number of layers displayed for each cluster. The number of layers were determined by which percentile the mean rating of a cluster belongs to within the range of mean ratings. For example, a cluster with one layer would have a mean rating that fell between the 1st – 20th percentile, while a cluster with five layers would have a mean rating that fell between the 81st – 100th percentile. In Figure 4.6, clusters one, two, three, four, and five are represented by five layers, cluster six is represented by four layers, and clusters seven and eight are represented by one layer. The divide represented by the gap of no clusters featuring either two or three layers creates a distinct visual of which clusters are perceived to have a positive influence and which are perceived to have a negative influence. For reference, when the researcher created a cluster rating map specific to the male and the female participant samples to examine subgroup differences, the layering display was identical between both the male and female cluster rating maps and the present cluster rating map displayed in Figure 4.6 for all participants. The identical layering displays of the three cluster rating maps described in the previous sentence supports the gender similarities hypothesis of Hyde (2005) that was introduced in Chapter Two and will be further discussed in Chapter Five.

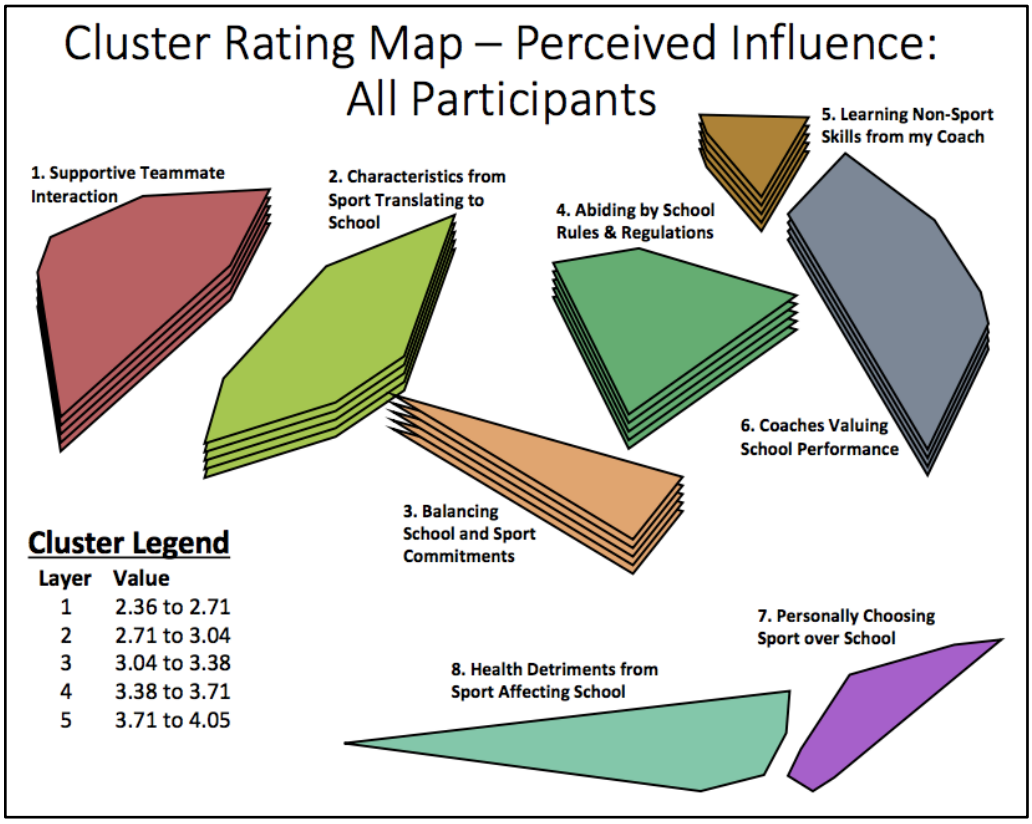


Figure 4.6. Cluster rating map for perceive influence rating, all participants (n=100).

Of interest, the top three rated clusters all featured five layers on the cluster rating map. This top tier was comprised of *Cluster 4 - Abiding by School Rules & Regulations* (4.05), *Cluster 2 - Characteristics from Sport Translating to School* (3.98), and *Cluster 1 - Supportive Teammate Interaction* (3.94). A rating score of "4" on the Likert rating scale used by participants to rate the perceived influence of experiences represented a "Somewhat Positive" rating. With the top three rated clusters all averaging within 0.06 of a rating score of "4", it was concluded that these top three clusters all represented experiences that consistently somewhat positively influenced the educational outcomes of Cohort B participants.

The next tier of clusters for perceived influence rating included clusters with both five and four layers. These clusters included *Cluster 5 - Learning Non-Sport Skills from*

my Coach (3.80, five layers), *Cluster 3 - Balancing School and Sport Commitments* (3.76, five layers), and *Cluster 6 - Coaches Valuing School Performance* (3.50, four layers). The lowest tier of clusters for the perceived influence rating included *Cluster 8 - Health Detriments from Sport Affecting School* (2.38, one layer) and *Cluster 7 - Personally Choosing Sport over School* (2.36, one layer). A rating score of "2" on the Likert rating scale used by participants to rate the perceived influence of experiences represented a "Somewhat Negative" rating. With the lowest tier of two clusters each averaging just above a rating score of "2", it can be concluded that these clusters each represented experiences that consistently somewhat negatively influenced the educational outcomes of Cohort B participants.

To more simply visualize the specific experiences that were highest and lowest rated for both the perceived influence rating and the frequency of experience rating, Tables 4.6 through 4.9 were compiled and are displayed below and on the next page. As will be referenced in Chapter Five, Tables 6.6 thought 4.9 could prove to be essential quick-reference tools for school administers and school leaders. The tables clearly list the statements that were rated in the top ten and bottom ten for each rating variable. Important to note is that the ratings among the ranked statements were actually very similar. For this reason the complete lists of ranked statements for the perceived influence and frequency of experience variables can be found in Appendix L and Appendix M, respectfully. Although not as simple of a quick-reference, the complete list tables display allow for all statements to be recognized in ranked order from highest to lowest.

On the following pages, Tables 4.6 through 4.9 also display the corresponding rating averages and ranks for each statement by gender for a visual display of how most

statements rank in the top or bottom ten similarly for both genders, also supporting the gender similarities hypothesis of Hyde (2005).

Table 4.6 – Perceived Influence Rating - Ten Highest Rated Statements

		ALL (n=100)		MALE (n=50)		FEMALE (n=50)	
	Statement	**Rank**	**Rating**	**Rank**	**Rating**	**Rank**	**Rating**
1	I learned how to work together with teammates (1)	**1**	4.53	1	4.48	1	4.58
2	I got into a habit of being on time (47)	**2**	4.46	2	4.38	2	4.54
3	I became friends with my teammates (3)	**3**	4.40	3	4.36	3	4.44
4	Sports participation kept me in a stable routine (80)	**4***	4.36	5	4.32	5	4.40
5	My coach was supportive of my academics (9)	**4***	4.36	3	4.36	7	4.36
6	My teammates were choosing to go to college after high school (7)	**6**	4.31	6	4.24	6	4.38
7	I could put sports participation on high school "resume" in applying to colleges (62)	**7**	4.28	10	4.12	3	4.44
8	I built self-confidence because my teammates believed in me (79)	**8**	4.27	7	4.18	7	4.36
9	Sports participation helped relieve school stress (22)	**9**	4.23	7	4.18	13	4.28
10	I had to adhere to team rules and school rules to participate (73)	**10**	4.22	11	4.10	10	4.34

Note. * indicates statements that were tied in ranking of all participants due to an equal rating average.

Table 4.7 – Perceived Influence Rating - Ten Lowest Rated Statements

		ALL (n=100)		MALE (n=50)		FEMALE (n=50)	
	Statement	**Rank**	**Rating**	**Rank**	**Rating**	**Rank**	**Rating**
1	I was so tired after sports participation that I could not concentrate in school the next day (14)	**1**	2.08	2	2.12	2	2.04
2	I did not do my homework because of sports participation (87)	**2**	2.15	8	2.28	1	2.02
3	I had a hard time completing my homework because of time spent at sports (30)	**3**	2.16	8	2.28	2	2.04
4	Coaching issues were a distraction at school (74)	**4**	2.18	8	2.28	4	2.08
5	I missed taking a standardized test for a championship game (2)	**5**	2.22	1	2.12	16	2.32
6	I mostly focused on sports over schoolwork (16)	**6**	2.24	4	2.16	16	2.32
7	I felt stressed at school because of my coach (75)	**7***	2.27	17	2.40	6	2.14
8	It was hard to focus in the classroom on the day of a competition (85)	**7***	2.27	8	2.28	13	2.26
9	I spent time at sports rather than studying (34)	**9***	2.29	6	2.24	19	2.34
10	I had less time to study because of sports commitments (55)	**9***	2.29	18	2.44	6	2.14

Note. * indicates statements that were tied in ranking of all participants due to an equal rating average.

Table 4.8 - Frequency of Experience Rating - Ten Highest Rated Statements

		ALL (n=100)		MALE (n=50)		FEMALE (n=50)	
	Statement	**Rank**	**Rating**	**Rank**	**Rating**	**Rank**	**Rating**
1	I had to balance the workloads of both school and sports (50)	**1**	4.56	8	4.30	1	4.82
2	I was held to the same school standards as non-athlete students (18)	**2**	4.50	1	4.52	6	4.48
3	I had to adhere to team rules and school rules to participate (73)	**3**	4.49	4	4.38	3	4.60
4	I learned how to work together with teammates (1)	**4**	4.47	2	4.44	5	4.50
5	I had to time manage well around sports and school commitments (49)	**5**	4.45	9	4.22	2	4.68
6	I became friends with my teammates (3)	**6**	4.40	3	4.42	9	4.38
7	I could put sports participation on high school "resume" in applying to colleges (62)	**7**	4.38	5	4.36	8	4.40
8	My teammates were choosing to go to college after high school (7)	**8**	4.33	12	4.12	4	4.54
9	My coach was supportive of my academics (9)	**8**	4.33	7	4.32	10	4.34
10	I got into a habit of being on time (47)	**10***	4.31	10	4.16	7	4.46
11	I had to maintain a certain GPA to be eligible to compete (51)	**10***	4.31	6	4.34	12	4.28

Note. * indicates statements that were tied in ranking of all participants due to an equal rating average.

Table 4.9 - Frequency of Experience Rating - Ten Lowest Rated Statements

	Statement	ALL (n=100)		MALE (n=50)		FEMALE (n=50)	
		Rank	Rating	Rank	Rating	Rank	Rating
1	My coach did not allow us to do homework on the bus after a competition loss (64)	**1**	1.25	1	1.26	1	1.24
2	I missed taking a standardized test for a championship game (2)	**2**	1.34	2	1.32	2	1.36
3	I skipped class to watch a sports event (5)	**3**	1.42	3	1.36	4	1.48
4	I had to take my tests differently due to a sports injury (84)	**4**	1.45	4	1.48	3	1.42
5	Teammates tried to influence inappropriate substances (25)	**5**	1.73	9	1.98	4	1.48
6	My teammates tutored me in classes (24)	**6**	1.92	9	1.98	7	1.86
7	Coaching issues were a distraction at school (74)	**7**	1.95	6	1.86	11	2.04
8	I was verbally confronted by my coach for not doing my best in class (33)	**8**	1.98	11	2.02	9	1.94
9	I felt stressed at school because of my coach (75)	**9**	2.00	5	1.70	18	2.30
10	My coach had mandatory weekly study hours (10)	**10***	2.01	11	2.02	10	2.00
11	I had to miss class for a sports injury (38)	**10***	2.01	6	1.86	15	2.16

Note. * indicates statements that were tied in ranking of all participants due to an equal rating average.

Pattern Matches Comparisons

When comparing the mean perceived influence and frequency of experience ratings for the eight clusters, the degree of consensus between the compared variables was extremely high across nearly all pattern match comparisons. Most notably, a high degree or nearly perfect degree of consensus was discovered in the Pearson product-moment correlation coefficients when comparing the distribution of cluster means across male and female participants of Cohort B (*Influence r=1.00; Frequency r=0.97*), as well when comparing the distribution of cluster means by the family income of participants from the upper third and lower third of Cohort B (*Influence r=1.00; Frequency r=0.95*). These pattern match comparisons highlight the most notable pattern match findings due to their perfect or nearly perfect correlation coefficients (r-values) as well as their respective higher and equal or nearly equal number of participants (n-values) in each comparison category relative to over variable comparison categories. A total of 22 other pattern match comparisons were produced, nearly all generating correlation coefficients above r=0.90, before the researcher determined the gender and family income comparisons to be the most noteworthy pattern match comparisons from the data of the present study.

The aforementioned pattern matches are displayed below and on the following pages in Figures 4.7 through 4.10. These pattern matches are all displayed using relative as opposed to absolute scales. These scales range from the minimum rating score to the maximum rating score for the selected variable rather than on an absolute scale from the lowest possible rating of "1" to the highest possible rating of "5". Kane and Trochim (2007) noted that relative pattern match displays were more effective for visually detecting similarities or differences between groups than were absolute displays. In the comparisons displayed below, the relative scales best illustrated the respective correlation coefficients by displaying a perfect or nearly perfect positive correlation between the distributions of the selected rating variables.

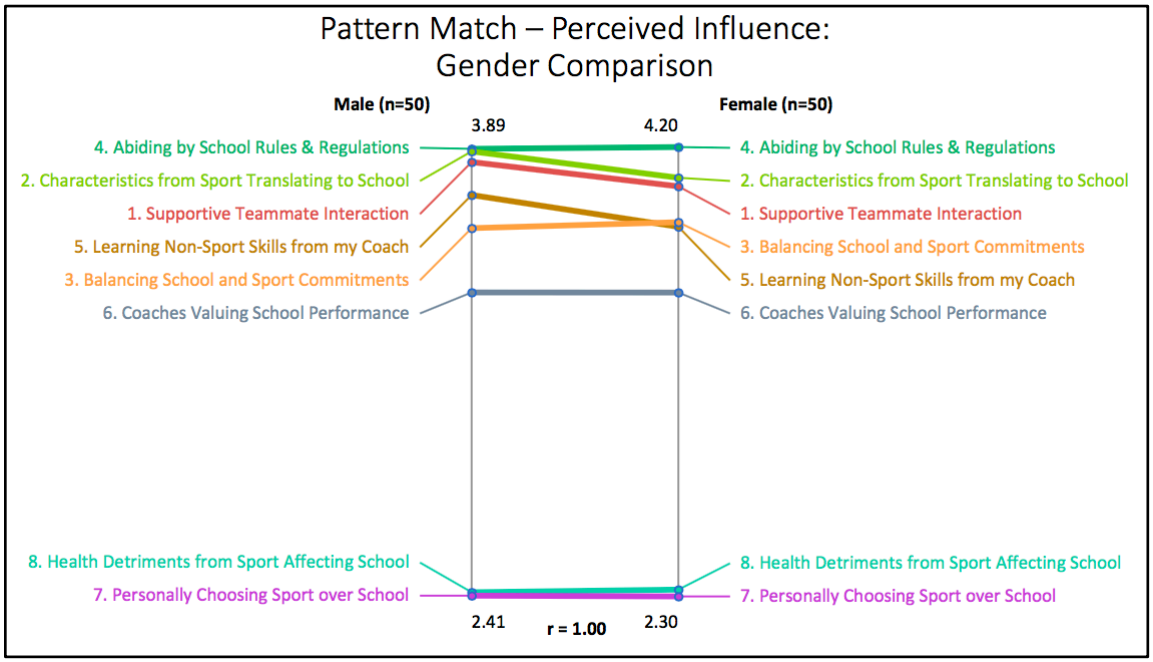


Figure 4.7. Pattern match display for perceive influence rating, gender comparison.

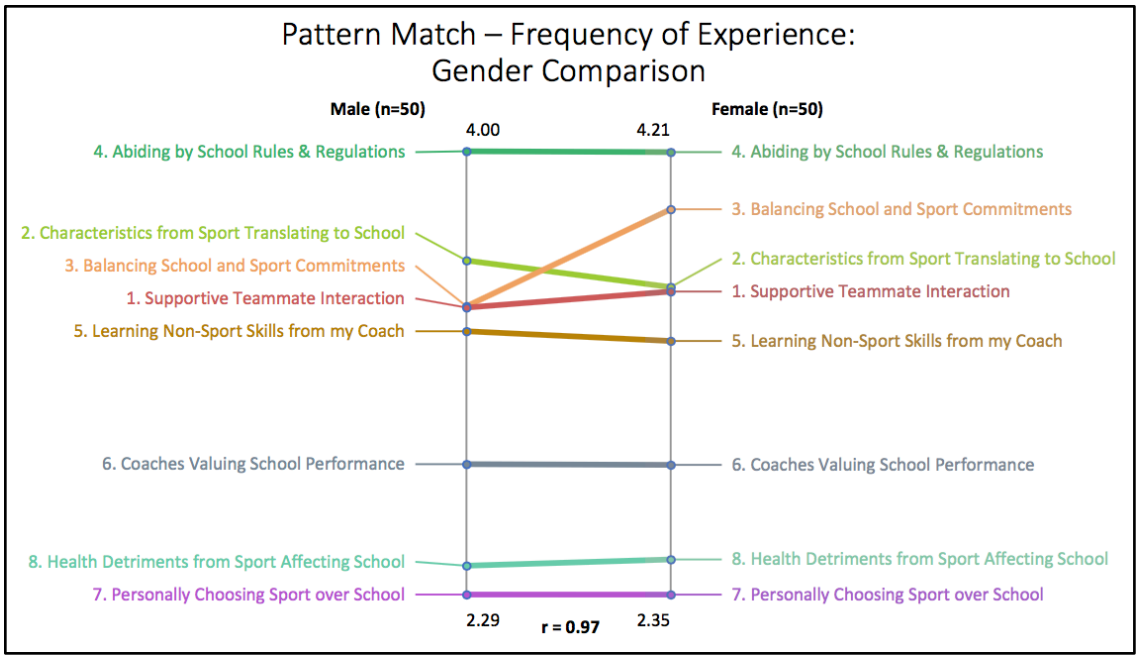


Figure 4.8. Pattern match display for frequency of experience rating, gender comparison.

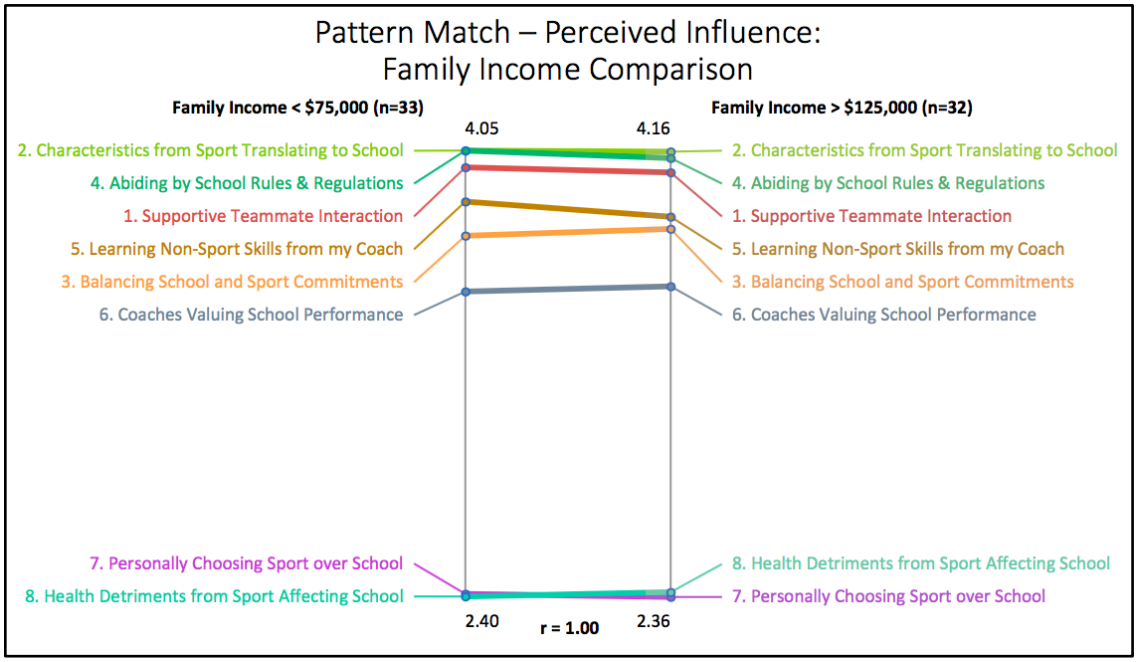


Figure 4.9. Pattern match display for perceive influence rating, family income comparison.

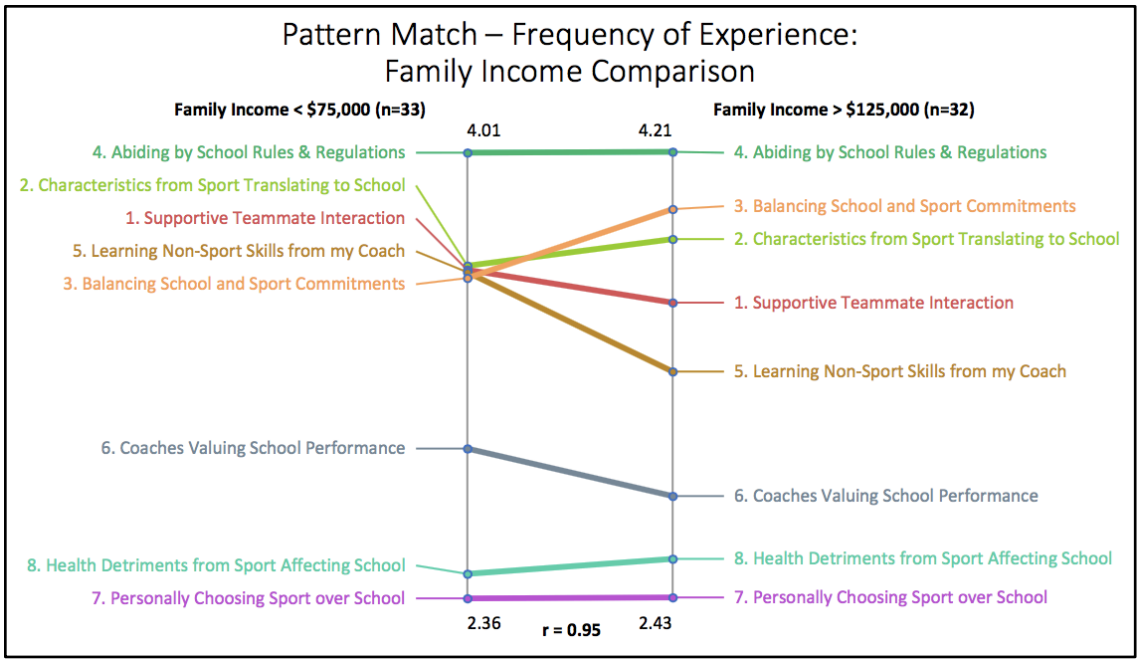


Figure 4.10. Pattern match display for frequency of experience rating, family income comparison.

Go-Zone Displays

The pattern match displays were useful for comparisons on the *cluster* level. To dig deeper, the researcher also utilized the Concept Systems Global MAX software to generate go-zone displays to better determine similarities and differences in the data on the *statement* level. Whereas the pattern match displays compared the eight thematic clusters by mean rating averages for each cluster, the go-zone displays plotted all 88 statements on an X-Y graph by mean rating averages of the variables represented on the x-axis and y-axis, respectfully. The go-zone displays also incorporated quadrants on the graph, partitioned by the mean values of the variable on the x-axis and the variable on the y-axis.

The traditional "go-zone" on a go-zone display is the upper right quadrant in which any plotted statements have mean ratings above average for both of the variables. The go-zone display from the present study highlighted in Figure 4.11 on the next page

compares the perceived influence and frequency of experience rating variables of the 88 statements. A total of 23 go-zones were generated by the researcher, with the go-zone displayed in Figure 4.11 determined to best visually represent notable findings on the statement level. Go-zones for other variables, including gender, generated displays that were similar to and supported the pattern match findings. The relationship between the perceived influence mean ratings and the frequency of experience mean ratings was not conducive to a pattern match comparison due to the variable rating key scales representing different meanings, therefore the go-zone was best for illustrating the comparison between these variables.

Figure 4.11 features 37 statements in the traditional "go-zone", the upper right quadrant. These 37 statements represented experiences that were perceived to hold above average influence and to occur at an above average rate – which for the most part represented experiences that were already being implemented well in both policy and practice. However, more important to the present study was the use of concept mapping, and specifically the go-zone display, to identify areas of needed improvement for policy and practice. Therefore, for the purposes of the present study, the upper left and lower right quadrants of the go-zone display were designated as the "go-zones" because these quadrants highlighted those statements with discrepancies in their ratings, being plotted above the mean for one variable and below the mean for the other variable.

Figure 4.12 on the next page lists the five statements that were identified in the upper left and the eleven statements that were identified in the lower right quadrants. Explanation of the implications and interpretation of these findings will be elaborated upon in the discussion section of Chapter Five.

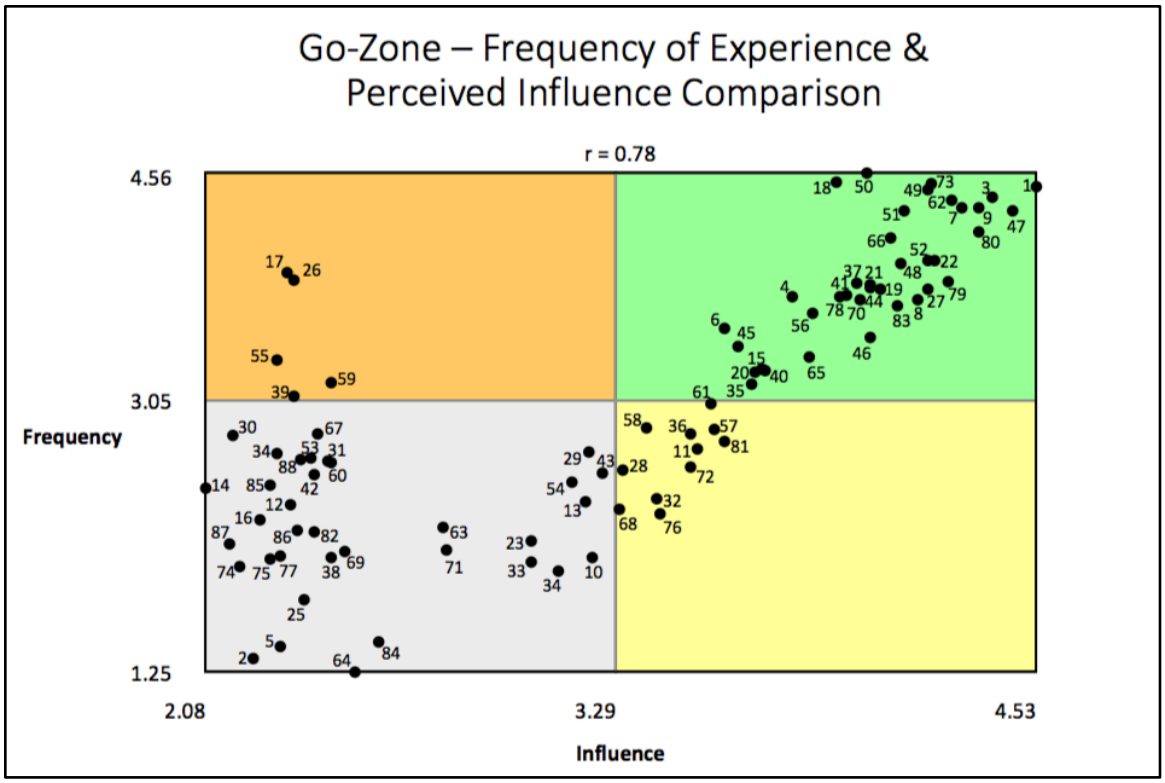


Figure 4.11. Go-zone display comparing the frequency of experience and perceived influence rating averages for all participants (n=100).

Experiences Rated BELOW Average Influence & ABOVE Average Frequency

17. I would have to stay up late to finish homework after practice
26. I went to bed late from doing schoolwork after sports
39. I did not have time to do other after-school activities
55. I had less time to study because of sports commitments
59. Sports participation prevented having a job during high school to pay for college

Experiences Rated ABOVE Average Influence & BELOW Average Frequency

11. My coach communicated with my teachers
28. I became open to going to colleges that were further away from traveling for sports
32. My coach informed the team about academic college scholarships
36. My coach factored academic performance into playing time decisions
57. The upperclassmen on the team provided academic advice on classes
58. My parents interacted with my coach
61. I brought my school work with me to sports competitions
68. My coach made us allocate study time in our schedules
72. My teammates were helpful during exam time
76. Proper study habits were instilled by my coaches
81. I met people on my team that I could form study groups with

Figure 4.12. Lists of statements from the designated "go-zones" in Figure 4.11.

Post Hoc Analyses

With the gender findings that were discovered appearing to adhere to the gender similarities hypothesis through both the cluster rating map, pattern match comparisons, and go-zone displays, it was determined that a post-hoc analysis be conducted to distinguish statement rating distributions that differed significantly from each other when comparing the rating distributions of male participants to the rating distributions of female participants. The researcher utilized IBM SPSS Software Version 22.0 for the post-hoc analysis. The Mann-Whitney U test for nonparametric data was utilized for statistical significance testing as the data was determined to not be normally distributed. To avoid the likelihood of inflating Type I error, a Bonferroni correction was applied to account for the null and alternative hypothesis; therefore, statistical significance was set at $p \leq .025$ (.05/2 = .025). Lastly, the effect size of difference for statements that differed significantly was calculated by $r = Z/\sqrt{N}$ and interpreted as suggested by Sullivan and Feinn (2012) using the parameters of Cohen (1988), with r=0.2 representing a small effect, r=0.5 representing a medium effect, and r=0.8 representing a large effect. These statistical tests were conducted on the rating distributions for both the perceived influence ratings and the frequency of experience ratings for all 88 statements.

On the next page, Table 4.10 and Table 4.11 display the statements for both the perceived influence ratings and the frequency of experience ratings that were determined to differ significantly between genders. Specifically, statistically significant differences between males and females were only observed for three of the 88 statements for the perceived influence rating and twelve of the 88 statements for the frequency of experience rating. Thus, these findings revealed that the gender groups agreed on the

perceived influence ratings for 96.6% of the 88 statements and agreed on the frequency of experience rating for 86.4% of the 88 statements. Explanation of the significance and interpretation of these findings will be elaborated upon in the discussion section of Chapter Five.

Table 4.10 - Male – Female Statistically Significant Statements – Perceived Influence Rating

Cluster	Statement	MALE (n=50) M	MALE (n=50) SD	FEMALE (n=50) M	FEMALE (n=50) SD	*r*
6	My coach factored academic performance into playing time decisions (36)	3.22*	1.11	3.80	1.07	0.26
3	I brought my school work with me to sports competitions (61)	3.32*	0.98	3.82	1.00	0.24
7	I was unable to go see teachers after school (86)	2.62*	1.03	2.08	0.90	0.27

Note. * p < .025, ** p < .001; Abbreviations: M = mean, SD = standard deviation, *r* = effect size of difference

Table 4.11 - Male – Female Statistically Significant Statements – Frequency of Experience Rating

Cluster	Statement	MALE (n=50) M	MALE (n=50) SD	FEMALE (n=50) M	FEMALE (n=50) SD	*r*
1	My teammates were choosing to go to college after high school (7)	4.12*	0.77	4.54	0.71	0.27
8	I would have to stay up late to finish homework after practice (17)	3.62*	1.10	4.18	0.92	0.27
1	I was surrounded with teammates that were successful in school (21)	3.58*	0.86	4.06	0.74	0.29
8	Teammates tried to influence inappropriate substances (25)	1.98*	1.17	1.48	1.07	0.22
8	I went to bed late from doing schoolwork after sports (26)	3.58*	1.16	4.12	1.00	0.24
4	The whole team had to keep a good GPA (41)	3.48*	1.28	4.02	1.19	0.21
4	I had to attend class daily to be eligible to play (48)	3.62*	1.52	4.30	1.25	0.24
2	I had to time manage well around sports and school commitments (49)	4.22*	1.00	4.68	0.68	0.26
3	I had to balance the workloads of both school and sports (50)	4.30**	0.93	4.82	0.56	0.32
3	I brought my school work with me to sports competitions (61)	2.34**	1.33	3.72	1.20	0.48
8	I had to lose or gain weight for my sport (63)	2.60*	1.67	1.82	1.24	0.26
1	My teammates were helpful during exam time (72)	2.32*	1.19	2.90	1.27	0.23

Note. * p < .025, ** p < .001; Abbreviations: M = mean, SD = standard deviation, *r* = effect size of difference

Summary

This chapter succinctly presented and displayed the results of the present study. First, the descriptive statistics of the participants were presented. Then, the point, point cluster, and cluster rating maps were generated; followed by the pattern match comparisons and go-zone displays. Table 4.5 was utilized to easily view rating averages of statements, with more specific tables to display the highest and lowest rated statements and statements of statistical significance presented as well.

The next chapter examines the most notable results of the present study, elaborating on the interpretation of the results and the applicability of the results to leaders in education.

Chapter Five

Introduction

This chapter serves to bring to life and explain the data-dense results presented in the previous chapter. The following sections present the findings of the present study in a tangible and applicable manner for the interpretation and hopeful implementation by education professionals. First, the research questions and the gaps in existing research that provided the foundation for the present study will be answered and addressed. Following, the applicability of the theoretical perspective and conceptual framework will be explained, informing the discussion and elaboration upon the applicability to policy and practice of the most notable findings. Lastly, future directions for research within the interscholastic athletics domain will be suggested to build upon the present study.

Answering the Research Questions

The purpose of this study was to identify and determine the influence of high school interscholastic athletic participation experiences on the personal educational outcomes of undergraduate college students.

There were two major research questions directing this study. The questions:

As perceived and reflected upon by undergraduate college students;

1) *What experiences associated with high school interscholastic athletic participation do participants identify as influencing their educational outcomes?*

   And;

2) *How influential were the identified high school interscholastic athletic experiences on the participants' educational outcomes?*

The present study was successful in addressing both research questions. The first research question was answered through the brainstorming and idea synthesis activities of the idea generation and statement structuring phases of the concept mapping process. These activities yielded 88 unique statements identified by the participants as experiences associated with high school athletic participation that influenced their personal educational outcomes. The second research question was addressed via the perceived influence rating question that yielded average perceived influence rating scores for each of the 88 unique statements. In following the Likert scale rating key that guided participants in the rating activity, it is easy to identify which of the 88 statements were perceived to have a more negative, neutral, or positive influence on the educational outcomes of the participants. Table 4.4 and Table 4.5 in Chapter Four clearly present the data that specifically answers the two research questions that guided the study.

Qualitative Perspective and Student Voice Gaps Addressed

Two identified gaps in existing research that the present study aimed to address were a gap in the recognition of the student voice and perspective, and a gap in the use of qualitative methodological practices in this field of research. The present study was successful in addressing both gaps, utilizing the implementation of the concept mapping methodological design as the guiding foundation. The statement generation phase of the concept mapping design allowed for the qualitative practice of individualized interviews to capture the student voice of Cohort A participants. This process yielded 283 individual responses from 38 student participants that were demographically and characteristically diverse and representative of the research site and national breakdown of 7.9 million students that participate in high school interscholastic athletic programs. Exhibiting this

effective qualitative approach and incorporation of the student voice and perspective provided support for future research to better substantiate causal relationships and explain the abundance of existing correlative findings in current literature.

Foundation in Proposed Conceptual Framework and Theoretical Perspective

The findings of the study substantiate the applicability of the conceptual framework and theoretical perspectives that were the foundation for the research questions and informed the methodological procedures of the present study. The integrated theoretical and conceptual model from Chapter Two is displayed again on the next page in Figure 5.1 to highlight how the findings of the present study in the identification of experiences associated with interscholastic athletic participation can be educative or mis-educative in nature and are applicable to Dewey's theory of experience, Kolb's experiential learning theory, and Lave and Wenger's situational learning theory. The rating range of the perceived influence data in the present study from 2.08 (somewhat negative) to 4.53 (between somewhat positive and positive) is critical to understand for effective teaching, coaching, and educative practices for students that participate in high school interscholastic athletic programs as a component of the greater educational and curricular system. As will be discussed in the following section, the participant derivation of the eight thematic clusters of experiences associated with interscholastic athletic participation that were perceived to influence student educational outcomes lays the foundation for the development of a future conceptual framework more specific to the phenomenon at study.

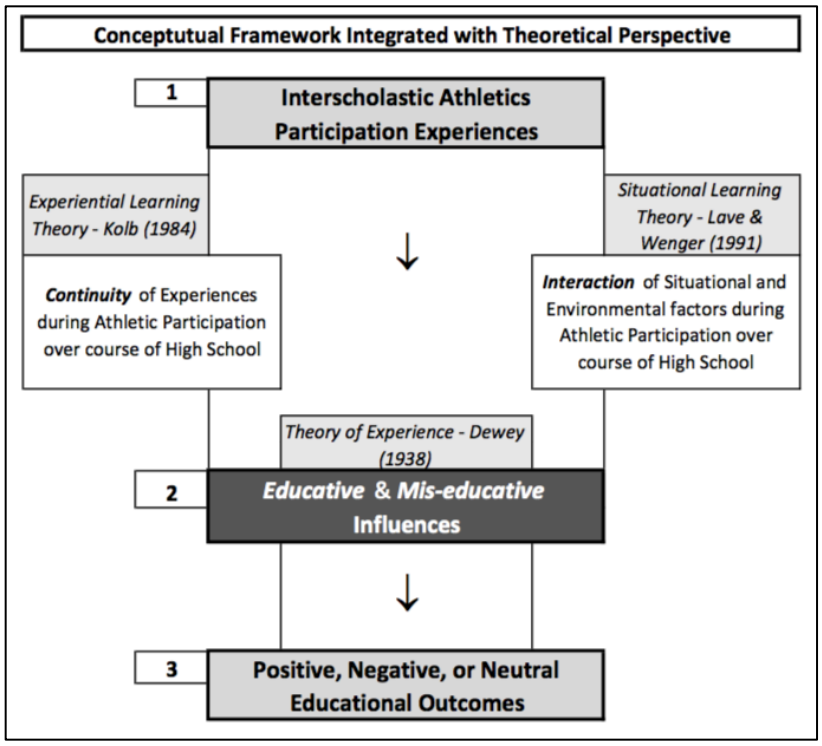


Figure 5.1. Integrated theoretical and conceptual model – identical to Figure 2.3 in Chapter Two.

Discussion

This discussion highlights the most substantial and notable findings from the present study. The most notable findings from the present study include (1) the derivation of eight thematic clusters to which high school athletic experiences that influence educational outcomes can be categorized, (2) the realization of the applicability of the gender similarities hypothesis in regard to the perceived influence of experiences associated with high school interscholastic athletic participation, and (3) the identification of discrepancies between positively and negatively perceived influential experiences and the respective occurrence of those experiences in high school environments.

This discussion also addresses findings from the present study that show promise for future research to further examine the impact of family income on the student perceptions of experiences associated with high school interscholastic athletic

participation. Expansion upon the concept of who is a school leader in regard to the present study, as well as guidelines for how school administrators and school leaders can utilize the findings of the present study in policy and practice, are discussed.

Identification of Thematic Clusters

The formation and identification of the eight thematic clusters to describe student experiences associated with interscholastic athletics participation that are perceived to influence student educational outcomes represents a major qualitative finding from the present study. Existing research has not clearly identified specific themes for the understanding of student athletic experiences, and any attempts have not been directly derived from participant responses to the degree of the present study. With this, the eight thematic clusters identified in the present study represent a framework that can be used by administrators, school leaders, and future researchers to categorize the perceptions of high school athletics participants. Given the extensiveness of the concept mapping data generation and procedures executed, as well as the overall representation of the participants, the researcher is confident that any experience associated with interscholastic athletic participation identified by a high school student should fit into one of the eight identified thematic clusters. For this reason, the identification of the eight thematic clusters is critical in pursuing and conceptualizing an understanding of the experiences of students that participate in high school interscholastic athletics and how those experiences influence student educational outcomes. The framework that the eight identified thematic clusters provide will be essential for the current work of school administrators, school leaders, and the continued efforts by future researchers.

Future application of a framework founded in the derivation of the eight thematic clusters will also be able to inform the further development of a theory specific to the influence on student educational outcomes of student experiences associated with interscholastic athletics participation. The researcher notes that several existing theories could be used to explain the interplay between the identified clusters in the present study. Further analysis of the point cluster map represented originally in Figure 4.4, and again in Figure 5.2 below, will inform further theoretical application. As many of the clusters in the point cluster map represent contextual experiences by actors within the communities of practice of the students, such as the teammates or coaches, Lave and Wenger's 1991 situational learning theory describe in Chapter Two maintains support for use in further examination of the point cluster map.

In analysis of the point cluster map, it is important to note that cluster three, *Balancing School and Sport Commitments*, ended up in the middle of the eight-cluster framework. In essence, cluster three is a bridge between all of the other clusters. This location of cluster three visually represents the actual balance point between all experiences associated with interscholastic athletics participation. Methodologically and mathematically, the location and moderate bridging index value of 0.48 indicate that the statements contained in cluster three were frequently sorted with other statements in all other clusters. The concept of balance between all student experiences and obligations and how the students perceive their abilities to balance the demands of these separate commitments could be further studied through the lens of the eight-cluster framework derived in the present study.

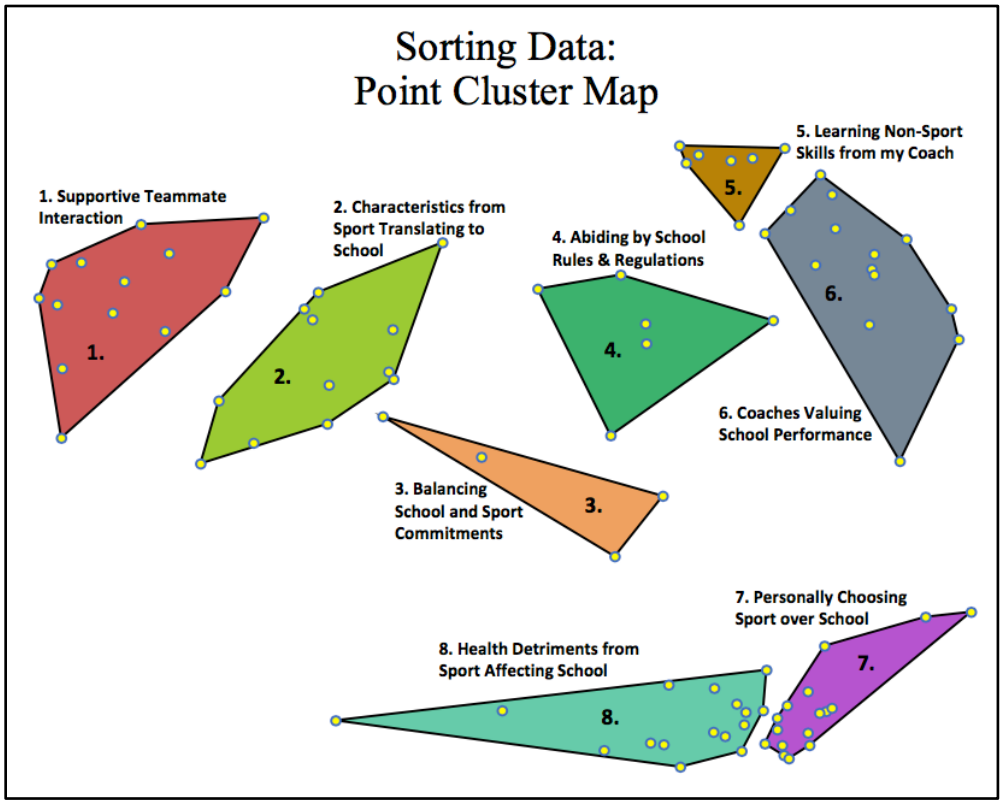


Figure 5.2. Point cluster map – identical to Figure 4.4 in Chapter Four.

As a final suggestion, further theoretical application should also look into the distance between certain clusters on the point cluster map, especially clusters that were also rated to be similarly influential. For example, cluster one and clusters five and six are located on different sides of the point cluster map. Cluster one, *Supportive Teammate Interaction*, is located far away from cluster five, *Learning Non-Sport Skills from my Coach*, and cluster six, *Coaches Valuing School Performance*. This distance between these clusters that include statements referring to influential experiences with teammates and influential experiences with coaches supports that perceived differences must exist in the conceptualization of interactions amongst peers and non-peers. Theoretical approaches to examine this perceived difference in the conceptualization of experiences specific to student-athletes, teammates, and coaches could also be further studied through the lens of eight-cluster framework derived in the present study.

Gender Similarities

The implication of the similarities between male and female participants on both the cluster and statement level represents a noteworthy finding of the present study. The similarities offer substantial insight into how similarly boys and girls perceive the influence of experiences associated with interscholastic athletic participation on their educational outcomes. On the cluster level, the correlation coefficient is reported as a perfect positive correlation of r=1.0 in the pattern match comparing the perceived influence of experiences between males and females. On the statement level, only 3.4% of the statements had rating distributions found to be statistically significantly different between male and female participants to the $p < 0.025$ level in regard to the perceived influence rating, with zero statements significantly different to the $p < 0.001$ level. The effect size of the statistically significantly different statements was also classified as small with an *r*-value ranging between 0.24-0.27. In summary, this indicated that there was greater than a 96% overlap in the distributions of the male and female participants, with the statistically significant statements only representing a marginal effect.

With these results, the gender similarities hypothesis of Hyde (2005) and recent findings of Zell, Krizan, and Teeter (2015) garner much support from the data of the present study. As discussed in Chapter Two, the gender similarities hypothesis posits that males and females are alike on most things, with some exceptions; and, in those cases, the magnitude of the difference is relatively small (Hyde, 2005). Alternatively, the gender differences hypothesis differs from the gender similarities hypothesis, in its assumption that the two genders are considerably different from one another (Gray, 1992; Jones, 1990; Tannen, 1991). Gender, along with race and age, comprise a group of primary

social indicators that influence initial perceptions and assumptions of one another (Banaji & Greenwald, 2013; Macrae & Bodenhausen, 2000). These assumptions often include that males and females differ psychologically to the same degree they differ physiologically and are commonly accepted as the basis for the gender differences hypothesis (Jones, 1990; Bem, 1981).

With the recent findings of Zell, Krizan, and Teeter (2015) discovering considerable scientific support for the gender similarities hypothesis through a large meta-synthesis evaluating gender similarities and differences, the findings of the present study are relevant in attempting to determine if boys and girls are more alike or different when it comes to how they perceive the influence of similar experiences associated with interscholastic athletics participation on their educational outcomes. The present study supports that boys and girls are substantially more alike than different in their perceptions of experiences associated with interscholastic athletics. This finding supports the cause for future research on the relationship between athletics and education as athletic program and curriculum developers that focus specifically on either working with boys or girls may have a lot to learn from each other. This will hold true especially in athletic environments where boys and girls rarely practice and compete in co-educational settings. Historically, gender stereotypes have catalogued males as competitive and task-oriented and females as cooperative and relationship-oriented (Banaji & Greenwald, 2013; Ito & Urland, 2003; Macrae & Bodenhausen, 2000; Messner, 2011; Yungblut, Schinke, & McGannon, 2012) Moving forward, a collaborative approach to coaching and teaching, rather than a siloed approach, may actually be most beneficial to the development of all children. In this way, combining coaching and teaching approaches

that are known to be successful and may have only been believed to be most effective for a specific gender of student will likely be beneficial to all students in congruence with the findings of the present study that support the gender similarities hypothesis.

Perceived Influence and Frequency of Experience Discrepancies

The most notable findings for application to policy and practice implementation by administrators at the school, district, state, and federal levels were highlighted by the identified discrepancies in the mean frequency of experience and mean perceived influence ratings on the Frequency of Experience & Perceived Influence Comparison Go-Zone displayed in Figure 4.11 in Chapter Four. Discrepancies in these ratings portrayed scenarios in which experiences that were perceived to be a positive influence were rare in occurrence, or scenarios in which experiences that produced negative perceptions were occurring more often.

Below average influence, above average frequency. Primarily, it is important to address experiences that were perceived by the study participants to have a below average influence on educational outcomes while being reported to occur at an above average rate. Decreasing the occurrence of negatively perceived experiences on a population should be the goal of administrators. In general, statements that described experiences concerning a lack of time to complete schoolwork or having to go to bed late due to completing schoolwork after sports activities were reported to occur above the average with a perceived student influence reported well below average.

As an example, Statement 17, *I would have to stay up late to finish homework after practice*, averaged a frequency rating 3.90 and an influence rating of 2.32. According to the rating scales used by the participants, referenced in Appendix I, the

mean ratings closely indicated that having to stay up late to finish homework after practice would occur often and resulted in a somewhat negative influence on the student's educational outcomes.

To address these time-related negatively perceived experiences, administrators should explore options that would ensure limitations on the maximum amount of time spent on school-sponsored athletics, provide more time for students to complete assignments, as well as educating students on how to best manage large influxes of schoolwork. Administrators, specifically athletic directors, should work to ensure that parameters that are in place to limit the amount of time students spend in school-based athletic programs are enforced and monitored. Athletic scheduling is also something to monitor, limiting competitions that are further away to reduce the amount of travel time to away competitions. From an academic logistical stance, schools may elect to have block class schedules that do not repeat the same classes every day. This model operates more like a higher education institution in which the same classes are not held on back-to-back days, allowing for more time for assignment completion (Canady & Rettig, 1995). This type of model does not substitute the need for better education on the best practices for completing large amounts of schoolwork and how to effectively utilize opportunities designated for schoolwork, such as study halls or free periods. Relevantly, as will be discussed in the next section, learning proper academic habits from coaches and teammates was perceived to be a positive influence on educational outcomes – indicating that that coaches and teammates should be great actors in the widespread education of proper and effective study habits.

Above average influence, below average frequency. Expanding upon the findings in the previous section, it is important to secondarily address experiences that were perceived by the study participants to have an above average influence on educational outcomes while being rated to have a below average occurrence. Increasing the occurrence of experiences found to have a positive influence on educational outcomes should also be a goal of administrators. In general, statements that described experiences in which a coach or teammate was encouraging towards or advised on beneficial academic habits or opportunities were reported to occur below the average with a perceived influence reported above average.

As examples, Statement 57, *the upperclassmen on the team provided academic advice on classes*, averaged a frequency rating 2.86 and an influence rating of 3.58; and Statement 76, *proper study habits were instilled by my coach*, averaged a frequency rating 2.30 and an influence rating of 3.42. According to the rating scales used by the participants, referenced in Appendix I, the mean ratings indicated that these experiences would occur between rarely and sometimes while resulting in a perceived influence in between neutral and somewhat positive on the student's educational outcomes.

To address these academic encouragement experiences, less substantial, yet habitual, changes are proposed for administrators. Most of these experiences highlight the frequent, yet potentially unconscious, lapses in adherence to the goal of athletic participation as part of a school environment in being a supplemental aid in the overall educational development of a student. Administrators must make it known that coaches need to exhibit encouragement and awareness towards the academics of their student-athletes, which should in turn result in greater encouragement and awareness towards

academics amongst teammates. Data from the present study indicates that simple actions, such as a coach vocally reminding students to bring schoolwork on a long bus trip; or asking about a student's college plans, may go a long way. All too often, parents, students, and coaches forget to incorporate these positively perceived experiences habitually. This suggestion is in agreement with recent research from Dudovitz, Chung, and Wong (2017) that the social role of teachers and coaches in developing the self-concept of students is correlated with higher achievement and lower substance abuse.

Perhaps the most surprising element of these findings on academic encouragement and guidance is the low frequency of experience ratings. The positive influence on the educational outcomes of interscholastic athletics participants through the emphasis on academic encouragement and guidance from coaches and teammates could be considered common knowledge. The most beneficial aspect of the go-zone display, and in turn the findings, of the present study is the identification of the low frequency of these experiences. The low perception of the frequency of experience from the student perspective is essential information for school administrators to grasp as the perception from the administrator's point of view could easily have assumed that the frequency of these experiences was sufficient. Future research to identify potential discrepancies in the perceptions of students and administrators in this regard would prove to be very beneficial to policy and practice decisions as school administrators will not be able to address issues effectively if their understanding of an issue does not account for the perception of the student.

Family Income Similarities

As noted by Shifrer et al. (2015), existing research has found the socioeconomic status of families to be both a barrier to access and a selection factor into both sports participation and increased academic performance and higher educational aspirations. Although not specific to socioeconomic status, Heize et al. (2017) did capture stakeholder gender perceptions from parents that correlated to differing financial and ideological values placed on sport participation depending on the gender of their child. The present study followed suit in attempting to learn more about stakeholder perceptions directly from the student perspective, and in doing so yielded some insight into the effect of family income on the perceived influence of experiences associated with interscholastic athletic participation on the educational outcomes of high school students.

The first impression of the findings of the present study were inconsistent with existing research as the rating data from lowest third of family income participants positively correlated to the highest third of participants. The lowest third of participants, reporting a family income under $75,000 annually (n=33), yielded a perfect correlation coefficient of r=1.00 in the pattern match comparison with the highest third of participants that reported a family income of $125,000 or more annually (n=32). The two groups also reported a near-perfect positive correlation coefficient of r=0.95 in regard to the frequency of experience rating. Despite the perfect and near-perfect correlation coefficients, it is important to note the smaller sample sizes of the two groups, each with just over 30 participants. Also, and even more important to note, is that the estimated mean for family income of the rating participants was around $95,000 annually; which is much higher than what the US Census Bureau (2016) reported as the nationwide mean

for real household income in the year 2014 at $53,700 annually. Even if assumed that most of the participants were from the states surrounding the mid-Atlantic university, the US Census Bureau (2016) mean household income from those states averaged just under $70,000 annually. One possible explanation for the higher mean value of the self-reported family incomes of the participants than the national and regional averages could be the fact that a higher socioeconomic status has been generally correlated to a higher enrollment in college (Shifrer et al, 2015; Zaff at al., 2017).

Another potential contributing factor to the higher family incomes reported by the participants of the present study could have to do with the self-reporting component of the data collection. Unlike the self-reporting of gender identification, sports participated in, or high school location – all characteristics in which the responses were informed directly from the first-hand experiences of the participants, the family income self-report was a likely guess of the income of the parents of each participant. The chance for inaccurate or inadvertent inflation of family income characteristics by the participants must be acknowledged as a potential flaw in the current methodology (Fan et al., 2016; NCES, 2012). The researcher recognizes that the present study utilized perceived family income value as self-reported by the participants, realizing that a means of determining and including the actual family income value would provide for a more accurate analysis in future research.

Regardless of the necessary improvements suggested in regard to the data collection methods for obtaining more nationally representative family income brackets, the present study was able to conclude that the lowest third of participants and highest third of participants rated their perceived influence of experiences associated with high

school athletic participation nearly identically to each other when categorized by the self-reported family income variable. Although the present study did not provide enough substantive data from socioeconomic brackets that were representative of the greater population to draw specific claims in regard to the impact of family income on the perceived influence of experiences associated with interscholastic athletic participation on educational outcomes, it is important to note that the present study does provide the foundation for future research to purposefully examine the perceptions of students from various socioeconomic brackets. Despite the barrier to participation as highlighted in existing research, the students who do participate in interscholastic athletics from lower socioeconomic brackets may still perceive the same influence as students from higher socioeconomic brackets, further substantiating the cause for equity in participation across all socioeconomic brackets.

Implications for School Leaders

The frontline school leaders in research in the field of school-based athletics will primarily be the coaches of the athletic teams and the athletic directors that oversee the athletic programs, with this, coaches most frequently implement the practice of policy and programmatic decisions determined by the athletic directors. School-based administrators such as principals or heads of school will also influence policy and practice implementation at schools, while administrators at the district or organization body level, such as superintendents or commissioners, may heavily influence policymaking decisions depending on the organizational structure of the school system. The following sections will discuss some policy and practice applicability of the present study through the lens of the school leaders indicated above.

Applicability to Policy and Practice

Other than the basic identification and determination of the influence of experiences associated with high school interscholastic athletic participation, the findings from the present study notably include (1) the derivation of eight thematic clusters to which high school athletic experiences can be categorized, (2) the realization of the applicability of the gender similarities hypothesis in regard to the perceived influence of experiences associated with high school interscholastic athletic participation, and (3) the identification of discrepancies between positively and negatively perceived influential experiences and the respective occurrence of those experiences in high school environments. These findings will warrant action by administrators and stakeholders at the school, district, state, and federal levels to best serve the growing population of students that participate in extracurricular athletic programs as a component of their overall high school experience.

Policy. Policymakers for high school athletic programs, such as superintendents, principals, and athletic directors, should work to understand and evaluate experiences that directly and indirectly result from policy by understanding which thematic cluster these experiences map onto. If it is determined that the policies will yield experiences that fall into the *Personally Choosing Sports over School* or *Health Detriments from Sport Affecting School* clusters, these policymakers should re-evaluate the policies due to the negatively perceived influence of these cluster themes on educational outcomes. Policies must also be put in place to best aid students in navigating areas deemed to commonly be discrepant in their perceived influence and occurrence. As previously described, policymakers and administrators should look into scheduling policies and educative

practices to allow more time between assignments and efficient use of time in completing school work if they are also desiring to gain the most out of the participation in interscholastic athletics programs of their students. In this sense, principals and athletic directors must work together to balance athletic participation commitments that will translate to positively influence academic measures.

Practice. The findings of the present study hold significance by allowing for school administrators and staff to make more informed decisions in regard to high school interscholastic athletic programming and implementation. School leaders will be able to emphasize program areas identified as influential on educational outcomes by the study participants, and work to address areas that were identified as less influential. In doing so, school leaders must develop and adhere to systems of best practice. Notably for athletic directors, one area for best practice application should be the identification of strategies that are known to best educate and coach both boys and girls and how these strategies can be incorporated with each gender given the support of the gender similarities hypothesis determined through the present findings. For instance, if soccer programs for girls tend to have more success when they put an emphasis on building confidence, maybe that approach should also be applied to baseball or football programs for boys as a priority. Another area for best practice application should be figuring out how to best provide an athletic environment that adequately encourages academic performance. With the large discrepancy in the positively perceived influence and occurrence of experiences in which coaches or teammates provide encouragement and guidance towards academics, athletic directors in schools must look to determine and implement best practices that routinely provide these types of encouraging experiences. A useful tool for informing best practice

opportunities from the data of the present study would be to consult the top ten and bottom ten tables, Tables 4.6 though 4.9, in Chapter Four.

Research reveals that there is a wide range of effectiveness and awareness of the practice of effective philosophies in regard to the positive youth development of students by athletic coaches (Camiré, Trudel, & Forneris, 2014). Research has also determined that high school coaches often lack sufficient training and coach education to best serve students, especially in regard to the effective educating of life skills through sports and that school administrators must look further into professional development opportunities for high school coaches (Gould & Carson, 2008; Gould, Chung, Smith, & White, 2006). This reasoning, compiled with the findings from the present study, encourages athletic directors and school-based administrators to seek effective professional development opportunities and programming for their coaches. With the amount of time coaches spend interacting with students, they should ultimately be trained and professionally developed to the same degree that schools aim train and professionally develop their teachers. The findings of the present study lay a foundation for professional development programs for coaches and athletic directors regarding how students tend to negatively or positively perceive certain experiences associated with athletic participation and how coaches and athletic directors can best approach their practices and policies in an effort to promote positively influential experiences.

Future Research

The present study was the first of its kind to use the concept mapping methodology to capture the participant voice qualitatively in an effort to better understand the influence of experiences associated with high school interscholastic

athletic participation on educational outcomes from the student perspective. With this, the present study provides an excellent foundation for future research in the field. Some recommendations for future research have been directly implied from the notable findings throughout earlier sections of this chapter. These recommendations have included the use of the eight thematic clusters as a theoretical framework for future qualitative study, the examination and comparison of specific methods known to work effectively in coaching or teaching of boys and girls that could benefit from crossover to the opposite gender, a further look into the differing perceptions of school administrators from those of students in regard to interscholastic athletic experiences, and the use of a better methodological approach to obtaining a socioeconomic participant sample more representative of national statistics while still examining the influence of interscholastic athletic experiences on student educational outcomes. Two other recommendations categories for future research that have not yet discussed include research to expand the participant pool for an understanding of broader pool of athletic participants, as well as research on more targeted populations to yield results specific to those populations.

First, future research should expand the Concept Systems Global MAX software license so that more participants can participate. The software license was self-funded by the researcher and limited in the present study, resulting in a limit of a maximum of 100 sorting and rating participants. Expanding the total number of participants will allow for a greater number of specific subgroups to be legitimately compared. The present study allowed for subgroup comparison, but the number of participants in most subgroups was too small to be representatively meaningful. For example, when compounding

demographic characteristics, the present study only included four male participants that also classified their high schools to have been located in rural environments.

With a larger participant pool in a future study, participant criteria could also be adjusted to allow for greater subgroup comparisons and analysis as mentioned above. Participant criteria could be adjusted to admit participants that still play a sport at the college level or participants that only participated in outside-of-school club teams during high school. Expansion in the size of subgroups and the Concept Systems Global MAX software license could also allow for comparisons between students that play multiple sports for a school as compared to students that solely play one sport. With these expansions in participation, comparisons could be made to the findings of the present study to see which experiences, and respective perceived influences of experiences, are similar and different for various participant groups with differing degrees of athletic participation from those of the participants in the present study.

Secondly, the same methodological approaches could be applied on a smaller scale, for example at a high school or with alumni of a high school that participated in interscholastic athletics – no matter if they went to college or not. The present study purposefully intended to capture the perceptions of a wide range of participants that had achieved the status as undergraduate college students in an attempt to widely represent the population of high school students that participated in interscholastic athletics that had achieved the idealized educational outcome for a high school student of matriculation to college. However, the breadth of the data and wealth of the findings for the present study could hold more significance to specific populations if the participants were from a more closely related population. Working with a specific population, such as a business,

is where the concept mapping methodology actually originated as a tool to evaluate existing conditions. Returning to this specific population approach could be very beneficial to individual schools and school districts.

The present study made substantive strides in the interscholastic athletics field of research by obtaining an unprecedented amount of qualitative data from the student perspective in regard to high school interscholastic athletic participation. It is the hope of the researcher that these strides act to fuel future research to build upon the findings of the present study.

Chapter Summary

This chapter brought to life and explained the results presented in Chapter Four. The noteworthy findings and implications were discussed in this chapter for the hopeful implementation by leaders in education and athletics. First, the research questions and the gaps in existing research that provided the foundation for the present study were answered and addressed. Following, the most notable findings of the present study were elaborated upon and the applicability of these findings to policy and practice were proposed. The most notable findings included (1) the derivation of eight thematic clusters to which high school athletic experiences can be categorized, (2) the realization of the applicability of the gender similarities hypothesis in regard to the perceived influence of experiences associated with high school interscholastic athletic participation, and (3) the identification of discrepancies between positively and negatively perceived influential experiences and the respective occurrence of those experiences in high school environments. Lastly, future directions for research within the interscholastic athletics domain were suggested to build upon the present study.

Closing Remarks

The mixed-methods approach and research design of the present study provides a meaningful addition to existing research on the influence of high school interscholastic athletic participation on student educational outcomes. The present study holds merit in professional literature, representing the first application of the concept mapping methodology to interscholastic athletics research. Contributing seminal progress in the identification and determination of influence of experiences associated with interscholastic athletics participation on student educational outcomes, the present study provides a framework and footprint for future research. This qualitative component of the concept mapping approach provided data from the participant perspective, generated by the participants, affording a unique understanding of how undergraduate college students that had matriculated to college perceived experiences associated with high school interscholastic athletics as a contributor to various educational outcomes.

The use and implementation of concept mapping by the researcher yielded unique visual representations of the lived experiences and perceived influences of interscholastic athletic participation on student educational outcomes through the maps and graphics generated by Concept Systems Global MAX software. These visual displays contrived from collective similarity matrices and rating scores provided a substantive basis for interpretation. The results and notable findings of the present study provide initial footing for policymakers at the school, district, state, and national levels to emphasize, organize, and fund athletic programming and practices associated with the greatest perceived influence on student educational outcomes – while also addressing, and assessing the

future need for, programming and practices associated with experiences perceived to hold minimal or negative influence on student educational outcomes.

References

Achieve Inc. (2016). College and career readiness: With the growing complexity of the world and increasing demands of the 21st-century workforce, there is little question that all students should graduate from high school prepared for college and career. Retrieved from http://www.achieve.org/college-and-career-readiness

Amateur Athletic Union (AAU). (2016). About AAU. Retrieved from https://www.aausports.org/

Ballantine, R. J. (1981). What research says: About the correlation between athletic participation and academic achievement. *ERIC Document*.

Banaji, M. R., & Greenwald, A. G. (2013). *Blindspot: Hidden biases of good people*. New York: Delacorte Press.

Bem, S. L. (1981). Gender schema theory: A cognitive account of sex typing. *Psychological Review, 88*(4), 354-364.

Bergman, D. (2016). Playing your way into an elite college. Retrieved from https://www.collegetransitions.com/blog/elite-college-athletics/

Bickman, L., & Rog, D. J. (2009). *The Sage handbook of applied social research methods*. Thousand Oaks, CA: Sage Publications Ltd.

Braddock, J. H., II. (1981). Race, athletics, and educational attainment: Dispelling the myths. *Youth and Society*, *12*, 335-350.

Broh, B. A. (2002). Linking extracurricular programming to academic achievement: Who benefits and why? *Sociology of Education, 75*(1), 69-95.

Burke, J. G., O'Campo, P., Peak, G. L., Gielen, A. C., McDonnell, K. A., & Trochim, W. M. (2005). An introduction to concept mapping as a participatory public health research method. *Qualitative Health Research, 15*(10), 1392-1410. doi:10.1177/1049732305278876

Camiré, M., Trudel, P., & Forneris, T. (2012). Examining how model youth sport coaches learn to facilitate positive youth development. *Physical Education and Sport Pedagogy, 19*(1), 1-17. doi:10.1080/17408989.2012.726975

Canady, R. L., & Rettig, M. D. (1995). *Block scheduling: A catalyst for change in high schools*. Princeton, N.J: Eye on Education.

Carlson, D., Scott, L., Planty, M., & Thompson, J. (2005). What is the status of high school athletes 8 years after their senior year? *National Center for Education Statistics*, 1-19.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale, N.J: L. Erlbaum Associates.

Coleman, J. S. (1961). Athletics in high school. *The Annuls of the American Academy of Political and Social Science, 338*(1), 33-44.

Costa, A., L, & Kallick, B. (2008). Chapter 12: Learning through reflection. In A. L. Costa & B. Kallick (Eds.), *Learning and leading with habits of mind: 16 essential characteristics for success*. Alexandria, VA: Association for Supervision and Curriculum Development.

Cook, W. A., & Thompson, M. (1928). A comparison of letter boys and non-letter boys in a city high school. *The School Review, 36*(5), 350-358.

Cormany, W. J. B. (1935). High-school athletics and scholarship measured by achievement tests. *The School Review, 43*(6), 456-461.

Council for American Private Education (CAPE). (2017). Fast and studies. Retrieved from http://www.capenet.org/facts.html

Coxon, A. P. M. (1999). *Sorting data: Collection and analysis*. Thousand Oaks, CA: Sage Publications.

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Thousand Oaks, CA: Sage Publications, Inc.

Creswell, J. W. (2013). *Qualitative inquiry and research design* (3rd ed.). Thousand Oaks, CA: Sage Publications, Inc.

Crispin, L. M. (2017). Extracurricular participation, "at-risk" status, and the high school dropout decision. *Education Finance and Policy, 12*(2), 166-196. doi:10.1162/EDFP_a_00212

Crosnoe, R. (2002). Academic and health-related trajectories in high school: The intersection of gender and athletics. *Journal of Health and Social Behavior*, *43*, 317-335.

Crosnoe, R., Smith, C., & Leventhal, T. (2015). Family background, school-age trajectories of activity participation, and academic achievement at the start of high school. *Applied Developmental Science*, *19*(3), 139-152. doi:10.1080/10888691.2014.983031

Deford, F. (2011). Budget cuts put school sports on the chopping block. Retrieved from http://www.npr.org/2011/03/16/134533821/budget-cuts-put-school-sports-on-chopping-block

Denzin, N., & Lincoln, Y. (2005). *The sage handbook of qualitative research* (3rd ed.). Thousand Oaks, CA: Sage Publications.

Dewey, J. (1915). *The school and society* (revised ed.). Chicago, Ill: The University of Chicago Press.

Dewey, J. (1916). *Democracy and education: An introduction to the philosophy of education*. New York: Macmillan.

Dewey, J. (1938). *Experience and education*. New York: Macmillan.

Donnelly, J. P. (2016). A systematic review of concept mapping dissertations. *Evaluation Program Planning*. doi:10.1016/j.evalprogplan.2016.08.010

Drotar, B. (2015). College coaches are note coming to your high school games. Retrieved from http://therecruitingcode.com/college-coaches-are-not-coming-to-your-high-school-games/

Dudovitz, R. N., Chung, P. J., & Wong, M. D. (2017). Teachers and coaches in adolescent social networks are associated with healthier self-concept and decreased substance use. *Journal of School Health, 87*(1), 12-20.

Eaton, D., & Shannon, J. R. (1934). College careers of high school athletes and non-athletes. *The School Review, 42*(5), 356-361.

Eide, E. R., & Ronan, N. (2001). Is participation in high school athletics an investment or a consumption of good? Evidence from high school and beyond. *Economics of Education Review, 20*(5), 431-442.

Eitle, T. M., & Eitle, D. J. (2002). Race, cultural capital, and the educational effects of participation in sports. *Sociology of Education, 75*(2), 123-146.

Else, D. (2016). Assisting K-12 education through the national school foundations association. Retrieved from http://www.schoolfoundations.org/research-findings

Fan, X., Miller, B. C., Park, K.-E., Winward, B. W., Christensen, M., Grotevant, H. D., & Tai, R. H. (2016). An exploratory study about inaccuracy and invalidity in adolescent self-report surveys. *Field Methods, 18*(3), 223-244. doi:10.1177/152822x06289161

Fredricks, J. A. (2012). Extracurricular participation and academic outcomes: testing the over-scheduling hypothesis. *Journal of Youth Adolescence, 41*(3), 295-306. doi:10.1007/s10964-011-9704-0

Fredricks, J. A., & Eccles, J. S. (2005). Developmental benefits of extracurricular involvement: Do peer characteristics mediate the link between activities and youth outcomes? *Journal of Youth Adolescence, 34*(6), 507-520.

Gentile, L. M. (1980). *Using sports and physical education to strengthen reading skills*. Newark, DE: International Reading Association.

Geer, W. H. (1924). The athletic situation in high schools. *The Journal of Education, 100*(5), 126-130.

Glesne, C. & Peshkin, A. (1992). *Becoming qualitative researchers: An introduction*. White Plains, NY: Longman.

Gray, J. (1992). *Men are from Mars, women are from Venus: A practical guide for improving communication and getting what you want in your relationships*. New York, NY: Harper Collins.

Gore, S., Aseltine Jr., R. H., & Colton, M. E. (1992). Social structure, life stress and depressive symptoms in a high school-aged population. *Journal of Health and Social Behavior, 33*(2), 97-113.

Gould, D., & Carson, S. (2008). Life skills development through sport: Current status and future directions. *International Review of Sport and Exercise Psychology, 1*(1), 58-78. doi:10.1080/17509840701834573

Gould, D., Chung, Y., Smith, P., & White, J. (2006). Future directions in coaching life skills: Understanding high school coaches' views and needs. *Athletic Insight: The Online Journal of Sport Psychology, 8*(3), 28-38.

Guèvremont, A., Findlay, L., & Kohen, D. (2014). Organized extracurricular activities: Are in-school and out-of-school activites associated with differnt outcomes for Canadian youth? *Journal of School Health, 84*(5), 317-325.

Hanson, S. L., & Kraus, R. S. (1998). Women, sports, and science: Do female athletes have an advantage? *Sociology of Education, 71*(2), 93-110.

Harris, P. C., Hines, E. M., Mayes, R. D., Thomas, A., & Bagley, B. (2016). Balancing academics and athletics in high school: A phenomenological study of three black male student athletes. *Journal for the Study of Sports and Athletes in Education, 9*(3), 172-189. doi:10.1080/19357397.2015.1123001

Heinze, J. E., Heinze, K. L., Davis, M. M., Butchart, A. T., Singer, D. C., & Clark, S. J. (2017). Gender role beliefs and parents' support for athletic participation. *Youth & Society, 49*(5), 634-657. doi:10.1177/0044118x14553580

Hinton, M. (2016). State funds for extracurricular activities could be in jeopardy in Kansas. Retrieved from http://blogs.edweek.org/edweek/time_and_learning/2016/04/state_funds_for_extracurricular_activities_could_in_jeopardy_in_kansas.html

Holland, A., & Andre, T. (1987). Participation in extracurricular activities in secondary school: What is known, what needs to be known? *Review of Educational Research, 57*(4), 437-466.

Hwang, S., Feltz, D. L., Kietzmann, L. A., & Diemer, M. A. (2016). Sport involvement and educational outcomes of high school students: A longitudinal study. *Youth & Society, 48*(6), 763-785. doi:10.1177/0044118x13513479

Hyde, J. S. (2005). The gender similarities hypothesis. *American Psychologist, 60*(6), 581-592. doi:10.1037/0003-066X.60.6.581

Im, M. H., Hughes, J. N., Cao, Q., & Kwok, O. m. (2016). Effects of extracurricular participation during middle school on academic motivation and achievement at grade 9. *American Educational Research Journal, 53*(5), 1343-1375. doi:10.3102/0002831216667479

Ito, T. A., & Urland, G. R. (2003). Race and gender on the brain: Electrocortical measures of attention to the race and gender of multiply categorizable individuals. *Journal of Personality and Social Psychology, 85*(4), 616-626. doi:10.1037/0022-3514.85.4.616

Jones, K. (1990). The gender differences hypothesis: A synthesis of research findings. *Educational Administration Quarterly, 26*(1), 5-37.

Kane, M., & Rosas, S. R. (2018). *Conversations about group concept mapping*. Thousand Oaks, CA: Sage Publications Inc.

Kane, M., & Trochim, W. (2007). *Concept mapping for planning and evaluation*. Thousand Oaks, CA: Sage Publications Inc.

Klomsten, A. T., Marsh, H. W., & Skaalvik, E. M. (2005). Adolescents' perceptions of masculine and feminine values in sport and physical education: A study of gender differences. *Sex Roles. 52*(9/10), 625-636. doi: 10.1007/s11199-005-3730-x

Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs, NJ: Prentice Hall.

Krumrie, M. (2016). The dangers of sport specialization. Retrieved from http://www.teamusa.org/USA-Wrestling/Features/2016/March/16/The-Dangers-of-Sport-Specialization

Kvale, S., & Brinkman, S. (2009). *Interviews: Learning the craft of qualitative research interviewing* (2nd ed.). Thousand Oaks, CA: Sage.

Lamborn, S. D., Brown, B. B., Mounts, N. S., & Steinberg, L. (1992). Putting school in perspective: The influence of family, peers, extracurricular participation, and part0time work on academic engagement. In F. M. Newman (Ed.), *Student engagement and achievement in American secondary schools* (pp. 153-181). New York, NY: Teachers College Press.

Laughlin, N.T. (1978). Athletic participation and the grade point averages, absences, cuts, and disciplinary referrals of high school athletes. *International Journal of Sport Psychology, 9,* 79-89.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge, England: Cambridge University Press.

Lipscomb, S. (2007). Secondary school extracurricular involvement and academic achievement: a fixed effects approach. *Economics of Education Review, 26*(2007), 463-472.

Lueptow, L. B., & Kayser, B. D. (1973). Athletic involvement, academic achievement, and aspiration. *Sociological Focus, 7*(1), 24-36.

Macrae, C. N., Bodenhausen, G. V. (2000). Social cognition: Thinking categorically about others. *Annual Review of Psychology, 51*(1), 93-120.

Marsh, H. W. (1988). *Extracurricular activities: A beneficial extension of the traditional curriculum or a subversion of academic goals*. Retrieved from http://eric.ed.gov/?id=ED301578

Marsh, Herbert W. 1992. "Extracurricular Activities: Beneficial Extension of the Traditional Curriculum or Subversion of Academic Goals?" *Journal of Educational Psychology* 84 (4): 553–562.

Marsh, H. W., & Kleitman, S. (2003). School athletic participation: Mostly gain with little pain. *Journal of Sport & Exercise Psychology, 25*(2), 205-228.

Mathis, W. J. (2010). The "Common Core" Standards Initiative: An Effective Reform Tool? Boulder and Tempe: Education and the Public Interest Center & Education Policy Research Unit. Retrieved [March 4, 2016] from http://epicpolicy.org/publication/common-core-standards

Melnick, M. J., Sabo, D. F., & Vanfossen, B. E. (1992). Educational effects of interscholastic athletic participation on african-american and hispanic youth. *Adolescence, 27*(106), 295-308.

Melnick, M. J., Vanfossen, B. E., & Sabo, D. F. (1988). Development effects of athletic participation amoung high school girls. *Sociology of Sport Journal,* (5), 22-36.

Merriam, S. (2002). *Qualitative research in practice*. San Francisco, CA: Jossey-Bass.

Messner, M. (2011). Gender ideologies, youth sports, and the production of soft essentialism. *Sociology of Sport Journal, 28*, 151-170.

Miettinen, R. (2000). The concept of experiential learning and John Dewey's theory of reflective thought and action. *International Journal of Lifelong Education*, 19(1), 54-72.

Miller, K. E., Melnick, M. J., Barnes, G. M., Farrell, M. P., & Sabo, D. F. (2005). Untangling the links among athletic involvement, gender, race, and adolescent academic outcomes. *Sociology of Sport Journal, 22*(2), 178-193.

Musu-Gillette, L., de Brey, C., McFarland, J., Hussar, W., Sonnenberg, W., and Wilkinson-Flicker, S. (2017). *Status and Trends in the Education of Racial and Ethnic Groups 2017* (NCES 2017-051). U.S. Department of Education, National Center for Education Statistics. Washington, DC. Retrieved [12/21/2017] from http://nces.ed.gov/pubsearch.

National Center for Education Statistics (NCES). (2017a). Fast facts: Back to school statistics. Retrieved from https://nces.ed.gov/fastfacts/display.asp?id=372

National Center for Education Statistics (NCES). (2017b). Racial/ethnic enrollment in public schools. Retrieved from https://nces.ed.gov/programs/coe/indicator_cge.asp

National Center for Education Statistics (NCES). (2012). *Improving the measurement of socioeconomic status for the national assessment of educational progress: A theoretical foundation*. Retrieved from https://nces.ed.gov/nationsreportcard/pdf/researchcenter/Socioeconomic_Factors.pdf

National Federation of State High School Associations (NFHS). (2018). The case for high school activities. Retrieved from https://www.nfhs.org/articles/the-case-for-high-school-activities/

National Federation of State High School Associations (NFHS). (2017). High school sports participation increases for 28th straight year, nears 8 million mark. Retrieved from https://www.nfhs.org/articles/high-school-sports-participation-increases-for-28th-straight-year-nears-8-million-mark/

National Collegiate Athletic Association (NCAA). (2016). NCAA recruiting facts: College sports create a pathway to opportunity for student-athletes. Retrieved from https://www.ncaa.org/sites/default/files/Recruiting%20Fact%20Sheet%20WEB.pdf

Noyes, E. C. (1908). Athletics in the high school. *The Journal of Education, 67*(16), 430-431.

O'Hanlon, T. (1980). Interscholastic athletics, 1900-1940: Shaping citizens for unequal roles in the modern industrial state. *Educational Theory*, *30*(2), 89- 102.

O'Hanlon, T. P. (1982). School sports as social training: The case of athletics and the crisis of World War I. *Journal of Sport History, 9*(1).

O'Sullivan, J. (2016). Let's stop the early sport specialization madness! Retrieved from http://changingthegameproject.com/lets-stop-early-sport-specialization-madness/

Otto, L. B., & Alwin, D. F. (1977). Athletics, aspirations, and attainments. *Sociology of Education, 42*(2), 102-113.

Ownings, J., Burton, B., & Daniel, B. (1996). Who reports participation in varsity intercollegiate sports at 4-year colleges? *U.S. Department of Education: Office of Educational Research and Improvement*.

Pearson, J., Crissey, S. R., & Riegle-Crumb, C. (2009). Gendered fields: Sports and advanced course taking in high school. *Sex Roles, 61*(7-8), 519-535.

Penney, D. (2006). Coaching as an teaching: New acknowledgements in practice. In R. L. Jones (Ed.), *The sports coach as educator: Re-conceptualising sports coaching*. New York: Routledge.

Pitney, W. A., & Parker, J. (2009). *Qualitative Research in Physical Activity and the Health Professions*. Champaign, IL: Human Kinetics.

Portes, A. (1998). Social capital: Its origins and application in modern sociology. *Annual Review of Sociology, 24*, 1-24.

Reals, W. H., & Reess, R. G. (1939). High-school letter men: Their intelligence and scholarship. *The School Review, 47*(7), 534-539.

Rees, D. I., & Sabia, J. J. (2010). Sports participation and academic performance: Evidence from the national longitudinal study of adolescent health. *Economics of Education Review, 29*(5), 751-759.

Rehberg, R. A. (1969). Behavioral and attitudinal consequences of high school interscholastic sports: A speculative analysis. *Adolescence, 4*(13), 69-88.

Reis, S. M., & Diaz, E. (1999). Economically disadvantaged urban female students who achieve in schools. *The Urban Review, 31*(1), 31-54.

Rogers, J. E. (1930). Why physical education. *The Journal of Education, 112*(15), 367-368.

Rosas, S. R., & Kane, M. (2012). Quality and rigor of the concept mapping methodology: A pooled study analysis. *Evaluation Program Planning, 35*(2), 236-245.

Sabo, D. F., Veliz, P. (2011). Progress without equity: The provision of high school athletic opportunity in the United States, by gender 1993-94 through 2005-06. East Meadow, NY: Women's Sports Foundation.

Schultz, K. (2017). Do high school athletes get better grades during the off-season? *Journal of Sports Economics, 18*(2), 182-208. doi:10.1177/1527002514566279

Shifrer, D., Pearson, J., Muller, C., & Wilkinson, L. (2015). College-going benefits of high school sports participation: race and gender differences over three decades. *Youth and Society, 47*(3), 295-318. doi:10.1177/0044118X12461656

Silliker, S. A., & Quirk, J. T. (1997). The effect of extracurricular activity participation on the academic performance of male and female high school students. *The School Counselor, 44*(4), 288-293.

Snyder, E. E., & Spreitzer, E. (1977). Participation in sport as related to educational expectations among high school girls. *Sociology of Education, 50*(1), 47-55.

Snyder, E. E., & Spreitzer, E. (1990). High school athletic participation as related to college attendance among black, hispanic, and white males. *Youth and Society, 21*(3), 390-398.

Steckler, A., McLeroy, K. R., Goodman, R. M., Bird, S. T., & McCormick, L. (1992). Towards integrating qualitative and quantitative methods: An introduction. *Health Education Quarterly, 19*(1), 1-8.

Stephens, L. J., & Schaben, L. A. (2002). The effect of interscholastic sports participation on academic achievement of middle level school students. *National Association of Secondary School Principals Bulletin, 86*(630), 34-41.

Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. London: Sage.

Sturrock, K., & Rocha, J. (2000). A multidimensial scaling stress evaluation table. *Field Methods, 12*(1), 49-60.

Sullivan, G. M., & Feinn, R. (2012). Using effect size - or why the p value is not enough. *Journal of Graduate Medical Education, 4*(3), 279-282. doi:10.4300/JGME-D-12-00156.1

Tannen, D. (1991). *You just don't understand: Women and men in conversation*. New York, NY: Ballantine Books.

Trochim, W. M. K. (1989). Concept mapping: Soft science or hard art? *Evaluation and Program Planning*, 12(1), 87–110.

Tufford, L., Newman, P. (2010). Bracketing in qualitative research. *Qualitative Social Work, 11*(1), 80-96. doi:10.1177/1473325010368316

USA Football. (2017). Skills, fun, safety & teamwork. Retrieved from https://usafootball.com/programs/

USA Swimming. (2017). Find a team. Retrieved from https://www.usaswimming.org/find-a-team

USA Track and Field (USATF). (2017). About USATF. Retrieved from http://www.usatf.org/About.aspx

US Census Bureau. (2016). *Current population survey, 1968 to 2015 social and economic supplements*.

US Department of Education (US DOE). (2010). *College- and career-ready standards and assessments*.

US Lacrosse. (2017). Players: Get the most out of the game. Retrieved from https://www.uslacrosse.org/players

US Youth Soccer. (2017). US youth soccer programs. Retrieved from http://www.usyouthsoccer.org/programs/

Veliz, P., Schulenberg, J., Patrick, M., Kloska, D., McCabe, S. E., & Zarrett, N. (2017). Competitive sports participation in high school and subsequent substance use in young adulthood: Assessing differences based on level of contact. *International Review for the Sociology of Sport, 52*(2), 240-259. doi:10.1177/1012690215586998

Veliz, P., & Shakib, S. (2014). Gender, athletics, and interscholastic sports participation at the school level: A gender-specific analysis of the relationship between interscholastic sports participation and AP enrollment. *Sociological Focus, 47*(2), 101-120. doi:10.1080/00380237.2014.883849

Videon, T. M. (2002). Who plays and who benefits: Gender, interscholastic athletics, and academic outcomes. *Sociological Perspectives, 45*(4), 415-444.

Visek, A. J., Achrati, S. M., Mannix, H., McDonnell, K., Harris, B. S., & DiPietro, L. (2015). The fun integration theory: Toward sustaining children and adolescents sport participation. *Journal of Physical Activity and Health, 12*(3), 424-433. doi:10.1123/jpah.2013-0180

Vygotsky, L. S., & Cole, M. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, Massachusetts: Harvard University Press.

Wenger, E. (1998). *Communities of practice: Learning, meaning, and identity*. Cambridge, England: Cambridge University Press.

Whitley, R. L. (1999). Those "dumb jocks" are at it again: A comparison of the educational performances of athletes and nonathletes in North Carolina high schools from 1993 through 1996. *The High School Journal, 82*(4), 223-233.

Wikeley, F., & Bullock, K. (2006). Coaching as an educational relationship. In R. L. Jones (Ed.), *The sports coach as educator: Re-conceptualising sports coaching*. New York: Routledge.

Yeung, R. (2015). Athletics, athletic leadership, and academic achievement. *Education and Urban Society, 47*(3), 361-387. doi:10.1177/0013124513495277

Yungblut, H. E., Schinke, R. J., McGannon, K. R. (2012). Views of adolescent female youth on physical activity during early adolescence. *Journal of Sports Science and Medicine, 11*, 39-50.

Zaff, J. F., Donlan, A., Gunning, A., Anderson, S. E., McDermott, E., & Sedaca, M. (2017). Factors that Promote High School Graduation: a Review of the Literature. *Educational Psychology Review, 29*(3), 447-476. doi:10.1007/s10648-016-9363-5

Zell, E., Krizan, Z., & Teeter, S. R. (2015). Evaluating gender similarities and differences using metasynthesis. *American Psychologist, 70*(1), 10-20. doi:10.1037/a0038208

Appendix A

Example Participant Demographic Questionnaire

Participant: vii

1. **Year in School at George Mason:** Freshmen Sophomore Junior Senior

2. **Did you participate in interscholastic athletics in high school?** YES NO

   If so, for how many years? 1 2 3 4

3. **Which sports did you participate in for your high school? (Please List & Circle "primary" sport)**

   _____

   _____

4. **Did you participate in any organized club sports outside-of-school during high school?**

   YES NO

5. **Do you participate in a VARSITY sport at the** (University Name) YES NO

6. **Which best describes your high school/s? (circle items that best fit, more than one if necessary)**

Type	Location	School Population
Public	Rural	Under 500 Students
Private - Day	Suburban	500-1000 Students
Private - Boarding	Urban	1000-1500 Students
Charter	Other _____	1500-2000 Students
Other _____		Greater than 2000 students

7. **Circle the range that best describes your total household family income when you were in high school:**

   $0 - $24,999 $25,000 - $49,999 $50,000 - $74,999

   $75,000 - $99,999 $100,000 - $124,999 $125,000 - $149,999 $150,000 +

8. **Which gender do you identify with:** _____

9. **Which race/ethnicity do you identify with:** _____

The questions on the next page make up the first of three phases of this research project. The second and third phases will take place early in the Fall 2017 Academic semester. If you would like to be contacted for the second and third phases, please write your email address below:

_____ ***Thank you!***

Appendix B

Research Solicitation Posting – Recreation Department

STUDENT RESEARCH PARTICIPATION OPPORTUNITY

Doctoral Candidate Researcher seeking University Students that participated in athletics during high school

---

WHO: Any undergraduate University student

WHAT: Opportunity to participate in dissertation research

HOW: Participation in a 10-minute brainstorming session ***AND*** 60-minute ***remote*** follow-up session electronically

COMPENSATION:

- Brainstorming Session: (1) $10.00 Amazon Gift Card
- Follow-up Session: (1) Entry for a $100.00 Amazon Gift Card Drawing

WHEN: DATE: May 2017
TIME: TBD

CRITERIA: Study participants must:

1. Have participated in a minimum of 3 years of high school interscholastic athletics
2. ***NOT*** be a member of a varsity athletics team at (University Name) rsity.

Appendix C

Research Solicitation Posting – Academic Department

BASIC COURSE STUDENT RESEARCH PARTICIPATION OPPORTUNITY

Doctoral Candidate Researcher seeking Basic Course Students that *participated in athletics during high school*

WHO: Basic Course Students (COMM 100 & COMM 101)

WHAT: Opportunity to fulfill *Research Credit Points* for Basic Course class assignment

HOW: Online remote participation in the study regarding your experiences participating in high school athletics. Participation will take about 90 minutes.

WHEN: Participation must be completed by October 27, 2017

CRITERIA: Study participants must:

1. Have participated in a minimum of 3 years of high school interscholastic athletics
2. ***NOT*** be a member of a varsity athletics team at (University Name) rsity.

**** To participate in the study, please contact Andrew Maguire by September 22, 2017 via email at am**

**** Participation limited to first 100 students to reply ****

Appendix D

IRB Modification Request

THE GEORGE WASHINGTON UNIVERSITY

WASHINGTON, DC

Date: June 19, 2017
To: Kelly Sherrill Linkous, JD, PhD
From: The George Washington University Committee on Human Research, Institutional Review Board (IRB), FWA00005945
Subject: **IRB#031737**, *"High School Interscholastic Athletic Participation Influence on Student Educational Outcomes: A Retrospective Mixed-Methods Analysis of the High School Interscholastic Athletic Experiences of Undergraduate College Students"*
Sponsor: **None**
Risk Level: **Minimal**
Status: Approved

IRB Approval Date: June 19, 2017 **End Approval Date: April 24, 2018**

The George Washington University's Institutional Review Board **fully approved** the above referenced study via expedited review procedure. This approval is limited to the activities described in the approved IRB Application and the attached modification request form (HRP-203) Dated June 13, 2017. Modifications may not be initiated without prior IRB review and approval except where necessary to eliminate apparent immediate hazards to human participants.

The End Approval Date of this research study is the last date any research activities may take place if the study has not been reapproved. If this study is expected to extend beyond one year, please submit a continuing review request 45 days prior to your End Approval Date. HHS regulations at 45 CFR 46.109(e) require that continuing review of research be conducted by the IRB at intervals appropriate to the degree of risk but not less than once per year. The regulations make no provision for any grace period extending the conduct of the research beyond the End Approval Date. Once research activities have been completed, please submit a closure form least 30 days prior to the End Approval Date.

This protocol has been approved for **a maximum number of 200 subjects** to be enrolled under the auspices of George Washington University. If you wish to increase enrollment beyond this number, you must submit a modification request to the IRB and obtain approval before exceeding this number.

In conducting this study, you are required to follow the requirements in "INVESTIGATOR GUIDANCE: Investigator Obligations (HRP-800)."

If you have any questions, please do not hesitate to contact the Office of Human Research either by email at ohrirb@gwu.edu or via phone at 202-994-2715.

(OHR/scl)
Transaction #29485

Full Approval Letter Expedited_Full Board (HRP-512) Page 1 of 1
V.11/2/15

Appendix E

Example Certificate of Completion

Certificate of Completion

George Washington

Participated in the research study titled *"High School Interscholastic Athletic Participation Influence on Student Educational Outcomes: A Retrospective Mixed-Methods Analysis of the High School Interscholastic Athletic Experiences of Undergraduate College Students.*

10/27/17

Date Completion Confirmed by Researcher

Researcher's Signature

Appendix F

Example Brainstorming Sheet - Participant Handout

Participant Brainstorming Sheet

Overall Brainstorming Prompt:
An experience from participating in high school interscholastic athletics that influenced my educational outcomes was _____.

Brainstorming Prompts to Answer:

1. *An experience from participating in high school interscholastic athletics that* ***positively*** *influenced my educational outcomes was _____.*

-

-

-

-

-

-

2. *An experience from participating in high school interscholastic athletics that* ***negatively*** *influenced my educational outcomes was _____.*

-

-

-

-

-

3. *An experience from participating in high school interscholastic athletics that* ***neutrally*** *influenced my educational outcomes was _____.*

-

-

-

-

Appendix G

Individualized Interview Protocol – Researcher Guidance

Brainstorming Individualized Interview Protocol:
Methodology: Concept Mapping

Directions:

Welcome! My name is Andrew, and I am the primary contact for this project.

I have handed you an informed consent form for participating in this study, as well as a form that identifies potential risks for participants. Please read through the forms and let me know if you would like to participate in the study. If you have any questions about the forms, please ask!

Thank you! The next form I am handing out is a form to collect demographic information about you, as well as descriptive information about your respective secondary/high school environments. Please complete this form. Please ask if you have any questions, and do not put your name on the form!

Important to note, this research is based solely on past experiences from your interscholastic athletics programs at your high schools. As I am sure you may have participated on teams prior to or outside of high school, please make sure only to reference experiences specific to your experiences in athletics at your high school.

First, I will explain to you what an "educational outcome" is while you will be given a handout with a list of example educational outcome categories for your reference.

On the next piece of paper, that I am about to give you, you will see a prompt on the top of the page that reads:

Brainstorming Prompt*:*

"An experience from participating in high school interscholastic athletics that influenced my educational outcomes was _____."

You may reference the list of educational outcome categories to spur memories of areas that your high school interscholastic athletic participation experiences may have influenced. This list is NOT exhaustive.

Next, you will see the prompt repeated three more times on the sheet with one word different each time. The words "positively", "negatively", and "neutrally" will be in bold font for emphasis. Please use the bulleted points beneath each of these prompts to write down your responses to each respective prompt.

Take as much time as you need to write down your responses to the prompts. Please try to write legibly as I will collect the paper to verify the statements. Make sure to be as specific as possible. I may ask questions to clarify your statements.

Please flip over your papers and begin brainstorming!

… Resume from individual brainstorming/writing down ideas

Now, you will read your responses to me so that I can make sure I can read your writing and the clarify any responses that may need further explanation.

Example of Researcher Prods during Brainstorming Session:

- Can you clarify _____ in your statement?
- Did that experience impact a specific educational outcome?
- Remember, these can be positive, negative, or neutral experiences…
- Remember that we are only talking about participation specific to athletic participation in school-sponsored programs, not related to club sport participation
- Remember, influences could be short-term or long-term, think about your entire history of experiences in interscholastic athletics.

Closing:

Thank you for your participation in the study (hand Amazon.com gift card). If you would like to be contacted for potential further participation in the study, please write you email address at the bottom of your brainstorming sheet before you hand it in. Thank you!

Appendix H

List of Education Outcomes - Participant Handout

Examples of student *Educational Outcome* categories include, <u>but are not limited to</u>:

- Student Grade-Point Average (GPA) in high school or college
- Student Attendance in high school or college
- Disciplinary Action towards students (i.e. detentions, suspensions, punishments)
- Standardized Test Scores
- Graduation from High School
- Aspirations for Higher Education / College / Careers
- Acceptance to College
- Enrollment in College
- Academic Competency with College Coursework
- Other Social Skills, Behaviors, or Habits associated with school and education
- Other

Appendix I

Rating Key - Participant Handout

Rating Guide 1

Category (a): *What influence did this experience have your educational outcome/s?*					
RATING:	**1**	**2**	**3**	**4**	**5**
MEANING:	Very Negative	Somewhat Negative	No Influence (Neutral)	Somewhat Positive	Very Positive

Rating Guide 2

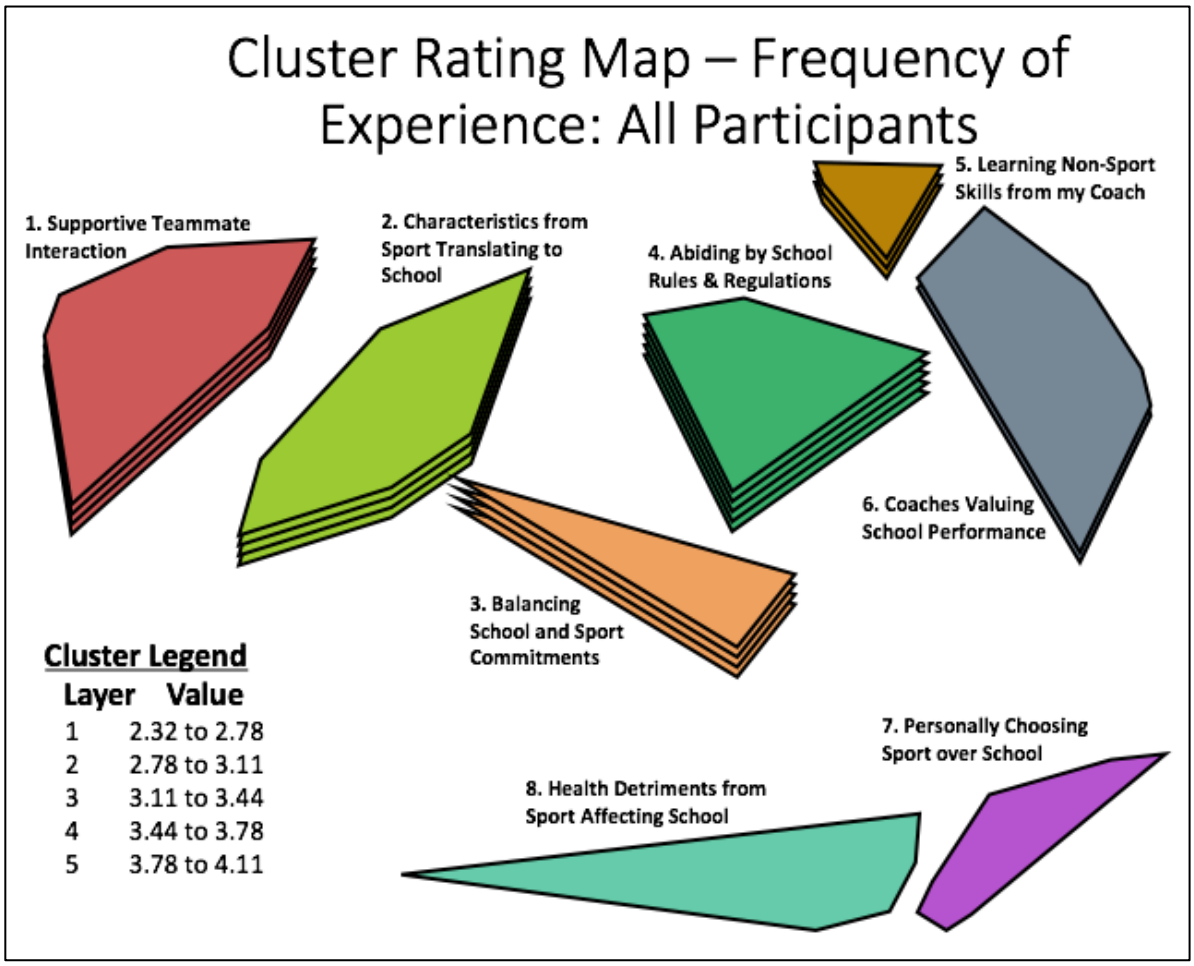
Category (b): *How often did you experience this in high school?*					
RATING:	**1**	**2**	**3**	**4**	**5**
MEANING:	Never	Rarely	Sometimes	Often	Always

Rating Guide 3

Category (c): *For how long did/has this experience impacted you?*					
RATING:	**1**	**2**	**3**	**4**	**5**
MEANING:	Not at all	Through Sport Season	Through All of High School	Still Experiencing Now	Will Continue after College

Appendix J

Cluster Rating Map for Frequency of Experience



Appendix K

IRB Approved Informed Consent Form – Page 1

APPROVED
The George Washington University
Institutional Review Board
FWA00005945

IRB Approved: 25APR2017

Informed Consent Form

Interscholastic Athletic Participation Influence on Student Educational Outcomes:
A Retrospective Mixed-Methods Analysis of the High School Interscholastic Athletic
Experiences of Undergraduate College Students

IRB # 031737

Principal Investigator: Dr. Kelly Sherrill Linkous – 678- Phone Number
Primary Contact: Andrew J. Maguire – 202- Phone Number
Sponsor: The George Washington University, Washington D.C.

Introduction:
You are invited to take part in a research study being conducted by Dr. Kelly Sherrill Linkous, Assistant Professor of Education Administration in the Graduate School of Education and Human Development at The George Washington University.

You are being asked to voluntarily take part in this study as you have self-reported to meeting the three criteria for participation in this study:

(1) You are currently enrolled as an undergraduate student at the selected mid-Atlantic university.
(2) You participated in interscholastic athletics during at least three (3) years of high school.
(3) You are NOT a member of a varsity athletics program at the selected mid-Atlantic university

Please read this form and ask any questions that will help you decide if you want to participate in the study. Taking part in the study is completely voluntary, and, even if you decide you want to participate in the study, you can stop participating at any time.

Your status as an undergraduate student and academic standing will not be affected in any way should you choose not to participate or to withdraw from the study at any time. You must be at least 18 years old to participate in this study. Should you choose to participate, you will be joining other undergraduate students to participate in a focus group with the researcher, followed by individual contact with the researcher for follow-up steps after the focus group.

Purpose:
The purpose of the study is to identify and determine the influence on educational outcomes of experiences associated with interscholastic athletic participation.

Procedure:
The primary contact of this study, Andrew J. Maguire, will facilitate the study following procedures in accordance with the methodology of concept mapping, utilizing the Concept Systems Global MAX software. The primary contact will facilitate multiple focus group sessions with study participants, as wel as all follow-up steps that will be able to be completed electronically or in person. You will be asked to participate in one focus group session lasting approximately one (1) hour, and allow up to (2) hours for remote follow-up activities from the focus group session. All activities will be completed within a few weeks. All focus groups responses will be recorded via audio tape and with manually transcribed notes prior to being logged into the Concept Systems Global MAX software for analysis.

You will be invited to review the data and data analysis results during the focus group follow-up and the interpretation phases, respectively.

Focus Group Clause:
During the focus group discussions, while we cannot guarantee the confidentiality of the discussion, we request that all present respect the group by not repeating what is said, outside the group. Every effort will be made to keep your information confidential, however, this can not be guaranteed.

IRB Approved: 25APR2017

Risks and Confidentiality:
There is a slight chance that you may feel some minor stress or discomfort while participating in the focus group sessions due to the resurfacing of uncomfortable memories or anxiety over sharing information in front of other participants and the researcher. You are free at any point to ask the researcher to temporarily or permanently discontinue in the focus group sessions. There is also a slight chance that you may feel some minor stress or discomfort when asked to participate in the follow-up phases after the focus group session, including the interpretation phase due to the resurfacing of memories or thoughts. You are free to cease participation at any point during these phases. Lastly, there is a small chance that someone not on our research team could find out that you participated in the study or somehow connect your name with the information we collect from you; however, the following steps are being taken to reduce this risk:

1. All participants will be identified by simply a number after completing the Informed Consent.
2. All descriptively terminology used by the researcher will be purposively vague (i.e. mid-Atlantic, urban, large).
3. All data will be stored in a private, with this consent form and any other identifying information being stored on the GW campus in the primary investigator's office.
4. The records of this study will be kept private. In the event of any resultant published articles or presentations, we will not include any information that will make it possible to identify you as a subject or your school as a research site.

The records for this study may be reviewed by departments of The George Washington University responsible for overseeing research safety and compliance. All raw data and identification records for this study will be used to complete a doctoral dissertation research study. When that study has been completed and successfully defended, the raw data and identification records for this study will be shredded or destroyed by the primary contact, Andrew J. Maguire. This consent form will be stored for 3 years. If, for some reason, the records for this study are not used for doctoral research, they will be shredded or destroyed by the primary contact no later than 90 days after the conclusion of this study.

Benefits:
Taking part in this research will provide a minimal benefit to you directly in assisting to make sense of previous personal experiences; however, the benefit to society will be an important contribution to research regarding interscholastic athletic experiences influencing educational outcomes through voices of students.

Payment or Compensation:
Participants of this study will be compensated through either curriculum assignment credit where applicable OR by an Amazon.com gift card. Assignment credit will be the mode of compensation for any students enrolled in the Basic Course. For any other participants, a $10.00 Amazon.com gift card will be given upon completion of the statement generation phase of the data collection. Further participant completion in the sorting and rating activities will earn the participant a chance at a drawing for one (1) $100.00 Amazon.com gift card.

Questions:
Talk to the research team if you have questions, concerns, complaints, or think you have been harmed. You can contact the Principal Investigator listed on the front of this form at the phone number listed. For questions regarding your rights as a participant in human research, call the GWU Office of Human Research at 202-994-2715.

Appendix L

** = statement ranking is tied with another statement within the respective category, i.e. All, Male, or Female*

Appendix L - Perceived Influence Rating - All Statement Rank

		ALL (n=100)		MALE (n=50)		FEMALE (n=50)	
	Statement	**Rank**	**Rating**	**Rank**	**Rating**	**Rank**	**Rating**
1	I learned how to work together with teammates (1)	**1**	4.53	**1**	4.48	**1**	4.58
2	I got into a habit of being on time (47)	**2**	4.46	**2**	4.38	**2**	4.54
3	I became friends with my teammates (3)	**3**	4.40	**3***	4.36	**3***	4.44
4	sports participation kept me in a stable routine (80)	**4***	4.36	**5**	4.32	**5**	4.40
5	my coach was supportive of my academics (9)	**4***	4.36	**3***	4.36	**7***	4.36
6	my teammates were choosing to go to college after high school (7)	**6**	4.31	**6**	4.24	**6**	4.38
7	I could put sports participation on high school "resume" in applying to colleges (62)	**7**	4.28	**10**	4.12	**3***	4.44
8	I built self-confidence because my teammates believed in me (79)	**8**	4.27	**7***	4.18	**7***	4.36
9	sports participation helped relieve school stress (22)	**9**	4.23	**7***	4.18	**13***	4.28
10	I had to adhere to team rules and school rules to participate (73)	**10**	4.22	**11***	4.10	**9***	4.34
11	my coach taught me to stay calm and focused to perform my best (27)	**11***	4.21	**7***	4.18	**16**	4.24
12	I had to time manage well around sports and school commitments (49)	**11***	4.21	**13***	4.08	**9***	4.34
13	I learned to be respectful to my teachers by having to be respectful to my coaches (52)	**11***	4.21	**11***	4.10	**11***	4.32
14	I was put into a leadership position on the team (8)	**14**	4.18	**13***	4.08	**13***	4.28
15	I had to maintain a certain GPA to be eligible to compete (51)	**15**	4.14	**16***	4.00	**13***	4.28
16	I had to attend class daily to be eligible to play (48)	**16**	4.13	**18***	3.94	**11***	4.32
17	I felt confident in school when my non-athletic friends looked up to me (83)	**17**	4.12	**13***	4.08	**23***	4.16
18	I was kept accountable by my coaches (66)	**18**	4.10	**16***	4.00	**17***	4.20
19	my coaches taught me how to set goals (19)	**19**	4.07	**18***	3.94	**17***	4.20
20	I was surrounded with teammates that were successful in school (21)	**20***	4.04	**23***	3.88	**17***	4.20
21	I was able to use my excess energy outside the classroom on sports (44)	**20***	4.04	**23***	3.88	**17***	4.20
22	working hard in sports made me want to work hard in school (46)	**20***	4.04	**23***	3.88	**17***	4.20
23	I had to balance the workloads of both school and sports (50)	**23**	4.03	**22**	3.90	**23***	4.16
24	my coach encouraged the team to put academics first (70)	**24**	4.01	**18***	3.94	**26***	4.08
25	I had more team responsibilities as a team leader (37)	**25**	4.00	**21**	3.92	**26***	4.08
26	the whole team had to keep a good GPA (41)	**26**	3.97	**28**	3.76	**22**	4.18
27	my coaches taught me about perseverance (78)	**27**	3.95	**26**	3.84	**29**	4.06
28	I was held to the same school standards as non-athlete students (18)	**28**	3.94	**29**	3.74	**25**	4.14
29	we were not allowed to practice unless we were passing our classes (56)	**29**	3.87	**27**	3.78	**30**	3.96
30	my team was a support system at school (65)	**30**	3.86	**32**	3.64	**26***	4.08
31	I realized that my classmates depended on me for projects like my teammates depended on me on the field (4)	**31**	3.81	**30**	3.68	**31**	3.94
32	my coaches talked about the importance of college (40)	**32**	3.73	**31**	3.66	**34***	3.80
33	I was competitive in the classroom from being competitive in sports (15)	**33**	3.72	**33***	3.62	**32***	3.82

34	my coach factored class attendance into playing time decisions (20)	**34**	3.70	**33***	3.62	**37**	3.78
35	meeting challenges in sports encouraged me to take challenging classes (35)	**35**	3.69	**36**	3.58	**34***	3.80
36	my coach had extremely high school spirit (45)	**36**	3.65	**33***	3.62	**39***	3.68
37	I was able to miss practice to take after school tests (6)	**37***	3.61	**38**	3.54	**39***	3.68
38	I met people on my team that I could form study groups with (81)	**37***	3.61	**39**	3.50	**38**	3.72
39	the upperclassmen on the team provided academic advice on classes (57)	**39**	3.58	**40**	3.48	**39***	3.68
40	I brought my school work with me to sports competitions (61)	**40**	3.57	**45**	3.32	**32***	3.82
41	my coach communicated with my teachers (11)	**41**	3.53	**37**	3.56	**43**	3.50
42	my coach factored academic performance into playing time decisions (36)	**42***	3.51	**46**	3.22	**34***	3.80
43	my teammates were helpful during exam time (72)	**42***	3.51	**43***	3.36	**42**	3.66
44	proper study habits were instilled by my coaches (76)	**44**	3.42	**42**	3.40	**45**	3.44
45	my coach informed the team about academic college scholarships (32)	**45**	3.41	**41**	3.42	**47***	3.40
46	my parents interacted with my coach (58)	**46**	3.38	**43***	3.36	**47***	3.40
47	I became open to going to colleges that were further away from traveling for sports (28)	**47**	3.31	**47***	3.20	**46**	3.42
48	my coach made us allocate study time in our schedules (68)	**48**	3.30	**52***	3.14	**44**	3.46
49	I looked at more colleges that might allow me to play sports in college (43)	**49**	3.25	**47***	3.20	**49***	3.30
50	my coach had mandatory weekly study hours (10)	**50**	3.22	**52***	3.14	**49***	3.30
51	my focus shifted more towards academics due to an injury (29)	**51**	3.21	**47***	3.20	**54**	3.22
52	my coach connected me with former students that were now in college (13)	**52**	3.20	**50***	3.16	**51***	3.24
53	I had a coach that was also my teacher (54)	**53**	3.16	**54**	3.08	**51***	3.24
54	my teammates tutored me in classes (24)	**54**	3.12	**50***	3.16	**56**	3.08
55	I would have harder workouts from my coach if I was not doing my best in class (23)	**55***	3.04	**57**	2.90	**55**	3.18
56	I was verbally confronted by my coach for not doing my best in class (33)	**55***	3.04	**58**	2.84	**51***	3.24
57	sports participation required me to get an extension on assignments (71)	**57**	2.79	**56**	2.92	**57**	2.66
58	I had to lose or gain weight for my sport (63)	**58**	2.78	**55**	2.96	**59***	2.60
59	I had to take my tests differently due to a sports injury (84)	**59**	2.59	**64***	2.54	**58**	2.64
60	my coach did not allow us to do homework on the bus after a competition loss (64)	**60**	2.52	**64***	2.54	**61***	2.50
61	it was hard to concentrate in class due to a sports injury (69)	**61**	2.49	**73***	2.38	**59***	2.60
62	I had to miss class for a sports injury (38)	**62***	2.45	**67***	2.44	**63***	2.46
63	sports participation prevented having a job during high school to pay for college (59)	**62***	2.45	**59**	2.68	**79***	2.22
64	I would think about my sport rather than my school work (60)	**62***	2.45	**60***	2.62	**74***	2.28
65	I had to miss class for sport commitments (31)	**65**	2.44	**73***	2.38	**61***	2.50
66	I felt that I did not have enough time to complete assignments due to participating in sports (67)	**66**	2.41	**62***	2.58	**77***	2.24
67	my coach did not allow participation in other after-school activities at school that interfered with practice (42)	**67***	2.40	**62***	2.58	**79***	2.22
68	I participated less in class because I was tired from sports participation (82)	**67***	2.40	**67***	2.44	**68***	2.36
69	participating in sports consumed too much energy (53)	**69**	2.39	**76**	2.36	**65**	2.42
70	teammates tried to influence inappropriate substances (25)	**70**	2.37	**73***	2.38	**68***	2.36
71	I had to make up assignments that I missed due to sports participation (88)	**71**	2.36	**67***	2.44	**74***	2.28
72	I was unable to go see teachers after school (86)	**72**	2.35	**60***	2.62	**84***	2.08

73	I went to bed late from doing schoolwork after sports (26)	**73***	2.34	**67***	2.44	**77***	2.24
74	I did not have time to do other after-school activities (39)	**73***	2.34	**64***	2.54	**81***	2.14
75	I participated in sports instead of preparing for a standardized test (12)	**75**	2.33	**82**	2.26	**66**	2.40
76	I would have to stay up late to finish homework after practice (17)	**76**	2.32	**77**	2.32	**71***	2.32
77	I skipped class to watch a sports event (5)	**77***	2.30	**86**	2.14	**63***	2.46
78	I slept through class because I was tired from sports participation (77)	**77***	2.30	**84**	2.22	**67**	2.38
79	I spent time at sports rather than studying (34)	**79***	2.29	**83**	2.24	**70**	2.34
80	I had less time to study because of sports commitments (55)	**79***	2.29	**67***	2.44	**81***	2.14
81	I felt stressed at school because of my coach (75)	**81***	2.27	**72**	2.40	**81***	2.14
82	it was hard to focus in the classroom on the day of a competition (85)	**81***	2.27	**78***	2.28	**76**	2.26
83	I mostly focused on sports over schoolwork (16)	**83**	2.24	**85**	2.16	**71***	2.32
84	I missed taking a standardized test for a championship game (2)	**84**	2.22	**87***	2.12	**71***	2.32
85	coaching issues were a distraction at school (74)	**85**	2.18	**78***	2.28	**84***	2.08
86	I had a hard time completing my homework because of time spent at sports (30)	**86**	2.16	**78***	2.28	**86***	2.04
87	I did not do my homework because of sports participation (87)	**87**	2.15	**78***	2.28	**88**	2.02
88	I was so tired after sports participation that I could not concentrate in school the next day (14)	**88**	2.08	**87***	2.12	**86***	2.04

Appendix M

** = statement ranking is tied with another statement within the respective category, i.e. All, Male, or Female*

Appendix M - Frequency of Experience Rating - All Statement Rank

		ALL (n=100)		MALE (n=50)		FEMALE (n=50)	
	Statement	**Rank**	**Rating**	**Rank**	**Rating**	**Rank**	**Rating**
1	I had to balance the workloads of both school and sports (50)	**1**	4.56	**8**	4.30	**1**	4.82
2	I was held to the same school standards as non-athlete students (18)	**2**	4.50	**1**	4.52	**6**	4.48
3	I had to adhere to team rules and school rules to participate (73)	**3**	4.49	**4**	4.38	**3**	4.60
4	I learned how to work together with teammates (1)	**4**	4.47	**2**	4.44	**5**	4.50
5	I had to time manage well around sports and school commitments (49)	**5**	4.45	**9**	4.22	**2**	4.68
6	I became friends with my teammates (3)	**6**	4.40	**3**	4.42	**9**	4.38
7	I could put sports participation on high school "resume" in applying to colleges (62)	**7**	4.38	**5**	4.36	**8**	4.40
8	my teammates were choosing to go to college after high school (7)	**8***	4.33	**12**	4.12	**4**	4.54
9	my coach was supportive of my academics (9)	**8***	4.33	**7**	4.32	**10**	4.34
10	I got into a habit of being on time (47)	**10***	4.31	**10**	4.16	**7**	4.46
11	I had to maintain a certain GPA to be eligible to compete (51)	**10***	4.31	**6**	4.34	**12**	4.28
12	sports participation kept me in a stable routine (80)	**12**	4.17	**13***	4.08	**13**	4.26
13	I was kept accountable by my coaches (66)	**13**	4.13	**11**	4.14	**16***	4.12
14	sports participation helped relieve school stress (22)	**14***	3.98	**13***	4.08	**23**	3.88
15	I learned to be respectful to my teachers by having to be respectful to my coaches (52)	**14***	3.98	**17**	3.82	**15**	4.14
16	I had to attend class daily to be eligible to play (48)	**16**	3.96	**25***	3.62	**11**	4.30
17	I would have to stay up late to finish homework after practice (17)	**17**	3.90	**25***	3.62	**14**	4.18
18	I went to bed late from doing schoolwork after sports (26)	**18**	3.85	**28***	3.58	**16***	4.12
19	I built self-confidence because my teammates believed in me (79)	**19**	3.84	**15**	3.94	**27***	3.74
20	I had more team responsibilities as a team leader (37)	**20**	3.83	**16**	3.90	**26**	3.76
21	I was surrounded with teammates that were successful in school (21)	**21**	3.82	**28***	3.58	**18**	4.06
22	I was able to use my excess energy outside the classroom on sports (44)	**22**	3.80	**18**	3.78	**25**	3.82
23	my coaches taught me how to set goals (19)	**23***	3.79	**23***	3.64	**21***	3.94
24	my coach taught me to stay calm and focused to perform my best (27)	**23***	3.79	**27**	3.60	**20**	3.98
25	the whole team had to keep a good GPA (41)	**25**	3.75	**31**	3.48	**19**	4.02
26	I realized that my classmates depended on me for projects like my teammates depended on me on the field (4)	**26***	3.74	**30**	3.54	**21***	3.94
27	my coaches taught me about perseverance (78)	**26***	3.74	**23***	3.64	**24**	3.84
28	I was put into a leadership position on the team (8)	**28***	3.72	**20***	3.70	**27***	3.74
29	my coach encouraged the team to put academics first (70)	**28***	3.72	**20***	3.70	**27***	3.74
30	I felt confident in school when my non-athletic friends looked up to me (83)	**30**	3.68	**19**	3.72	**31***	3.64
31	we were not allowed to practice unless we were passing our classes (56)	**31**	3.63	**22**	3.68	**34**	3.58
32	I was able to miss practice to take after school tests (6)	**32**	3.53	**33**	3.42	**31***	3.64
33	working hard in sports made me want to work hard in school (46)	**33**	3.47	**34**	3.32	**33**	3.62

34	my coach had extremely high school spirit (45)	**34**	3.41	**32**	3.44	**37***	3.38
35	my team was a support system at school (65)	**35**	3.34	**38**	3.12	**35**	3.56
36	I had less time to study because of sports commitments (55)	**36**	3.32	**35***	3.26	**37***	3.38
37	I was competitive in the classroom from being competitive in sports (15)	**37**	3.26	**35***	3.26	**41**	3.26
38	my coaches talked about the importance of college (40)	**38**	3.25	**41**	3.02	**36**	3.48
39	my coach factored class attendance into playing time decisions (20)	**39**	3.24	**37**	3.20	**40**	3.28
40	sports participation prevented having a job during high school to pay for college (59)	**40**	3.17	**42**	2.98	**39**	3.36
41	meeting challenges in sports encouraged me to take challenging classes (35)	**41**	3.16	**39**	3.08	**42**	3.24
42	I did not have time to do other after-school activities (39)	**42**	3.08	**40**	3.04	**43***	3.12
43	I brought my school work with me to sports competitions (61)	**43**	3.03	**64***	2.34	**30**	3.72
44	my parents interacted with my coach (58)	**44**	2.87	**44***	2.80	**46**	2.94
45	the upperclassmen on the team provided academic advice on classes (57)	**45**	2.86	**53***	2.60	**43***	3.12
46	my coach factored academic performance into playing time decisions (36)	**46***	2.83	**44***	2.80	**49***	2.86
47	I felt that I did not have enough time to complete assignments due to participating in sports (67)	**46***	2.83	**48***	2.76	**47***	2.90
48	I had a hard time completing my homework because of time spent at sports (30)	**48**	2.82	**44***	2.80	**51**	2.84
49	I met people on my team that I could form study groups with (81)	**49**	2.78	**58**	2.54	**45**	3.02
50	my coach communicated with my teachers (11)	**50**	2.73	**43**	2.86	**58**	2.60
51	my focus shifted more towards academics due to an injury (29)	**51**	2.71	**48***	2.76	**55***	2.66
52	I spent time at sports rather than studying (34)	**52**	2.70	**50***	2.70	**53***	2.70
53	participating in sports consumed too much energy (53)	**53**	2.67	**56***	2.58	**52**	2.76
54	I had to make up assignments that I missed due to sports participation (88)	**54**	2.66	**52**	2.68	**57**	2.64
55	I had to miss class for sport commitments (31)	**55**	2.65	**61**	2.44	**49***	2.86
56	I would think about my sport rather than my school work (60)	**56**	2.64	**50***	2.70	**59**	2.58
57	my teammates were helpful during exam time (72)	**57**	2.61	**67***	2.32	**47***	2.90
58	I became open to going to colleges that were further away from traveling for sports (28)	**58**	2.59	**59**	2.52	**55***	2.66
59	I looked at more colleges that might allow me to play sports in college (43)	**59**	2.57	**44***	2.80	**66**	2.34
60	my coach did not allow participation in other after-school activities at school that interfered with practice (42)	**60**	2.56	**56***	2.58	**61**	2.54
61	I had a coach that was also my teacher (54)	**61**	2.51	**67***	2.32	**53***	2.70
62	it was hard to focus in the classroom on the day of a competition (85)	**62**	2.49	**53***	2.60	**64**	2.38
63	I was so tired after sports participation that I could not concentrate in school the next day (14)	**63**	2.47	**63**	2.38	**60**	2.56
64	my coach informed the team about academic college scholarships (32)	**64**	2.40	**64***	2.34	**63**	2.46
65	my coach connected me with former students that were now in college (13)	**65**	2.38	**60**	2.46	**69***	2.30
66	I participated in sports instead of preparing for a standardized test (12)	**66**	2.36	**62**	2.40	**67***	2.32
67	my coach made us allocate study time in our schedules (68)	**67**	2.33	**71**	2.14	**62**	2.52
68	proper study habits were instilled by my coaches (76)	**68**	2.30	**69**	2.24	**65**	2.36
69	I mostly focused on sports over schoolwork (16)	**69**	2.26	**64***	2.34	**72***	2.18
70	I had to lose or gain weight for my sport (63)	**70**	2.21	**53***	2.60	**83**	1.82
71	I was unable to go see teachers after school (86)	**71**	2.19	**74***	2.06	**67***	2.32

72	I participated less in class because I was tired from sports participation (82)	**72**	2.18	**74***	2.06	**69***	2.30
73	I would have harder workouts from my coach if I was not doing my best in class (23)	**73**	2.12	**70**	2.18	**77**	2.06
74	I did not do my homework because of sports participation (87)	**74**	2.10	**73**	2.08	**75**	2.12
75	sports participation required me to get an extension on assignments (71)	**75**	2.06	**81**	1.94	**72***	2.18
76	it was hard to concentrate in class due to a sports injury (69)	**76**	2.05	**76***	2.02	**76**	2.08
77	I slept through class because I was tired from sports participation (77)	**77**	2.02	**72**	2.12	**81**	1.92
78	my coach had mandatory weekly study hours (10)	**78***	2.01	**76***	2.02	**79**	2.00
79	I had to miss class for a sports injury (38)	**78***	2.01	**82***	1.86	**74**	2.16
80	I felt stressed at school because of my coach (75)	**80**	2.00	**84**	1.70	**69***	2.30
81	I was verbally confronted by my coach for not doing my best in class (33)	**81**	1.98	**76***	2.02	**80**	1.94
82	coaching issues were a distraction at school (74)	**82**	1.95	**82***	1.86	**78**	2.04
83	my teammates tutored me in classes (24)	**83**	1.92	**79***	1.98	**82**	1.86
84	teammates tried to influence inappropriate substances (25)	**84**	1.73	**79***	1.98	**84***	1.48
85	I had to take my tests differently due to a sports injury (84)	**85**	1.45	**85**	1.48	**86**	1.42
86	I skipped class to watch a sports event (5)	**86**	1.42	**86**	1.36	**84***	1.48
87	I missed taking a standardized test for a championship game (2)	**87**	1.34	**87**	1.32	**87**	1.36
88	my coach did not allow us to do homework on the bus after a competition loss (64)	**88**	1.25	**88**	1.26	**88**	1.24

Appendix N

Evidence of Researcher CITI Training – Page 1

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)

COMPLETION REPORT - PART 1 OF 2
COURSEWORK REQUIREMENTS*

* NOTE: Scores on this Requirements Report reflect quiz completions at the time all requirements for the course were met. See list below for details. See separate Transcript Report for more recent quiz scores, including those on optional (supplemental) course elements.

- **Name:** Andrew Maguire (ID: 2783415)
- **Email:** amaguire@gwmail.gwu.edu
- **Institution Affiliation:** Email address 89)
- **Institution Unit:**

- **Curriculum Group:** Human Research
- **Course Learner Group:** Social & Behavioral Research
- **Stage:** Stage 1 - Basic Course

- **Report ID:** 20816858
- **Completion Date:** 12-Sep-2016
- **Expiration Date:** 12-Sep-2018
- **Minimum Passing:** 75
- **Reported Score*:** 91

REQUIRED AND ELECTIVE MODULES ONLY	DATE COMPLETED	SCORE
Belmont Report and CITI Course Introduction (ID: 1127)	10-Sep-2016	3/3 (100%)
History and Ethical Principles - SBE (ID: 490)	10-Sep-2016	4/5 (80%)
Defining Research with Human Subjects - SBE (ID: 491)	10-Sep-2016	5/5 (100%)
The Federal Regulations - SBE (ID: 502)	12-Sep-2016	5/5 (100%)
Assessing Risk - SBE (ID: 503)	12-Sep-2016	4/5 (80%)
Informed Consent - SBE (ID: 504)	12-Sep-2016	4/5 (80%)
Privacy and Confidentiality - SBE (ID: 505)	12-Sep-2016	5/5 (100%)
Research with Children - SBE (ID: 507)	12-Sep-2016	4/5 (80%)
International Research - SBE (ID: 509)	12-Sep-2016	5/5 (100%)
George Washington University (ID: 1307)	12-Sep-2016	No Quiz

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

Verify at: https://www.citiprogram.org/verify/?576a3ef4-231d-470e-9fca-cc05d5de8743

CITI Program
Email: support@citiprogram.org
Phone: 888-529-5929
Web: https://www.citiprogram.org

Evidence of Researcher CITI Training – Page 2

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)

COMPLETION REPORT - PART 2 OF 2
COURSEWORK TRANSCRIPT**

** NOTE: Scores on this Transcript Report reflect the most current quiz completions, including quizzes on optional (supplemental) elements of the course. See list below for details. See separate Requirements Report for the reported scores at the time all requirements for the course were met.

- **Name:** Andrew Maguire (ID: 2783415)
- **Email:** amaguire@gwmail.gwu.edu
- **Institution Affiliation:** G[redacted])
- **Institution Unit:** P[redacted]

Email address

- **Curriculum Group:** Human Research
- **Course Learner Group:** Social & Behavioral Research
- **Stage:** Stage 1 - Basic Course

- **Report ID:** 20816858
- **Report Date:** 12-Sep-2016
- **Current Score**:** 91

REQUIRED, ELECTIVE, AND SUPPLEMENTAL MODULES	MOST RECENT	SCORE
History and Ethical Principles - SBE (ID: 490)	10-Sep-2016	4/5 (80%)
Defining Research with Human Subjects - SBE (ID: 491)	10-Sep-2016	5/5 (100%)
Belmont Report and CITI Course Introduction (ID: 1127)	10-Sep-2016	3/3 (100%)
The Federal Regulations - SBE (ID: 502)	12-Sep-2016	5/5 (100%)
Assessing Risk - SBE (ID: 503)	12-Sep-2016	4/5 (80%)
Informed Consent - SBE (ID: 504)	12-Sep-2016	4/5 (80%)
Privacy and Confidentiality - SBE (ID: 505)	12-Sep-2016	5/5 (100%)
Research with Children - SBE (ID: 507)	12-Sep-2016	4/5 (80%)
George Washington University (ID: 1307)	12-Sep-2016	No Quiz
International Research - SBE (ID: 509)	12-Sep-2016	5/5 (100%)

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

Verify at: https://www.citiprogram.org/verify/?576a3ef4-231d-470e-9fca-cc05d5de8743

Collaborative Institutional Training Initiative (CITI Program)
Email: support@citiprogram.org
Phone: 888-529-5929
Web: https://www.citiprogram.org