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Perceptions of Texas High School Football Coaches Regarding Concussions

Justin J. Hefley

Concordia University - Portland

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Concordia University (Portland)

College of Education

Doctorate of Education Program

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PERCEPTIONS OF TEXAS HIGH SCHOOL FOOTBALL COACHES REGARDING
CONCUSSIONS

Justin J. Hefley, M.Ed.

Concordia University – Portland

College of Education

Dissertation submitted to the Faculty of the College of Education

in partial fulfillment of the requirements for the degree of

Doctor of Education in

Educational Administration

Committee Chair, Julie M. McCann, Ph.D.

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2017

□Justin J. Hefley

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ABSTRACT

With new information regarding degenerative neurological problems, researchers linked Alzheimer's disease with repeated head injuries such as a concussion. The new findings resulted in an outcry from the public, and the medical fraternity provided more information and safety for coaches and players. To this end, football regulations have been amended and player education, especially at the high school level, has increased. The purpose of this qualitative multiple case study was to explore how medical data and media exposure on the subject of football-related concussions influence the perceptions and practices of Texas high school football coaches. The study was conducted at five school districts, and the participants included eight head football coaches in Texas. The methodology applied semistructured interviews and direct observations for data collection. The data were analyzed using field notes and NVivo coding, which uncovered four themes that were used to substantiate the findings. The key findings from this study indicated a need for a continuation of increased concussion awareness. Also, findings from this study indicated media coverage and recent medical findings increased the coaches' awareness of the potential seriousness of concussions, and media coverage and recent medical findings influenced their coaching practices and attitude towards the sport. Concussed athletes were handled according to UIL protocol which included talking to parents. The concussion protocol of the school eased the burden off the coaches and allowed them to focus on coaching the team.

Keywords: high school, football, head coach, concussion, Texas

DEDICATION

This dissertation is dedicated to my family, beginning with my wife Mireille for her love, support, and belief in me. When there were moments of doubts, you were there with the right words of encouragement. You have been my best friend and my guardian angel. Thank you for stepping up and taking great care of our daughter as I spent countless hours typing away in an office. I love you and this could not have been possible without your commitment and faithfulness to our family. To my daughter, Olivia. No matter how busy I became, I am thankful that I made it a priority to spend mornings in the car together so I could catch up on the latest developments in your life. Thank you for being such a great daughter. You make me very proud. I cannot wait to see what wonderful things you accomplish.

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Chapter 1: Introduction

Introduction to the Problem

It is a Friday night in the state of Texas, and the bleachers are full of fans enthusiastically watching local high school heroes play football. The coaches are giving their strategic instructions over the loud noise from the band to players that are willing to sacrifice their bodies for the good of the team. The game is full of action as both teams are running up and down the field, until an abrupt stop in the game. The coaches, athletic trainers, and fans all turn their attention to a player lying motionless on the field. The player slowly returns to his feet holding his head and walks to the sideline with the athletic trainer. The player is diagnosed with a concussion. The coach comes over to the player for just a moment and checks on the status of his return. He is informed from the athletic trainer the player cannot return to play because of his injury. The coach briefly comforts his injured athlete before shifting his focus back to the game. I am watching this all unfold from the sideline as I am the athletic director.

As an athletic director, I often face the question of finding ways to make the game of football safer and deciding what the future of high school football may hold. High school football in Texas is big business. Many schools in Texas proudly display multimillion-dollar stadiums with endorsements from retail giants, such as Under Armour and Nike. Movies and shows have been created because of the infatuation with Texas high school football. Revenue generated from football financially supports other sports offered to students. Without that revenue, other sports would struggle to exist. However, is the reward worth the risk?

Background, Context, History, and Conceptual Framework of the Problem

Background

Statistics have shown that high school football is very popular among student athletes. In the United States, approximately 3.1 million youth athletes participated in football programs (USA Football, 2013). The National Federation of State High School Associations (NFHS) revealed in 2013, there were over 1.1 million athletes who engaged in high school football making it the most popular sport in this country (Talavage et al., 2014).

In 2013, the National Collegiate Athletic Association (NCAA) reported there were approximately 71,250 people who participated in college football (Loeb, 2014). The National Football League (NFL; 2010) is extremely popular with approximately 2,471 professional athletes participating each year (Loeb, 2014). As someone who has played, coached high school football, and now is an athletic director, I have seen a movement in the concerns of parents. Injury concerns, which once revolved around broken bones and torn ligaments, are now focused on head injuries. With the growing concerns, Texas high school football better known as Friday Night Lights is at a crossroads balancing player safety with a love of the game.

With the number of players participating in football each year in the United States, the question of how many of these players suffer from concussions or concussion-related symptoms is a major health concern that has received increased medical and media attention. Hence, the purpose of this study was to explore how medical data and media exposure on the subject of football-related concussions influence the practices and perceptions of Texas high school football coaches.

Context and History

In June of 2014, the (NFL) agreed to lift a \$765 million cap from a previous lawsuit on the amount of monies allowed on a previous agreement between former players and the NFL (Loeb, 2014). The lawsuit, initiated by former NFL players, addressed the long term medical costs and effects of these concussions. Previously, in 2013, the NFL had agreed to pay only \$765 million to more than 4,500 players that suffered from concussions. The courts lifted the cap because both the NFL and former players agreed \$765 million would not cover all former NFL players who could qualify for damages from concussions (Belson, 2013).

In response to the recent attention placed on concussions and player safety, the NFL changed its rules. In an effort to reduce the number of head injuries that occur on the field, NFL owners approved a new rule that penalizes players for striking opponents with the crown of their helmets. The league also modified medical protocols for concussions (Belson, 2013). A player diagnosed with a concussion cannot return to the field of play, until a physician clears him completely. The player is examined by an independent neurological consultant, who also reviews any relevant neurological tests. Finally, the league has given certified athletic trainers who are stationed in skyboxes at each game the authority to stop play with the touch of a button if they see a player who is exhibiting notable signs of injury, even if he was hurt in a previous play.

In July of 2014, the NCAA reached a preliminary agreement in a class action lawsuit, brought by former college athletes, over concussions. The agreement called for the NCAA to provide \$70 million for concussion testing. According to a report in 2014, this settlement covered only diagnostic medical expenses and established a 50-year monitoring program (Solomon, 2014). The program assessed self-reported symptoms and cognitive, mood,

behavioral, and motor problems that may be associated with persistent postconcussion syndrome and/or mid- to late-life onset problems, such as chronic traumatic encephalopathy (CTE) and related disorders, according to the settlement (Solomon, 2014). The settlement changed the future of college sports. The settlement brought numerous changes and new guidelines such as preseason baseline testing is now mandatory for every athlete in every sport (Solomon, 2014). Medical personnel, trained in concussion diagnosis and treatment, must attend all games and practices. Athletes are now prohibited from returning to competition on the same day they are diagnosed with a concussion. All NCAA schools must provide NCAA-approved concussion training to all athletes, coaches, and athletic trainers prior to the start of the season, and institutions must track concussion by reporting the incidence of concussions and their resolutions (Solomon, 2014).

In 2011, the Texas state legislature passed House Bill 2048 instructing the University Interscholastic League (UIL) to create a concussion acknowledgment form (Johnson, 2012). The UIL then created a form requiring all student athletes in Grades 7–12 to fill out before a student can participate in an interscholastic athletic activity for a school year. All high school coaches in the state of Texas must follow the UIL guidelines. State law required the Commissioner of Education develop and adopt safety training programs. Presently, football coaches in the state of Texas are required to take concussion training courses each year prior to the football season (Johnson, 2012). A concussion protocol has been established by the UIL instructing the school districts on the procedure to be followed pertaining to concussions as well.

Theoretical Framework of the Problem

Successful management of concussions relies on open, ongoing communication with athletes, coaches, athletic trainers, and parents. The theoretical framework of the study was

based on the Vygotsky's (1962, 1978) social constructivism and Schön's (1987) reflective practice theory. Both theories emphasize the importance of learning as a collaborative, reflective, and continuous activity (Barge, 2012; Osterman & Kottkamo, 2004). The social constructivism theory and the reflective practice theory informed this study's arguments about the role of both recent medical data and media exposure on the subject of football-related concussions, and how it affects the perceptions and practices of high school football coaches.

The focus of Vygotsky's (1962, 1978) social constructivism theory accentuated learning occurred because of social relations through collaboration (Barge, 2012). Social constructivism theory emphasized the importance of ongoing learning through professional development opportunities that enhance current knowledge. Within the context of the study, Vygotsky's social constructivism theory provided a framework in understanding how social learning gained from medical data and media influenced practices and perceptions of coaches regarding football-related concussions. I expected participants, who are able to learn from medical data and media exposure related to concussion, implemented new methods and practices aimed at protecting players from concussion.

Schön's (1987) reflective practice theory is "rooted in the notion of intentional action" through reflection (Osterman & Kottkamo, 2004, p. xii). According to Cushion (2016), reflection played an important part of coaching and that included player safety. Reflective practice theory outlines the importance of using practical knowledge and information available to enhance one's professional abilities and effectiveness. Within the context of the study, reflective practice theory provided a framework in understanding how coaches benefited from present day concussion information. I expected football coaches who are able to reflect on medical data and

media exposure related to concussion transformed their practices and perceptions that led to improved concussion knowledge and management.

Statement of the Problem

With an increased interest from media and medical communities related to concussions, this study explored how medical data and media exposure on football-related concussions influenced the practices and perceptions of Texas high school football coaches. Diehl (2010) reported 96,000 children aged five to 18 experience sports-related concussions annually, and 3.8 million sports related concussions occur each year in the United States. Conservative estimates indicate more than 300,000 sport-related concussions occur each year in the United States, but that figure only represented head injuries resulting in hospital admissions (Diehl, 2010). Over 1.4 million students participate in high school football each year (Talavage et al., 2014). With new information regarding degenerative neurological problems, Alzheimer's disease was linked to repeated concussions resulting in an outcry from the public. The medical fraternity and the media responded by providing vast amounts of concussion information to players and parents. Texas high schools have a prestigious and storied history producing many of the greatest players to every wear a helmet. With so much value placed on football success, high school head coaches must produce wins while managing medical data and media reports related to concussions.

Purpose of the Study

The purpose of this qualitative multiple case study was to explore how medical data and media exposure on the subject of football-related concussions influence the perceptions and practices of Texas high school football coaches. I interviewed head coaches for their

interpretations and input on the history and implications related to concussions from playing football.

Research Questions

The principal research question of the study was, “How do high school football coaches in Texas perceive the recent medical data and media attention on the subject of football related concussions?” Based on the principle research question, the corresponding subquestions were the following:

1. How have present day medical data and media attention raised awareness of the concussion issue in high school coaches, if at all, in Texas?
2. How have recent medical studies involving football-related concussions influenced the practices of high school coaches, if at all, in Texas?
3. How has the media attention regarding football-related concussion influenced the practices of high school coaches, if at all, in Texas?

Rationale, Relevance, and Significance of the Study

The rationale for conducting this study is that it is imperative to provide coaches and athletic directors with various methods, techniques, and strategies that other experienced coaches have found effective in preventing and treating concussion. Coaches and athletic directors are community leaders and role models who are responsible for athletes’ health, well-being, and personal development. According to Davis and Rosner (2012), there is a need to improve concussion education and prevention efforts for youth athletes and those responsible for their care.

This study seeks to provide coaches and athletic directors with an array of tools that have been proven successful in implementing concussion protocol and return to play. This study will

bring awareness to the practices and perceptions of coaches tasked with preventing and treating concussion. Information gained from this study can be beneficial to other coaches and athletic directors, and their experiences with preventing and treating concussion.

This qualitative collective case study is relevant to the education field because the data gathered could provide coaches and athletic directors with examples of specific strategies that can be implemented when preventing and treating concussion. Research on this topic is also relevant to the education community because coaches and athletic directors are being directed to implement concussion protocol designed to protect the health of student athletes; however, not all coaches and athletic directors are properly prepared with the knowledge and the tools required to meet the safety needs of student athletes.

The results from this study can also be used to help coaches make informed decisions concerning strategies, techniques, and methods used to provide effective prevention and care of concussion. This study may also allow coaches and athletic directors to reflect critically on their current prevention and care methods and consider alternative tools for concussion prevention and care. Results from this study will add to a limited body of concussion research with youth sport coaches.

Nature of the Study

This qualitative multiple case study was designed to explore how medical data and media exposure on the subject of football-related concussions influence the perceptions and practices of Texas high school football coaches. The multiple case study design allowed the participating coaches to share their experiences and perspectives in regards to concussions. In an effort to improve the validity of the data gathered, multiple cases were applied to allow the “researcher to

explore differences within and between cases” and draw comparisons between cases (Baxter & Jack, 2008, p. 548).

The target population for the study was high school football coaches in Texas. To recruit the target sample size of eight high school football coaches in Texas, purposeful sampling technique was used. Purposeful sampling is a nonprobability technique wherein participants are selected based on satisfying key inclusion criteria (Creswell, 2013). The recruitment of participants and the collection of data only commenced after the approval of the IRB. Data collection involved conducting individual semistructured interviews, direct observations, and collecting documents such as official memos, team meeting reports, and records that are devoid of personal information about students. The use of three different sources of data provided a comprehensive description and understanding of the case study (Yin, 2013). All data were analyzed through the process of coding with the goal of generating themes.

Definition of Terms

For the purposes of this research study, the following definitions were used to describe background information on key terms within the concepts under investigation.

Chronic traumatic encephalopathy (CTE) is a degenerative brain disease caused by repeated head trauma. Chronic traumatic encephalopathy refers to chronic cognitive and neuropsychiatric symptoms associated with unique degeneration of brain tissue and a build up of the abnormal protein “tau” in athletes who have a history of repeated episodes of mild traumatic brain injury (Collins & Hawn, 2002).

Concussion is a traumatic brain injury that alters the way your brain functions. Effects are usually temporary, but can include problems with headache, concentration, memory, judgment, balance, and coordination. Although concussions usually are caused by a blow to the

head, they can also occur when the head and upper body are violently shaken (Giza & Hovda, 2001).

Hawk tackling is a football method that uses a rugby style tackling technique developed by Pete Carroll, head coach of the Seattle Seahawks. The tackler tracks the near hip of the ball carrier, and then leads with the near shoulder into the thigh of the ball carrier. The technique minimizes the use of the head when tackling (Rovell, 2014).

Head trauma is a head injury to the scalp, skull, or brain. The injury may be only a slight bump to the skull or a severe brain injury. Head injury can be either closed or open (penetrating). A closed head injury is a hard blow to the head from striking an object, but the object did not break the skull (Giza & Hovda, 2001).

National Collegiate Athletic Association (NCAA) is the national governing body for all collegiate athletics in the United States (Diehl, 2010).

National Federation of State High School Associations (NFHS) is the national governing body that establishes policy for high school football throughout the United States (Diehl, 2010).

University Interscholastic League (UIL) is an organization that creates rules for and administers almost all athletic, music, and academic contests for public primary and secondary schools in the state of Texas (Diehl, 2010).

Second impact syndrome is a condition of sustaining a second head injury before symptoms from the first have subsided (Diehl, 2010)

Postconcussion syndrome (PCS) is defined as permanent symptoms from a single episode or a chronic history of brain injury that lingers beyond a few weeks after injury (Giza & Hovda, 2001).

Assumptions, Delimitations, and Limitations

For the purposes of this study, I assumed participants would understand and answer all interview protocol questions with honesty. I assumed participants would have sufficient time to provide necessary data for the study. I assumed participants were aware of the recent medical data and media exposure regarding football-related concussion.

There were boundaries or delimitations associated with this research study. The study was delimited to head coaches who have at least five years of head coaching experience in high school football. In addition, the data collection was delimited to collecting three data sources: semistructured interviews, observations, and document reviews.

I understand that there are certain limitations inherent in conducting this research study. Researcher bias could be construed as a limitation. I made great effort to separate my own experiences from this research, as I am aware that my previous experience with coaching and concussion management can influence my opinions. The selection of a multiple case study research design can also be a limitation because “the study of more than one case dilutes the overall analysis; the more cases an individual studies, the less the depth in any single case” (Creswell, 2013, p. 101).

Summary and Transition

The purpose of this qualitative multiple case study research was to explore how medical data and media exposure on the subject of football-related concussions influence the perceptions and practices of Texas high school football coaches. With all of the media attention given to the subject due to the recent NFL concussion lawsuit, public awareness on the subject of football-related concussions has escalated. In Chapter 1, the author introduced the reader to the topic and purpose of the study. Chapter 2 defines what a concussion is as it pertains to the sport of

football. A review of the literature was conducted. In Chapter 3, the author outlines the design of the study. This study will follow the qualitative collective case research design, and data will be collected using semistructured interviews and direct observations. Chapter 4 will offer a nonevaluative reporting of the data, and Chapter 5 will conclude the study with a discussion and conclusion on how well the dissertation addressed the problems proposed in this study.

Chapter 2: Literature Review

Introduction

High School Football traditions in Texas run long and deep. Autumn Friday nights are for one thing and one thing only in the state of Texas and that is for high school football. Texas high school football is a community affair (Talavage et al., 2014). High school football contours the life of our youth. From cheer, band, players, to everyone in between, the ethical and life lessons learned are invaluable. I can equate so many of the lessons learned from high school football to everyday life and business. In Texas because such a big emphasis is placed on the game, it has a huge impact on our youth and the men and women they grow up to be. Unfortunate, we cannot totally prevent concussions or other injuries today. Uproars from the media and medical community have increased pressure on coaches to teach our athletes better techniques that reduce the risk of concussion. Injuries from football are common, and a concussion is a frequent consequence from this game (Greenhow & East, 2015; Love & Solomon, 2015; Talavage et al., 2014). Without proper treatment, a concussion can have serious health implications for the player both in the short and long term. The specific issue I investigated in this study was how modern medical information and media exposure of football-related concussions influenced the perceptions and practices of football coaches in Texas high school football.

Researching this issue added to limited studies regarding concussion by providing information regarding the perceptions of Texas high school football coaches, whom I interviewed. This research could influence a “way of life” in Texas on Friday nights. This research facilitated extending the existing research base on the perceptual and behavioral studies of high school football coaching pertaining to concussion. The purpose of the current qualitative

phenomenological study was to conduct a multiple case study to identify how available medical data and media exposure of football-related concussions influenced the perceptions and practices of high school football coaches in Texas.

Search Strategy

To uncover relevant resources for this literature review, the following databases were used: EBSCOHost, JSTOR, ScienceDirect, PsychArticles, PubMed, and Google Scholar. The search terms used included *football, injuries, concussion and symptoms, diagnosis and treatment, traumatic brain injury, high school football, youth football, athletics, training, football coach, helmet, protection, and football rules*. Using these keywords (both individually and in combinations), relevant studies were generated from database searches. Those that were deemed relevant to the study were included in the literature review. The majority of sources are from 2012 through 2016, although seminal sources from the 1980s were also included in this review of the literature.

Organization of the Chapter

In this chapter, the conceptual and theoretical framework of the study will be discussed, followed by a review of the extant literature. The literature review will be divided into the following categories—review of related information on concussion, review of research literature and methodical literature on concussion, review of methodological issues with the research, synthesis of the research on concussion, and critique of the research on concussion. This study is significant to the field of high school athletics because it will offer coaches' perceptions of what is known and what is needed to improve the safety of football.

Conceptual Framework

Just a few decades ago, concussions were viewed as a minor injury, and concussions were often referred to as “bell-ringers” or “athletes getting their bell rung” (Abdullah, Grady, & Levine, 2015, p. 1). Currently, medical professionals identified a concussion as a mild traumatic brain injury, and it represents one of the most talked about injuries in sports media (Abdullah et al., 2015). Football is a violent sport that has had more injuries than any other sport (Abdullah et al., 2015). Football players are subjected to a series of concussions and subconcussions during their careers and even during a single game (Abdullah et al., 2015). Researchers noted that repeated bouts of a concussion left untreated caused long-term health issues (Abdullah et al., 2015). At times, a concussed athlete was visible to the untrained eye as the players seemed visibly shaken and disoriented (Abdullah et al., 2015). Abdullah et al. (2015) reported some players experienced brief losses of consciousness due to hits on the field, and some players encountered mental changes and hallucinations.

According to Abdullah et al. (2015), some players failed to report symptoms from concussions and continued to play. Unreported concussions complicated the diagnosis and treatment regime of a concussed football player (Abdullah et al., 2015). Abdullah et al. (2015) noted, unlike soft tissue injuries, a concussion is not visible and did not show up on x-rays, so players were physically fine to coaches, peers, and fans. The nonreporting of injuries caused confusion and doubt about the player’s intentions (Abdullah et al., 2015). Some players feared a loss of playing time, and many players would not risk being labeled as soft or injury prone (Abdullah et al., 2015). Furthermore, Abdullah et al. (2015) emphasized the need for coaches to facilitate meaningful collaboration with athletes and parents to thwart players from hiding or exaggerating their concussion symptoms.

In addition, new research findings revealed that brains in adolescents were in the process of development, and the changing structure, metabolic functioning, and blood flow increased vulnerability to concussions (Caron, Bloom, & Bennie, 2015; Graham, Rivara, Ford, & Spicer, 2014). Researchers revealed age played an important role in the frequency of concussion, as there was a higher incidence in college students compared to adults. However, due to a lack of epidemiological data elucidations for variations of concussion in different age groups and various sports could not be determined (Graham et al., 2014). To conclude, researchers noted understanding and processing modern concussion information from medical communities and media sources improved practices and methods used by coaches in concussion prevention (Davis & Purcell, 2014).

Modern Medical Findings

The term concussion was defined as an injury to the head that affects a person's cerebral abilities and neurological performance (MacGillivray, 2014). Noble and Hesdorffer (2013) defined it as "a force to the head or other parts of the body leading to head injury following rapid acceleration or deceleration of the brain from linear, translational, and rotational forces" (p. 273). As in all complex injuries, Tator (2014) identified different types of concussion disorders such as acute concussion, second impact syndrome, and postconcussion syndrome. Furthermore, Tator (2014) acknowledged the presence of depression and anxiety associated with concussion. In addition, McNamee, Partridge, and Anderson (2015) pointed out that concussion research was not well established, and there was a need for a consensus pertaining to the definition of concussion or mild traumatic brain injury (mTBI) so that diagnostic protocols can be established.

Repetitive impacts. Following an unreported concussion, recent studies have shown that players were subject to subconcussive impacts or repetitive head injuries (Giza et al., 2014).

Studies reported mixed outcomes in identifying relationships between these impacts and impaired function (Giza et al., 2014). Giza et al. (2014) reported repetitive impacts to the head impaired memory and decelerated the speed of processing information. The time lapses between head injuries were found to be a significant factor in the likelihood and severity of successive concussions (Graham et al., 2014; Vagnozzi et al., 2012). Subsequently, research defining the long-term effects of multiple concussions in youths has not sufficiently been established, and it is not yet clear whether multiple concussions will result in neurodegenerative diseases (e.g., CTE).

Second impact syndrome. Players that returned to play in the football game, while recovering from a concussion, led to further injury to the brain called second impact syndrome (SIS) according to recent findings (Dimou & Lagopoulos, 2014). This syndrome occurred when a second injury was sustained before the brain was completely healed from the first concussion causing an inflammatory chain reaction in the brain (Dimou & Lagopoulos, 2014). This reaction was catastrophic to the patient, according to Dimou and Lagopoulos (2014). Theoretically, after the first injury, the brain remained in a vulnerable state for several days and even weeks after the injury (Pearce, Corp, Davies, Major, & Maller, 2014).

In the past, concussions in football were diagnosed as a minor injury, and a full recovery was expected after a week or 10 days (Broglia, Eckner, Paulson, & Kutcher, 2012; Solomon & Sills, 2015). According to Jordan (2013), new medical findings suggested using cautionary measures in the decision to return to play as the criteria for assessments were inconclusive, and the possibility of a second impact was inevitable. In contrast with previous views from past perceptions regarding return to play, all researchers agreed returning to the field too soon after a head injury would lead to another concussion (Pearce et al., 2014). For the most part, this

remains true even though researches cannot agree on the length of time it takes from concussion recovery (Broglia, Eckner, Paulson, & Kutcher, 2012; Solomon & Sills, 2015).

Chronic traumatic encephalopathy. Brain autopsies donated for research from deceased football players who suffered multiple concussions during their football careers, confirmed that concussions caused CTE (Broglia et al., 2012). Chronic traumatic encephalopathy was detected in several autopsies of former football players with a history of concussions (Broglia et al., 2012). Len et al. (2013) linked former athletes who experienced numerous concussions with depression and mild mental impairment. The results indicated repeated exposures to concussions were detrimental to neurocognitive health when the athlete aged (Broglia et al., 2012). Len et al. (2013) reported abnormalities during respiratory stress—something that would not be detected during restful breathing and compromised cerebral blood flow patterns. Although Len et al. (2013) indicated symptoms normalized within a few days after the injury, it was in contrast with other studies that found symptoms did not disappear after a short time lapse (Broglia et al., 2012; Loeb, 2014; Werts, 2012). Thus, increased CTE knowledge was certainly beneficial for high school and youth sports being that a considerable amount of public schools in the United States did not understand the disease (Gilbert & Côté, 2013).

Media Exposure

The issue of concussions in football has attracted considerable media coverage in recent years. Understandably, the early focus was on professional football, a game constructed around high speed, full contact between heavy, powerful players, but the scope of reporting and research has expanded widely to include sports at every level (Beaver, 2013; Lawrence, Hutchison, & Comper, 2015). Entertainment and Sports Programming Network (ESPN) once televised NFL

highlight segments termed ‘Jacked Up’ where viewers were shown replays of players getting laid out from enormous hits, while the anchor and panellists cheered in the background (McGrath, 2011). Years on, perspectives have changed. Young NFL players have left the game because of worries around brain injury and CTE. In an unprecedented move, San Francisco 49ers linebacker, Chris Borland, made a preventive stand against CTE: retired voluntarily at 24 with faculties undamaged and without waiting for any warning signs (McGrath, 2011). Without a doubt, Borland, who walked away from millions of dollars, increased mental health awareness at all levels (McGrath, 2011).

According to studies, media exposure from the NFL raised concussion awareness at all levels of football, and the NFL provided new concussion protocols that have been used at all levels (Beaver, 2013; Lawrence, Hutchison, & Comper, 2015). On its website, the NFL explicitly stated that player safety was the NFL’s most important priority. The website explained how the NFL implemented safeguards for the players from the beginning of the league (Lawrence, Hutchison, & Comper, 2015). Furthermore, the NFL educated all coaches and players about its new rules and regulations (Lawrence, Hutchison, & Comper, 2015). According to Caruso (2014), one of the NFL’s most important regulations targeted premature return-to-play of players. This regulation clearly stated that a concussed player be removed from the field of play and could not return until a doctor examined him (Caruso, 2014). The present NFL policy on concussions stated that multiple concussions sustained during an NFL player’s career caused cognitive problems such as depression and early-onset dementia. Moreover, in ensuring players’ safety, the NFL instituted a new panel called the Player Safety Advisory Panel. The panel was tasked with monitoring player safety and formulating disciplinary measures when players or coaches failed to comply (Caruso, 2014).

Concussion Awareness in High School Football

High school football players made up the largest number of participants in football (Talavage et al., 2014). Over 1.1 million students participated in high school football last year, and approximately 67,000 were diagnosed with a concussion (Talavage et al., 2014). This group accounted for the majority of sport-related concussions and about the same number goes undiagnosed each year (Talavage et al., 2014). In addition, Hensley (2014) indicated that most people were aware of the health risks associated with high school football. Only 5% polled said they were unaware (Hensley, 2014). Only 7% of individuals polled said the risks were too great to continue participating. The findings suggested that there has been substantial progress in raising awareness concerning concussion risks (Hensley, 2014). The study asked if people had changed their viewing habits because of the long-term risks associated with concussions, and only 5% of people said they watched less football because of the health issues (Hensley, 2014). In fact, almost three quarters said their viewing habits had not changed. About 5% said they actually watched more football, and 17% said they never watched football (Hensley, 2014).

Coaches' Role in Sport Concussion Care

The Sports Concussion Institute (2014) reported that the primary role of a coach was to teach, develop, and facilitate an athlete's physical, technical, tactical, and psychological skills related to a given athletic task. Abrams (2013) emphasized that school administrators, coaches, and athletic directors had the responsibility to employ preventative practices to curb the head injury epidemic. Rules to keep players safe had to be enforced by stakeholders (Dr. Meehan, cited by Abrams, 2013). Furthermore, it was a requirement of nearly all concussion protocols that stakeholders—parents, players, administrators, and coaches—received appropriate training about the dangers of concussions in football before the season begins (Abrams, 2013). Since

coaches were often required to remove a possible concussed player immediately from the field, Abrams (2013) emphasized the importance of concussion training that included the recognition of concussion symptoms and management after a player suffered a concussion.

Further research conducted by Gilbert and Côté (2013) explained the coach played a significant role in providing optimal concussion care to young athletes. Increased concussion knowledge was certainly beneficial for high school and youth sports being that a considerable amount of public schools in the United States did not hire certified athletic trainers (Gilbert & Côté, 2013). According to Kutcher (2011), two essential components provided optimal sports concussion care: (a) understanding athletes and the sports they play and (b) understanding the neurology of the injury. Kutcher (2011) explained that mastering one component without the other implied only partial expertise and left an incomplete view of the concussed athlete. Undoubtedly, adding coaches to concussion teams were beneficial for high schools, and youth sports being coaches were the first to see injured athletes (Kutcher, 2011).

Theoretical Perspective

The theoretical framework of the study was based on the Vygotsky's (1962, 1978) social constructivism and Schön's (1987) reflective practice theory. The theories highlight the importance of learning as a collaborative, reflective, and continuous activity (Barge, 2012; Osterman & Kottkamo, 2004). Both social constructivism and reflective practice theories informed the current study's arguments about how recent medical data and media exposure on the subject of football-related concussions influenced the perceptions and practices of high school football coaches.

Social Constructivism

The focus of Vygotsky's (1962, 1978) social constructivism theory was that learning occurs because of social relations through collaboration (Barge, 2012). Social constructivism theory emphasized the importance of ongoing learning through exposure to professional development opportunities that enhance current knowledge. Within the context of the study, Vygotsky's social constructivism theory provided a framework for understanding how social learning was gained from medical data, and how media influenced the practices and perceptions of coaches regarding football-related concussions. To this end, the study expected that coaches who were able to learn and use medical data and media exposure related to concussion improved their effectiveness as professionals.

Born in the same year as Piaget (1964), Vygotsky (1978) augmented and balanced Piaget's (1964) theory in learning by recognizing the influence of culture in learning. According to Vygotsky (1978), the skills and information a person needed to survive were culturally determined, thus placing social relationships in the center of learning (Vygotsky, 1978). The notion of social constructivism, as developed by Vygotsky (1978), was based on the idea that "social interaction precedes and is the basis for thought" (Kiraly, 2015, p. 20). In other words, people developed knowledge or meaning through their interaction with other people. Central to the notion of socially constructivism in that learning was the responsibility of the individual in the learning process, and the theory defined the responsibility for learning and organizing of new knowledge in the active learner (Stroet, Opendakker, & Minnaert, 2016). Therefore, the motivation for learning rests with the learner. Another important concept of Vygotsky (1962, 1978) theory was the zone of proximal development (ZPD) that facilitated the development of scaffolding in teaching. Kiraly (2015) noted ZPD referred to a level of difficulty where students

can only achieve success with the help of a teacher. Consequently, if the task was too easy or too complicated, optimal learning did not take place.

In social constructivism perspective, researchers noted the individual through a process of organizing and restructuring subjective experiences understood the world of knowledge. Findings revealed communication of ideas and insights was central to this perspective of knowledge, in that learning was only gained through interaction with others (McKee et al., 2009; Kiraly, 2015). Learning was therefore not a process of just taking information in, but rather a process of constructing meaning. It was changing oneself towards a more knowledgeable, autonomous, and skilled person (Doubleday et al., 2015; McKee et al., 2009). In Vygotskian terms, the need for collaboration in learning was an essential aspect of the learning environment. Equally important was the fact that constructing meaning was an individual activity happening only in the mind of the learner (Kiraly, 2015).

In addition, Doubleday et al. (2015) emphasized the learning environment has to challenge a person's ability to reflect on the content, provide different views or theories, and stimulate critical thinking. In line with Vygotsky's (1962, 1978) views, the learning environment should provide opportunities for discussion, as learning was done by a means of conversing with members of the community. Moreover, knowledge was constructed through collaboration within the group, while also remaining self-directed (Doubleday et al., 2015; Thinley, Geva, & Reye, 2014). In this research study, the learning environment was shaped by the medical data and media coverage regarding the prevalence of concussion in football. The collaborative efforts of coaches and other stakeholders through communicative interaction constructed meaning in both the group and individual. Clearly, the coach, as a learner, has the responsibility to initiate the self-learning process (Stroet et al., 2016).

Reflective Practice Theory

Schön coined the term *reflective practice* in the 1980s—an activity that was characterized by ongoing and meticulous deliberation involving one’s activities in practice that was aimed at increased awareness and improved skills during execution of activities in a given situation (Casey, 2014; Caty, Kinsella, & Doyle, 2015). Through reflective practice, the professional practitioner developed new visions and actions that distinguish their practice from the rest (Casey, 2014).

Further, reflective practice acknowledged the autonomy of the learner and emphasized the value of insights from theory, research, and practice. Researchers noted it was not only the observation of activities that was important in reflective practice, as feelings and thoughts should also be systematically observed. Through reflective practice, the person experimented with new ideas and practical applications that led to changed insights and methods (Casey, 2014; Hébert, 2015; Osterman & Kottkamo, 2004). Moreover, Osterman and Kottkamo (2004) emphasized the importance of communication and asserted that change could not occur without individual change. The concept of change permeated from the need for collaboration and conversations with everyone involved in a particular situation. In relation to this research, reflective practice was necessary for improving safety techniques that protected players from concussions. The desire to improve safety measures happened through collaboration and thoughts from coaches and players.

In addition, reflection or thinking about something was an innate, human behavior according to researchers. Paterson and Chapman (2013) noted learning from experiences was critical and important in achieving professional expertise. However, reflection for learning was not only the rethinking of an activity or event that took place. Reflection linked new information

with existing information achieving a higher level of understanding (Casey, 2014; Paterson & Chapman, 2013). According to Paterson and Chapman (2013) reflection was an ongoing process of purposeful observation while thinking about one's activities, emotions, and reactions, with the desire to learn. Reflection enhanced the level of insight and led to meaningful change. Through reflection, people confronted the understanding of themselves and any biases they may have had. Reflection was individual learning and knowledge derived from an individual interpretation of situations or events rather than depending on other's judgments and beliefs (Paterson & Chapman, 2013). Through critical reflection, people developed and changed their frame of reference or point of view. This process led to changes on a personal level (Paterson & Chapman, 2013).

Moreover, people learn through self-reflection, discussion, and internal dialogue that encompass questions regarding the ethics of practices and the meaningfulness of activities (Hébert, 2015; Schön, 1987). People must take responsibility for their own learning and must be willing to change their outlook to grow professionally and personally (Hébert, 2015; Schön, 1987). In the face of evidence contrary to the current practice, reflection was important in that it allowed personal experience and insights gained from experience to guide the decision-making process. Importantly, findings noted reflection-on-action that people engaged in after an event changed practice into knowledge (Schön, 1987), and helped people to unearth biases (Paterson & Chapman, 2013). Furthermore, researchers noted the expert practitioner engaged in reflection-in-action during the performance of an action as a way of current research that created a unique appreciation of the situation that permeated change (Paterson & Chapman, 2013).

Cushion (2016) pointed out that the notion of reflection was deeply ingrained in the language of coaching and development of the professional sport. This term was particularly

prevalent in developing and training coaches (Falcão, Bloom, & Gilbert, 2012; Huntley, Cropley, Gilbourne, Sparkes, & Knowles, 2014), and reflection was considered to be an integral part of being an effective coach (Cushion, 2016; Gilbert & Côté, 2013). Reflective practice improved professional development by improving analytical thinking skills resulting in a better understanding of the situation (Taylor, Werthner, Culver, & Callary, 2015). Equally important, reflective practice focused on self-awareness (Gilbert & Côté, 2013) that ultimately achieved improved practice (Cropley, Miles, & Peel, 2012).

In the realm of coaching, it was taken for granted that coaches continually questioned their beliefs, values, and philosophies (Cushion, 2016). Cushion argued that reflection has become relatively meaningless due to overuse of the term, and the different meanings that have been attached to it. Unfortunately, different coaches used the term to explain or disguise various practices (Cropley et al., 2012; Taylor et al., 2015; Trudel, Culver, & Werthner, 2013) that have depleted the concept of its true meaning as originally described by researchers, such as Schön (1987). Moreover, Cushion and Jones (2014) described coaching as a dynamic process that engaged in interaction or discussions with other coaches. This interaction gave direction to the coaching practice. Coaches were empowered to make decisions as they see fit in a given situation (Cushion & Jones, 2014; Denison, Mills, & Konoval, 2015). However, little research critically appraised the reflective practice of coaches. Researchers pointed towards a need to undertake systematic research in this direction (Cushion, 2016; Cushion & Partington, 2014; Denison, Mills, & Jones, 2013). In addition, researchers deemed it was necessary to determine to what extent reflection actually strengthened or challenged the accepted practices and beliefs of coaches, and if this phenomenon led coaches to process new concussion data and knowledge into

consideration with their own perceptions and practices (Cushion, 2016; Cushion & Partington, 2014; Denison et al., 2013).

According to research, reflection must be recognized in coaches' conversations (Cushion, 2016; Jones, Edwards, & Filho, 2014). In view of the current research, it was deemed important by Cushion and Jones (2014) to determine to what extent coaches' reflection occurred in regards to medical data and media coverage regarding concussion in football, and how (or if) this reflection dominated their conversations and thoughts that ultimately led to organizational (football practice) change. The process of reflective practice, as it relates to the prevention of concussion in football is illustrated in Figure 1.

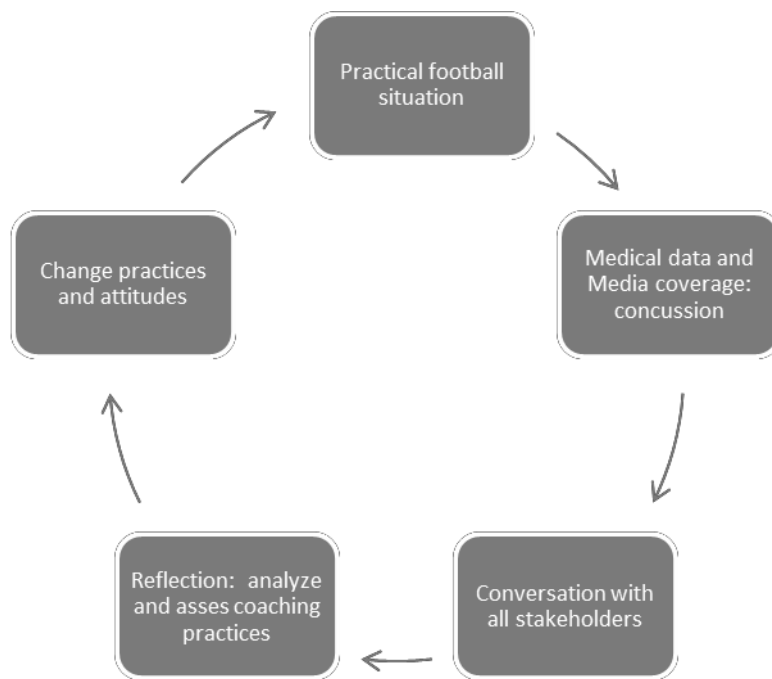


Figure 1. Reflective practice to change practices in football. Adapted from Casey (2014), Cushion (2016), and Schön (1987).

Review of Related Literature

The review of research literature pertaining to concussions features reviews on incidence, prevention, regulations, awareness, popularity, football culture, and football in Texas.

Concussions in football are a serious problem that only recently started receiving the attention they warrant. Various difficulties existed in the diagnosis and treatment of concussions, as well as determining when a player was ready to go back on the field (Institute of Medicine [IOM], 2015). With the new information regarding degenerative neurological problems, Alzheimer's disease was linked with repeated head injuries such as a concussion, an outcry from the public and the medical fraternity provided more information and safety for the players. To this end, football regulations have been amended, and player education, especially at high school level, has been implemented. With the coach at the forefront of the game, this study examined the perceptions and practices of high school football coaches regarding recent medical data and media coverage.

Incidence

Researchers agreed that the number of reported cases of concussion in football, in this case, high school football, represented only the tip of the iceberg (Esquivel, Haque, Keating, Marsh, & Lemos, 2013). Snedden (2013) reported that between 1.6–3.8 million U.S. adolescent athletes experienced a concussion every year. High school athletics injuries comprised 8.9–13.2% of all concussion instances, with an estimated 300,000 cases of concussions in high school athletes annually (Esquivel et al., 2013). Unfortunately, not all concussions were identifiable by peers and staff, resulting in the concussion going unreported and unnoticed (Abdullah et al., 2015). Possible reasons for underreporting according to Snedden (2013) included (a) stigmatization of the player as injury prone; (b) failure to recognize the symptoms of concussion and the belief it is just something football players have to put up with; (c) poor knowledge of the consequences of concussion, especially repeated concussion and long-term effects; (d) possibly losing out on a position on the team and therefore the opportunity to get a

college scholarship; and (e) unwillingness to leave the field placing the game and peers in jeopardy. Although the number of sport-related concussions in high school football has increased in the past 10 years, it may be due to increased awareness and improved recognition of the symptoms of this injury, rather than an escalation of head injuries (IOM, 2015).

Endeavors to Make Football Safer

In an effort to protect players against injuries, football officials implemented safety regulations (Greenhow & East, 2015; Love & Solomon, 2015). Graham et al. (2014) stated that recovery time or return to play vastly improved the safety of football. Studies indicated the severity of the impact and initial number of symptoms experienced was an important indicator that a concussed athlete required a longer recovery period (Graham et al., 2014; Shenton et al., 2012). Furthermore, it appeared symptom persistence increased with age, meaning that an older person recovered slower from a concussion (Graham et al., 2014; Shenton et al., 2012). Graham et al. (2014) emphasized recovery time made football safer. Further studies indicated the severity of the impact and the initial number of symptoms experienced was an indicator of a longer recovery period (Graham et al., 2014; Shenton et al., 2012). Additionally, researchers found treatment plans that adapted to each individual, which normally included physical and mental rest, improved the safety of the game (Graham et al., 2014; Thomas, Apps, Hoffmann, McCrea, & Hammeke, 2015). Unfortunately, empirical evidence indicated the optimal period of rest or the best time to return to full football practice was still lacking, but findings indicated the brain was more susceptible to further injury during the recovery time and refraining from physical exercise was crucial (Graham et al., 2014; Thomas et al., 2015).

In another study, researchers indicated the modern football helmets limited the risk of concussions in football (Graham et al., 2014). The helmets were also effective in protecting

players from skull fractures. According to research, designing an optimally protective helmet was extremely complicated as there was a relationship between the mechanics of the movement, injury risk, and the physical features of the helmet (Graham et al., 2014). Researchers concluded testing of the helmets excluded turning head acceleration and could not determine the exact helmet's ability to protect the player from a concussion (Graham et al., 2014). In conclusion, Graham et al. (2014) found rule changes and new safety measures made a positive difference in player safety.

Methods of Detecting a Concussion

In an effort to find a reliable manner to detect symptoms of a concussion after a rest period, researchers used available assessment scales. Subsequently, Giza et al. (2014) assessed the effectiveness of the Symptom Scale or Graded Symptom Checklist, and the results indicated checklists were not sensitive enough to rule out a concussion as an athlete with a concussion tested normal. These results emphasized a need to develop a better assessment for identifying concussion in patients. According to Giz et al. (2014), the most reliable method of diagnosis was to interview, determine, and examine the patient for any neurologic signs or symptoms. Moreover, standard neurological tests included tests of strength, sensation, reflexes, coordination, cranial nerve functions, mental status, and other neurologic functions.

A study conducted in Orlando began by performing CT scans on 152 participants, all of whom were children (Orlando Health, 2016). The findings revealed that a blood test was just as precise as a CT scan, and the test was able to detect indicators of concussions that were not visible on CT scans (Orlando Health, 2016). The blood test measured a biomarker known as glial fibrillary acidic protein, or GFAP. Findings revealed when a person gets a head injury, GFAP was released in the brain and passed through the blood brain barrier, reaching the regular

bloodstream. Researchers realized that levels of the protein were very accurate with the type of concussion a child had (Orlando Health, 2016). Remarkably, the protein count was low in mild concussions and high in severe concussions (Orlando Health, 2016).

According to research conducted Leong, Balcer, Galetta, Evans, Gimre, Watt (2015), the King–Devick (K–D) successfully diagnosed concussion with an eye test. The test required, according to findings, eye movements, language function, and attention in order to perform functions, which reflected suboptimal brain function in concussion. Researchers studied the K–D test as an acute sideline concussion screening tool in several contact sports including boxers and mixed martial arts (MMA) fighters, collegiate athletes in contact sports, amateur rugby players, elite professional hockey players, and high school level football. Importantly, the results of this study validated the (K–D) test as an accurate, reliable, and rapid sideline tool that provided supportive evidence of a concussive event to help objectively identify athletes with concussion and assisted with removing from play decisions (Leong et al., 2015).

Football Culture

Concussions and injuries have always been part of football culture, and players and parents had to deal with it (Beaver, 2013). In the case of concussions, the former attitudes were to move past it. The implications of the possible threats of concussions were not fully appreciated by all players, coaches, and parents until recently (Beaver, 2013). In the past, the culture of football defined the toughness of young males by their ability to play through injuries, and it was expected for football players to play through all injuries including head trauma (Beaver, 2013). Moreover, the possibility a concussion might cost them their spot on the field caused players to conceal head injuries and symptoms (Beaver, 2013).

Now, the culture of football has changed due to media coverage of concussion and pressure from the public's realization of the seriousness of this health risk (Beaver, 2013). Researchers revealed the modern culture of football encouraged participants' self-reporting of symptoms and players conforming to the return-to-play regulations. Clearly, findings suggested players were better educated on the risks associated with concussions (Kroshus, Baugh, Hawrilenko, & Daneshvar, 2015). The communication between coaches, players, and all stakeholders about the wellness of players created a culture of responsibility and compliance to new concussion protocols (Kroshus et al., 2015). As a result, the culture of the game has changed by promoting concussion awareness, where the seriousness of the concussion injuries were acknowledged and return-to-play policies were strictly forced, and a healthy emphasis on the reduction of concussion was developed (IOM, 2015).

Popularity of Football

Football was the most popular sport in America for the 30th straight year according to a survey taken by the Harris Poll, which has been asking adult fans, ages 18 and over, about their favorite sport since 1985 (Rovell, 2014). In 2014, 35 % of fans called the NFL their favorite sport, followed by Major League Baseball (14 %), college football (11%), auto racing (7%), the NBA (6 %), the NHL (5 %), and college basketball (3%; Rovell, 2014). The public both attend football game in masses, and people watched it on television, making it the most financially lucrative sport in the United States (Beaver, 2013). Football players became heroes to children who watched them on television while trying to imitate them on the field. Organized school sports gained momentum and youngsters eagerly participated in football, thus beginning the era of highly organized school football (Beaver, 2013). Certainly, the game has become more competitive, lucrative, and the focus has shifted to achievement and winning, as students who

played football for 13,000 schools strived to receive a college football scholarship (Beaver, 2013).

Texas High School Football

In his book “*The Republic of Football – Legends of Texas High School Game*,” Conine (2016) highlighted the football history of the different schools in Texas, and their achievements on the football field. Conine (2016) provided descriptions of the games and verbatim conversations with coaches, players, and other officials. The book successfully sketched the electric atmosphere of the game and the fans’ participation.

Without doubt, football has grown to become more than just entertainment—as depicted in the book *Friday Night Lights* (Beaver, 2013). In these communities, football was the fiber that kept the community together, and the community pressurized athletes to keep playing football (Beaver, 2013). Since 2008, 83 Texas high school football stadiums have opened, with some stadiums costing millions (Varney, 2014). These ambitious developments pointed to the status of high school football in Texas as the stadiums were a testimony of the love of football. Apart from housing the games and spectators, the state-of-the-art stadiums served as incentives for parents from higher-income brackets to enroll their children at these schools (Varney, 2014). As a result, the overall annual income from tickets sold at the games made the stadiums a viable business option, which was not possible without the eager support of the fans.

According to Rankin (2012), the sport of football was a popular way of life for many in the state of Texas. Texas high schools have had a deep and illustrious history producing many of the games finest players (Rankin, 2012). Texas has produced 34 players who have participated in the NFL’s Pro Bowl (Rankin, 2012). Twenty-nine of the state’s football players have been enshrined in the NFL Hall of Fame, the most from any state (Rankin, 2012). Texas also produced

more high school players each year compared to other states who received scholarships to attend and participate in college football programs. Remarkably, recent statistics showed that Texas averaged over 2,100 high school football players each year that received scholarships to play college football, which accounted for over 15% of all players in the United States (Rankin, 2012).

In 2011, the Texas state legislature passed House Bill 2048 that instructed the UIL, the governed body to all high school football coaches, to create a concussion acknowledgment form (Johnson, 2012). The UIL then required all student-athletes in Grades 7–12 to fill out a form to participate in athletic activity for a school year. The legal guardian who makes medical decisions for the student must sign the form for that school year, acknowledging they have received and read written information that explains “concussion prevention, symptoms, treatment, and oversight and that includes guidelines for safely resuming participation in an athletic activity following a concussion” (UIL, 2014, para. 2).

In another effort to increase formal concussion education, the Commissioner of Education in Texas adopted a safety training program and an extracurricular athletic activity safety training program provided by the UIL (Hebert, 2011). Football coaches in Texas were required to take concussion training courses each year prior to the football season (Hebert, 2011). A concussion protocol was established by the UIL instructing the school districts on procedures pertaining to concussions (Hebert, 2011). The concussion protocol according to Hebert (2011) outlined the coach’s role in concussion prevention and the responsibility and involvement behind the role.

In addition to new concussion guidelines, the UIL implemented new restrictions on time allowed for full-contact drills each week during practice sessions of Texas high school football. Restrictions, implemented in 2013, limited full contact participation to 90 minutes a week

(Silverman, 2013), and restrictions were intended to reduce the number of concussions associated with football (Silverman, 2013). Also, the state of Texas adopted a concussion management protocol and a return-to-play policy that had to be followed before any high school athlete returned to participate following a concussion (Johnson, 2015). Each superintendent appointed a district employee that was responsible for compliance (Johnson, 2015). When a student athlete suffered a concussion or concussion symptoms, the district employee had to sign a document that confirmed a physician selected by the student or their legal guardian (Johnson, 2015) had evaluated the student. Then, the compliance officer verified the student had completed the RTP protocol established by the school district Concussion Oversight Team (Johnson, 2015). The student only returned to play after the parent or legal guardian signed and certified they had been informed of the RTP protocol, and they consented to the student returning to the field (Johnson, 2015). To conclude, parents or guardians had to verify that they understood the risks associated with the student returning to play, and complied with any ongoing requirements in the return-to-play protocol (Hebert, 2011).

Literature and Methodical Literature

Current research on concussion varies in regulations and interests. The majority of the research on concussion focused on early knowledge and regulations towards player safety. The research literature selected for this research study focused on the dangers of a concussion, coaches' concussion knowledge, detection of concussion, increased safety measures and state regulations. The methodology used to conduct the reviewed studies included qualitative and quantitative research approaches, as well as mixed-methods experimental design. Research also included longitudinal studies and a variety of screening measures.

Research on the Dangers of a Concussion

A qualitative research conducted on ex-football players with a history of concussion, yielded varying results. Moreover, McCrory, Meeuwisse, Kutcher, Jordan, and Gardner (2014) warned that results were not conclusive. Researchers pointed out longitudinal studies on the same subjects were necessary to determine the long-term effects of concussion in explayers. According to McCrory et al. (2014), acute symptoms of a concussion resolved within 10 days after a single cerebral insult. They indicated that only a small percentage of people (5–10%) exhibited prolonged postconcussion symptoms. Notably, screening tests on 513 ex-football players revealed that 35% exhibited only mild cognitive impairment. However, the study revealed former NFL players that suffered multiple concussions were three times more likely die from neurodegenerative diseases as compared to the public in the same age group (McCrory et al., 2014). In fact, former players that suffered multiple concussions were 4 times more likely to develop Alzheimer's disease and amyotrophic lateral sclerosis (ALS; McCrory et al., 2014). Although there were differences in the findings of the studies available, the findings clearly suggested that some players did not recover fully from repeated episodes of concussion and advised caution when deciding whether the player returned to play.

Further research conducted by Lehman, Hein, Baron, and Gersic (2012) concluded that 3439 retired football players who played football for a minimum of five consecutive seasons had a three fold increase in neurodegenerative death rate compared to the general public. Following repeated concussive injuries during years of football playing, older NFL players exhibited signs of CTE. Consequently, the study revealed there is not a known cure for CTE.

Research by Belson (2013) suggested that repeated sports-related concussions led to long-term brain damage. Belson (2013) noted that 4,500 former professional football players

filed and won a lawsuit alleging the National Football League failed to protect them from the disastrous long-term health consequences of concussion. The list of health consequences included amyotrophic lateral sclerosis (ALS), Alzheimer's disease, forms of dementia, Parkinson's disease, and severe cognitive impairment (Belson, 2013).

Research on Coaches' Concussion Knowledge

Caron et al. (2015) conducted a qualitative phenomenological study using semistructured interviews, to see if coaches' practices were aimed at player safety. The researchers wanted to know whether the newfound information about concussion influenced the coaches' training practices. Eight coaches—six males and two females—employed at the same high school participated in the study (Caron et al., 2015). The study noted coaches were between 30 to 58 years of age, and coached various sports for at least five years (Caron et al., 2015). The athletes they coached ranged from 15–18 years old (Caron et al., 2015).

In addition, the school employed a full-time athletic director, who was up-to-date in the identification and management of concussion, including return-to-play policy (Caron et al., 2015). Some coaches had personal experience of concussion, which helped them in the management of the concussed players (Caron et al., 2015). The results showed coaches gained knowledge of concussions by handling cases during coaching or as a parent. Apart from direct experience, the coaches found media reports useful in gaining more knowledge about concussions and became more aware of the problem. The media coverage of retired football players, with degenerative neurologic conditions due to repeated bouts of concussion, changed the coaches' perceptions about concussion. However, coaches acknowledged their lack of professional knowledge on concussion as only one coach had attended a concussion training seminar (Caron et al., 2015).

The profound attention in concussion and media coverage increased the coaches' awareness of the potential seriousness of concussions and influenced their coaching practices and attitude towards the sport (Caron et al., 2015). The hockey coach explained he started teaching the girl's hockey team to run with their heads up so they could see where they were going and avoid collisions. Likewise, the football coaches altered their coaching methods, teaching the players what body positions were acceptable and not during tackling drills (Caron et al., 2015). Notably, all coaches worked towards safeguarding players during practices and games.

Furthermore, concussed athletes were handled according to the school protocol, which included talking to parents. The concussion protocol of the school took the burden off the coaches and allowed them to focus on coaching the team (Caron et al., 2015). When players returned to the game, they made sure that the player was healthy by requesting their medical documents. Moreover, the coaches compared themselves to coaches from other schools that did not have concussion protocols and indicated that they felt privileged to work in such conditions (Caron et al., 2015). Although most parents were supportive of the decision to remove the player from the game, some parents wanted their child to continue playing even though there was a possibility of a concussion (Caron et al., 2015).

As a result, coaches found they needed a good relationship with the players to ensure that they did not hide symptoms in fear of being taken off the field (Caron et al., 2015). In terms of education about concussion, the coaches suggested parents be included in training sessions. Coaches wanted to improve their own knowledge about concussions by attending the training sessions. Caron et al. (2015) concluded the coaches' main responsibilities in the handling of concussion were to communicate with parents, players, and team members on the concussed player's progress.

In another study to determine the coaches' knowledge and management of concussion, Esquivel et al. (2013) contacted 314 high schools. Although Esquivel et al. (2013) studied different types of sports, only the information gained on football will be discussed here, as it is the focus of the current study. The study included 35 head football coaches and according to the coaches, 97% of the time concussion awareness training was provided to high school football players (Esquivel et al., 2013). The athletic directors and coaches were familiar with concussion symptoms and guidelines for the management of concussions. The respondents indicated policies were based on state guidelines, which prohibited players who experienced concussion from returning to the field on the same day, and parents must be notified of the incidence. In addition, the respondents indicated they reported concussion incidences to the state athletic association, although there were vast differences in the response rates—35% athletic directors, 49% coaches, and 18% certified coaches replied affirmatively (Esquivel et al., 2013). Markedly, physicians attended to players who suffered a concussion 90–98% of the time, and 89–95% of the participants indicated physician consent was required before a player could return to play (Esquivel et al., 2013). Importantly, Esquivel et al. (2013) noted from the study that return to play policies greatly improved player's safety. The study also revealed that successful concussion treatment involved the coaches informing all stakeholders of the risks in returning to play before the athlete was completely free from neurological symptoms. Unfortunately, the study concluded that not all respondents reported concussion incidences that could negatively affect concussion research in the future (Esquivel et al., 2013).

Research Methods on Detecting a Concussion

A study conducted by Buckley et al. (2013) assessed gait termination in postconcussion patients, and researchers found that their balance and postural control indicated impairments

even after the traditional 10-day recovery period. These changes were not detected in gait velocity, but only when challenges that are more sophisticated were presented to the patients' postural control (e.g., dual tasks, and obstacle avoidance). Concussed patients' compensatory abilities no longer maintained the appearance of normality, in spite of remaining impairments. Therefore, researchers concluded that gait termination assessments were appropriate in assessing changes in movement strategies of postconcussion patients (Broglia et al., 2012; Buckley et al., 2013).

Further research by Buckley et al. (2013) revealed young athletes and their parents struggled to understand the complexity of concussion, and concussion was often a difficult injury to understand and properly treat. Unlike a swelling joint, a bleeding wound or a bruised muscle, a blow to the head left few obvious, telltale signs that damage has been done. Buckley et al. (2013) noted behavioral symptoms coaches and trainers could assess, but after the initial concussion "fog" lifts, the extent of the damage and the time to recovery still needed to be determined. In conclusion, the best method used by medical providers was a before and after standardized test of cognition, with the assumption that if an athlete can get back to a pre-injury cognitive performance level, then their brain has recovered (Broglia et al., 2012; Buckley et al., 2013). Unfortunately, despite aggressive efforts from youth sports organizations to capture a baseline cognitive test for every youth athlete, there were still many who have not completed one.

Research on Increasing the Safety of Football

A study by McIntosh et al. (2014) researched the use of helmets in football. The authors reported on various researchers' findings regarding the use of helmets in contact sports such as ice hockey. The study used biomechanical and influence models, whereas later studies used

more sophisticated methods such as instrumented helmets. As a result, findings of the studies revealed body position was more important than the force of the hit. In fact, the study revealed of the 516 head-on-head collisions that were deemed extreme from force, only four players were concussed (McIntosh et al., 2014). Notably, the angle of the impact and rotational forces were more important than the speed of the contact (McIntosh et al., 2014). To further the research, McIntosh et al. (2014) explored the effects of unhelmeted play in injuries such as concussions. Researchers examined football players in Australia who engaged in unhelmeted play. Remarkably, the study found the rates of concussion lower in unhelmeted play in contrast to helmeted play. In addition, this study used video recordings of actual collisions during football games that resulted in concussions. McIntosh et al. (2014) found that when a player was not aware of an oncoming blow to the head from an opponent, the player suffered a linear acceleration to the head. Consequently, findings indicated players who suffered linear acceleration to the head more often than not suffered a concussion (McIntosh et al., 2014). To conclude, McIntosh et al. (2014) advised the differences in the findings of head acceleration and concussion pointed to human tolerance. These values could be useful in designing headgear to prevent concussions in football.

Research on State Regulations

In a study conducted by Graham et al. (2014), researchers noted most states called for education on concussion that included criteria to remove a player from the field, and standard guidelines for health care practitioners who decide when a player returned to participate in the game. States do not have uniform standards for all stakeholders nor for the desired qualifications of the person providing the education. Evidently, this education practice was still new and there was not much evidence regarding its efficacy (Graham et al., 2014). Of note was the fact that

Graham et al. (2014) found these education programs on concussion effective in improving the insight, knowledge, and awareness of stakeholders. Whether this leads to changed behavior remains to be seen (Graham et al., 2014). Additional research was needed to determine the success of these programs aimed at diminishing the incidence of concussion as well as the reporting of concussions (Graham et al., 2014).

Review of Methodological Issues

Researcher Bias

The researcher is a football coach and is aware of the possibility that his experience as a coach may influence his perceptions when interviewing the coaches and analyzing the data. I found that phenomenology offered a suitable research design that could block or confine my own biases. To enhance the objectivity of the results, I need to identify my beliefs and biases about the topic of concussion in football and the coaches' ability to learn and benefit from the medical data and media coverage of the topic. My personal views on the topic include that I believe that coaches could and should be able to extend their knowledge of concussion through the medical data coming available and the media coverage of the issue. I also believe that coaches should adapt their coaching approach and practices to be in line with the new information gained from the medical data and media to ensure the players' safety. Through reflexive identification of these personal views, I should be able to assist other researchers in evaluating the trustworthiness of the study.

Researcher as Interpreter

In qualitative studies, the researcher plays the most important role in terms of the collection and analysis of data (Walker, Read, & Priest, 2013). As the researcher, I was responsible for the recruitment, the collection, interpretation of data, and presentation of the

findings. My skills as the researcher were central in accomplishing these tasks adequately and effectively. I reviewed textbooks about how to conduct phenomenological research, specifically how to facilitate and interpret semistructured interviews.

Emergent Nature of Qualitative Research

The research questions of the study were the following: What are the perceptions of high school football coaches in Texas regarding the recent medical data and media attention on the subject of football-related concussions? In what way did the medical studies regarding football-related concussion influence the coaches' practices? How did media attention about football-related concussion influence the practices of high school coaches in Texas? The central phenomenon that I examined is the perspective of high school coaches regarding football-related concussions. I used a qualitative research approach to explore the experiences and perceptions of the high school coaches.

I used a phenomenological research design to concentrate on the purpose and the research questions of the study. Phenomenological research is the examination of a phenomenon based on the perspectives of participants—the way they experience the phenomenon (Gray, 2013). The use of phenomenological research was deemed appropriate as the lived experience of football coaches, using semistructured interviews, can provide data that represent the complexity and range of their experiences. Phenomenological research is supported by the purpose and research questions developed based on the importance of the lived experience of the coaches, using semistructured interviews, and subjective reality of the participants (Taylor, Bogdan, & DeVault, 2015).

Ethical Issues

I addressed the need to secure agreement to gain access to the participants within the selected organization by personally coordinating with the appropriate school principal and/or district administrator of the selected schools. After explaining the purpose of the study and the need to recruit participants at their school, I asked the principal to sign an approval letter. The approval letter granted me access to recruit participants within the school. I sought the approval of the Internal Review Board (IRB) of the Concordia University, Portland by submitting a duly completed application form. Information on the strategies to be used in the study and other information regarding ethical standards, such as the protection of the participants, process for withdrawal, minimization of risks, and process with withdrawal, were provided.

Trustworthiness

Instead of reliability and validity, the quality of qualitative studies is often gauged in terms of trustworthiness (Elo et al., 2014). To increase the trustworthiness of the study, I focused on enhancing the credibility, transferability, dependability, and confirmability of the study (Elo et al., 2014; Taylor et al., 2015).

Critique of Research Findings

In the aftermath of reading and analyzing current research on concussion, the previous research centered on the areas of prevention and identification of concussion for players who played the very popular game of football. The overwhelming goal of concussion management was to prevent and assess concussion that eliminated long-term health problems. Research showed detecting early signs of concussion improved outcomes (Lovell, 2009); therefore, there is a need for a rapid screening test to assess athletes who may have a concussion (Caron et al., 2011).

In an qualitative study conducted by Caron et al. (2015), participants' expressed the belief that they acknowledged their lack of professional knowledge on concussion as only one coach had attended a concussion training seminar. Coaches understood the importance of concussion training and called for more concussion training. In addition, coaches found that they needed a good relationship with the players to ensure they reported symptoms from concussions (Caron et al., 2015). Coaches suggested that all stakeholders be included in training sessions. Caron et al. (2015) concluded that the coaches' main activity in the handling of concussion was to communicate with parents, players, and team members on the concussed player's progress.

In other research studies, Beaver (2013), Conine (2016), Rankin (2012), and Varney (2014) all produced data that supported the notion that the culture of football has changed due to recent medical data, media coverage of concussion, and the public's realization of the seriousness of this health risk. As a result, the game has changed in two ways: (a) less contact allowed and (b) increased sensitivity to detect and report concussion (Beaver, 2013; Lawrence et al., 2015). The NFL was reluctant to acknowledge the association between head knocks and TBI, but even they changed their opinion in light of the many studies (Beaver, 2013; Lawrence et al., 2015).

Equally important, the NCAA and UIL changed their regulations and introduced protocol for managing concussion cases. Players who engaged in headshots received more severe penalties and concussion awareness has increased (Beaver, 2013; Lawrence et al., 2015). The innovation of highly sophisticated helmets has been developed, and it is hoped that these changes minimize the number of TBIs (Beaver, 2013; Lawrence et al., 2015).

Lastly, Graham et al. (2014) stated that most states have called for education on concussion that included criteria to remove a player from the field and standard guidelines for health care practitioners who decided when a player might return to participate in the game. Without doubt, these education programs from state regulations on concussion have been effective in improving the insight, knowledge, and awareness of all stakeholders.

Critique of Previous Research

After the lawsuits of explayers and the autopsies on players who either committed suicide or died questionable deaths, more research was done on the long-term consequences of concussion as well as the symptomatology of concussion (Kucera, Klossner, Colgate, & Cantu, 2015; McNamee et al., 2015). As a result, researchers developed different assessment protocols and instrumentation to determine the effect of a concussion on the brain, as well as different definitions and terminology for describing brain trauma (Baugh et al., 2015; Giza et al., 2014). However, these differences in approach facilitated conflicting findings and recommendations (Giza et al., 2014).

A wide variety of factors determined the severity of concussion, and it does not represent the obvious aspects that play a role such as speed and head-to-head collisions. Subsequently, time is needed to identify and study all the contributing factors such as age, prior history of concussion, sickle cell syndrome, just to name a few (Giza et al., 2014). Furthermore, the direction and force of the blow to the head played important factors when studying concussion but this information was not readily available in all football concussion cases (Baugh et al., 2015). As has been noted, the relationship between concussion and body position in football has been identified as a reason for a concussion, but research has not proven whether specific positions were associated with an elevated risk of concussion (Baugh et al., 2015).

Furthermore, most concussion research was performed on adults, and there were only a few studies conducted on the young brain. Findings from limited research revealed that a young people's brains were still developing, and the outcome of the injuries may be more devastating and longer lasting compared to adults (Giza et al., 2013). Undeniably, documentation of incidences at the school level should be standardized to enable researchers to use concussion data (Makdissi & Patricios, 2015; Pearce et al., 2015). In addition, researchers revealed a need for more research using the same assessment methods—scans and blood tests for example—and also longitudinal assessments to determine the effect of concussion over a longer period of time (Makdissi, & Patricios, 2015; Pearce et al., 2015).

Lastly, findings revealed there were insufficient data on a consensus concussion treatment and recovery periods (Abdullah et al., 2015). Previous researchers lacked a specific test or method of assessment to determine whether a player has fully recovered from concussion. Subsequently, increased research on treatment and recovery periods is still needed so that one commonly used effective assessment can be universally implemented (Giza et al., 2013). In conclusion, there is a wealth of knowledge on concussion in sports and especially football; however, a gap exists in the research on the coaches' perceptions of the medical and media information on concussion and the changes they apply in their coaching practices.

Summary

This study explored the perceptions of high school coaches in Texas regarding the emerging medical data, media coverage of concussions, and whether this information may have an influence on the coaches' practices. In Chapter 2, I reviewed literature on the topic of football concussion related symptoms. Statistics showing the numbers of participants and popularity of the sport of football in the United States were disclosed. Concussion education,

prevention, training, collaboration with all stakeholders, and protocol will continue to play an important role in this evolution of player safety in the sport of high school football in the state of Texas. Chapter 3 will cover the methodology and the design of the study used.

Chapter 3: Methodology

Introduction

This chapter provides a detailed description of the methodology of the current study to determine how medical data and media exposure on football-related concussions influences the perceptions and practices of Texas high school football coaches. After reiterating the context, purpose, and research questions of the study, the chapter will focus on providing rationale for the selected qualitative case study design, the target population and sample, and the instrumentation. The chapter will also include discussion of the data collection and data analysis procedure, limitations of the study, expected findings, and ethical issues. The chapter concludes with a summary of the key points of the study's methodology.

Context of the Study

The qualitative multiple case study included eight high school football coaches. All eight participants were recruited from high schools in Texas, which is a state with a law that requires coaches to have education and training for concussions (Johnson, 2012). The target population was eight football high school coaches in Texas, who provided data from semistructured interview, observation, and document review. This population of high school football coaches was selected based on the seriousness of football-related concussion among high school athletes, who are likely to recover slowest when compared to college and professional athletes (Miyashita, Diakogeorgiou, & VanderVegt, 2016). This particular population is important to the study because of their role in preventing or minimizing football-related concussions in high school.

Purpose of the Study

The purpose of the current qualitative multiple case study was to explore how medical findings or media exposure on the subject of football-related concussions influenced the

perceptions and practices of Texas high school football coaches. Data were collected using semistructured interviews, direct observations, and document reviews. High school football coaches were interviewed and observed to explore their perceptions and practices. The research also involved examining relevant documents such as official memos, team meeting reports, and records that are devoid of personal information of students to gain insights into the practices of high school football coaches with regard to football-related concussions.

Research Questions

The principal research question of the study was, “How do high school football coaches in Texas perceive the recent medical data and media attention on the subject of football related concussions?” Based on the principle research question, the corresponding subquestions were:

1. How have present day medical studies and media attention raised awareness of the concussion issue in high school coaches, if at all, in Texas?
2. How have recent medical studies involving football-related concussions influenced the practices of high school coaches, if at all, in Texas?
3. How has the media attention regarding football-related concussion influenced the practices of high school coaches, if at all, in Texas?

Research Design

The research method was the qualitative approach, which involves “learning the meaning that the participants hold about the problem or issue, not the meaning that the researchers bring to the research” (Creswell, 2013, p. 47). Qualitative research is focused on gaining an in-depth and detailed understanding of a phenomenon based on rich and detailed data, which often comes from the subjective experiences and perceptions of individuals who are willing to share their stories with the researcher. Unlike quantitative studies, where conclusions tend to be based on

statistical analyses, qualitative researchers generate themes that are instrumental in understanding how or why a phenomenon occurs (Taylor et al., 2015).

Qualitative research was appropriate for the current study because data generated from statistical analyses will not be able to provide the type of information needed to answer the research questions (Taylor et al., 2015). Focusing on the subjective experiences and perceptions of the football coaches and using tools that can elicit rich descriptions and narratives led to a deeper understanding of the selected case. Using data collection tools such as interviews, observations, and document reviews, I was able to answer the research questions adequately using the qualitative research paradigm (Yin, 2013).

The research design was a multiple case study of eight high school head football coaches in Texas. Case study research design is the comprehensive examination of a phenomenon within a specific context where that phenomenon is embedded (Yin, 2013). The goal of case study research is to understand “how a phenomenon is influenced by the context in which it is situated” (Baxter & Jack, 2008, p. 556). In the current study, the phenomenon was the perception and practices of coaches relevant to football-related concussions, whereas the context is high schools in Texas.

Multiple case study research design was appropriate because “a multiple or collective case study will allow the researcher to analyze within each setting and across settings” (Baxter & Jack, 2008, p. 550). In the current multiple case study, I focused on the same larger context of high schools in Texas within a school district. Yin (2013) warned the “multiple-case study can require extensive resources and time beyond the means of a single student or independent research investigator” (p. 57). However, multiple case study can provide rich and

comprehensive details that may not be possible with other qualitative and quantitative research designs.

Target Population

The target population for this study was head football coaches at high schools in Texas. Upon securing the approval of district representatives, the participants came from multiple school districts in Texas. Participants in the study were full-time high school head coaches who have at least five years of experience. To gain a more balanced perspective of the research problem, I sought to include coaches who encompassed varying levels of educational background and professional experience.

Sampling Method

The selected sampling method that I used to select the participants was the purposeful sampling technique. The purposeful sampling strategy is a nonprobability method where participants are selected “because they can purposefully inform the understanding of the research problem and central phenomenon in the study” (Creswell, 2013, p. 156). As for the criteria for being included in the study, all potential participants needed to have at least five years of professional experience as a head coach of a high school football team. All participants were employed in a school district in Texas.

Related Procedures

Upon receiving approval from the university’s Institutional Review Board (IRB), I sought the approval of the school district where I recruited head football coaches as participants. To gain the approval of the school district to conduct the study in the site, I submitted a Request for Research Activity Form, a Research Clearance Request Form, a summary of the proposal, the approval letter from the university’s IRB, and a brief summary of the significance of the current

study to the district. I sent out letters stating the purpose of my intended research, which led to the identification of schools and coaches that fit the criteria for the current research study.

Following school district and IRB approval, coaches were contacted via email with an invitation to participate in the research study. Participants were briefed on the study parameters and requirements. There were one-on-one interviews with the participants, which were followed with debriefings to assess the validity of the transcription. Each participant was observed during the study, and participants reviewed the field notes transcribed from the interviews and direct observations during the study.

Instrumentation

The instruments that I used to gather data for this multiple case study research were in-depth semistructured interviews, direct observation, and document reviews of pertinent data. The use of multiple sources was needed to fulfill the goal of case studies for comprehensiveness, flexibility, and triangulation (Yin, 2013). The data that I collected from all three different sources were used to generate themes, triangulate the findings, and provide a comprehensive description of the selected case.

Data Collection

Data collection involved conducting individual semistructured interviews, direct observations of the head coach only, and collecting documents such as official memos, team meeting reports, and records that do not include personal information about students. The use of at least three different sources of data provided a comprehensive description and understanding of the case study (Yin, 2013). The specific procedure for each data source will be discussed in the following subsections.

Semistructured Interview

Semistructured interviews were used to explore medical data and media exposure on the subject of football-related concussions influenced the perceptions and practices of Texas high school football coaches. The semistructured interview is a qualitative data collection tool where participants are asked a series of open-ended questions central to understanding the research problem (Galletta, 2013). The semistructured interview is both structured and flexible so that researchers have a clear idea of the direction of the process but have adequate space to make modifications based on the actual interview.

The date and time of the semistructured interview were scheduled individually. All participants were provided information about the study and were required to sign the informed consent forms. All interviews were digitally recorded so that the conversation can be transcribed for analysis. Member checking was used as an important quality control process in the research as during the course of conducting a study; the participants received the opportunity to review their statements for accuracy. Some of the open-ended questions that I asked for the semistructured interviews were the following:

1. How would you describe in detail your personal experience with football-related concussions?
2. How do you perceived your role with a concussed athlete?
3. How do you perceive the recent medical data available about football-related concussions?
4. How do you perceive the recent media attention available about football-related concussions?

5. How have your coaching practices changed, if at all, because of the recent media attention regarding football-related concussion?
6. How have your coaching practices changed, if at all, because of the recent medical data regarding football-related concussion?
7. How has the recent media attention about football-related concussion helped your coaching, if at all?
8. How has the recent medical data about football-related concussion helped your coaching, if at all?

Observations

Observations were conducted to collect data needed to explore how the practices of coaches are influenced by medical data and media exposure regarding football-related concussion. Observation data are often used with interviews to complement the findings (Merriam, 2009). Conducting observations entailed “noting a phenomenon in the field setting through the 5 senses of the observer” (Creswell, 2013, p. 166). As an observer, I took detailed field notes from a distance to record important practices or behaviors associated with the head football coach. The date and time of the observation were arranged for each individual participant. This information was transcribed shortly after the observation and made available to the participants.

Document Review

As a part of the data collection process, I conducted document reviews of official memos, team meeting reports, and records without personal information about students. Documents can be important in case study research to confirm and strengthen evidence from other sources (Creswell, 2013). The documents collected served as an alternative source of data, where

findings from the semistructured interviews and observation can be corroborated or enhanced. Creswell (2013) contended that documents could be valuable because of their defined role in any data collection in doing case study research. All participants were asked to provide any document that can enhance my understanding of their perceptions, medical related issues, and practices as coaches.

Data Analysis Procedures

After all the data were collected, I organized the data for analysis based on the framework outlined by Creswell (2013). All semistructured interviews were transcribed, all documents were collated, and all observation notes were transferred in Microsoft Word files. The organization of qualitative data also involved putting all data in NVivo software so that information can be accessed in a single location. The software was used for the organization and storage of the data while also keeping the data secure and confidential (Bazeley & Jackson, 2013).

A preliminary read-through of the data was conducted in order to develop a general opinion about the prevailing ideas, perceptions, or thoughts relevant to the research problem and research questions. The goal at this stage of the analysis involved use of a coding process to identify themes needed to answer the research questions of the study (Creswell, 2013). According to Creswell (2013), the coding process “represents the heart of qualitative data analysis” (p. 184). I expected that the analysis would produce at least 4 key themes central to understanding the case study.

I used NVivo software to generate themes by coding and managing data by organizing a number of muddled data documents that includes interview transcripts, notes of observations, and documents. I used the software to manage ideas to understand the conceptual and theoretical

issues generated in the course of the study. I also used the software system to query data by posing several questions of the data resulting in an ongoing enquiring process to create themes (Bazeley & Jackson, 2013).

After all themes were developed, the data were visualized and represented. The representation of data involved generating a detailed description of the case regarding how medical data and media exposure on the subject of football-related concussions influenced the perceptions and practices of Texas high school football coaches. I used NVivo codes, which are the “exact words used by participants” (Creswell, 2013, p. 185) to strengthen the findings.

Limitations of the Research Design

In this qualitative research, one of the limitations of the current study was that only eight participants comprised the sample, possibly limiting the generalizability of the multiple case study. The study was conducted in a single school district in Texas comprised of multiple high schools, possibly limiting the transferability of the study to other districts or states in the country. The selection of a multiple case study research design can also be a limitation because research design are the researcher as an instrument for data collection and analysis, and issues of reliability, validity, and generalizability (Creswell, 2013). To improve the validity of the study, research was conducted at multiple high school sites.

Internal Validity

Internal validity refers to the extent to which the results can be considered reflective of the true experiences of the participants (McMillian, 2012). I enhanced the internal validity of the study by conducting member checking, which is the process of using the help of the participants to verify the findings. According to McMillian (2012), member checking is accomplished by asking “participants to review interpretations and conclusions, and the participants confirm the

findings” (p. 303). To conduct the member checking process, I sent each participant a transcript of the interview so his feedback could be gained. Their feedback was instrumental in making meaningful changes to reflect the true nature of their experiences and perceptions.

Credibility

In qualitative studies, credibility pertains to the degree to which the data, data analysis, and conclusions are precise and trustworthy (McMillian, 2012). I enhanced the credibility of the study by triangulating the results from the semistructured interviews, observations, and documents. The triangulation of findings compared and contrasted the results from three data sources to increase the likelihood that the findings were consistent across different data collection tools (Creswell, 2013). I also generated detailed of the findings supported by direct quotes from the participants, so that every assertion can be supported by raw data (McMillian, 2012).

External Validity

External validity refers to the extent to which “study’s findings are generalizable beyond the immediate study” (Yin, 2013, p. 48). In case studies, the goal is to duplicate discoveries across cases” (Baxter & Jack, 2008). I achieved external validity of this case study by using a real-world setting to explore how medical findings or media exposure on the subject of football-related concussions influenced the perceptions and practices of Texas high school football coaches. Even though the study may not be generalized to all high schools in Texas, cases with similar contexts and characteristics may use the findings to inform their research or policies.

Transferability

According to McMillian (2012), “Qualitative researchers use the term transferability to get at ecological validity of the findings” (p. 20). One of the ways in which transferability can be

established or enhanced is through the generation of detailed data. According to Creswell (2013), “Rich, thick description [also] allows the reader to make decisions regarding transferability because the writer describes in detail the participants or setting under study” (p. 252). I generated detailed description of the research context such as the context, relevant characteristics of the selected high schools, and a profile of the coaches so that other researchers can determine whether the findings can be transferred in another state or high school.

Expected Findings

The expected findings of the research on how high school football concussions influence the perceptions and practices of Texas high school football coaches may be beneficial to coaches and athletic directors. The multiple case study provided specific examples of how information on concussions influences practices of high school football coaches that will lead to safer athletics policies. I expected the results of this research to be used as foundational support for future changes, and reforms that can positively influence high school athletics and coaching practices in Texas and other parts of the country.

Ethical Issues

Conflict of Interest Assessment

As an athletics director, I am often faced with the question of how can coaches make the game of football safer. I have a personal stake in ensuring coaches act responsibly in preventing football-related concussions. I minimized possible conflict of interest by recruiting participants that were evaluated by another administrator pertaining to job performance. I did not recruit participants that I evaluated to avoid coercion or conflict of interest. I was aware of the potential biases I hold; however, I realized that bias is an inevitable, yet valuable tool in research.

Maguire (2014) wrote, “Bias is valuable in that it drives, guides, and channels our interest and passion in a particular problem or issue” (p. 1).

Researcher’s Position

As the researcher, I believed that coaches play an important role in preventing and minimizing cases of football-related accidents in high school athletics. I also believed coaches should have a strong educational understanding and training on how to prevent and address football-related concussions. I believed school leaders should provide administrative and educational support to coaches to enhance their effectiveness as leaders of athletic teams. The recent medical data and media attention about football-related concussions should have a positive effect on the behaviors and practices of coaches.

Ethical Issues in the Study

Ethics in research is important to ensure the results can be regarded as credible and trustworthy within the scientific community (Miller, Birch, Mauthner, & Jessop, 2012). To enhance the ethical standards of the study, I adopted strategies intended to improve the study’s trustworthiness and credibility. These strategies included gaining informed consent from institutional review board and from local school sites as well as protecting private information.

Informed consent forms were used to ensure that all participants understand the reason for their participation. I informed them of my expectations with regard to their participation so that they fully understand and expect what would occur once they became part of the study. All eight participants were required to sign the informed consent document to participate in the study.

Privacy was maintained throughout the research study and participants were protected from undue harm. I recognized and acknowledged that the harm associated with qualitative

research is generally mental or emotional in nature, and can occur in the form of adverse reactions to study findings. I ensured that all personal information of the participants such as names and location of their employment are concealed from the public to protect their privacy and rights. I assigned a unique identifier or code for each of the eight participants to conceal their real names. For the transcripts of the interviews, the analysis of data, and in the presentation of results, all of the participants were referred to with their assigned code names. As soon as the transcription was checked for accuracy and deemed accurate, the audio tape were deleted. Data that would lead to deductive disclosure will not be reported.

Another strategy I used to enhance the ethical credibility of the study was the proper and responsible disposal of data after the study is completed. I will retain all data from my personal computer and residence for a period of three years to comply with the standards set by the university's IRB. After seven years have passed, I will permanently delete all files from my computer and destroy all documents collected from the participants, such as written observation notes, informed consent forms, and other relevant documents.

Finally, voluntary participation is important to ensure that no participants feel forced or compelled to perform tasks or activities they do not want to do. Participants could refuse to be part of the study during the recruitment stage without penalty or threat. If participants initially gave consent to be part of the study, but eventually decided to withdraw for various reasons, their request for withdrawal was honored. I did not make subsequent attempts to convince them to stay in the study.

Summary

The purpose of this qualitative multiple case study was to explore how medical data and media exposure on the subject of football-related concussions influences the perceptions and

practices of Texas high school football coaches. Qualitative research appropriate for the current study because data generated from statistical analyses would not provide the type of information needed to answer the research questions (Taylor et al., 2015). A case study research design was appropriate because of the need to examine a phenomenon within an embedded context (Yin, 2013).

The target population for the current study was high school football coaches in Texas. To recruit the target sample size of eight high school football coaches in Texas, the purposeful sampling technique was used. Purposeful sampling is a nonprobability technique wherein participants are selected based on satisfying key inclusion criteria (Creswell, 2013). The recruitment of participants and the collection of data only commenced after the approval from the IRB.

Data collection involved conducting individual semistructured interviews, direct observations, and reviewing relevant documents such as official memos, team meeting reports, and records without personal information about students. The use of three different sources of data enabled a comprehensive description and understanding of the case study (Yin, 2013). All data were analyzed through the process of coding, with the goal of generating themes. The final stage of the analysis was a detailed narrative of the case regarding how medical data and media exposure on the subject of football-related concussions influenced the perceptions and practices of Texas high school football coaches. I expected that the results of this research could be used as foundational support for future changes and reforms that can positively influence high school athletics and coaching practices in Texas and other parts of the country.

Chapter 4: Data Analysis and Interpretation Report

Introduction

The goal of this qualitative multiple case study was to explore how medical data and media exposure on the subject of football-related concussions influence the perceptions and practices of Texas high school football coaches. The issue of concussions has been dominant in sports media recently, with the focus on every level of football (Esquivel et al., 2013). The research took place at eight high schools, with varying student and staff demographics, within five school districts. A qualitative collective case study was the methodological approach used to conduct the research.

Case studies are supported by numerous data sources including qualitative evidence to study a phenomenon in a real-life context (Yin, 2013). In this qualitative case study, I examined how high school football coaches in Texas perceive the recent medical data and media attention specifically from the NFL on the subject of football related concussions. Case study research involves the study of a case within real-life context or setting. This approach included the use of both methodology and inquiry in which the investigator explored real-life cases over time and reported a case description. This methodological approach was appropriate because data were collected through semistructured interviews and direct observations at eight high schools. The data were then analyzed through interview transcripts and observation field notes. In this chapter, I will provide a rich description of the sample of coaches who shared their practices and philosophy, offer a summary of the findings, and present the results of the data analysis.

The study was guided by the principle research question, which was, “How do high school football coaches in Texas perceived the recent medical data and media attention specifically from the NFL on the subject of football related concussions?”

Along with the central question, three subquestions also guided this study:

1. How have present day medical data and media attention raised awareness of the concussion issue in high school coaches, if at all, in Texas?
2. How have recent medical studies involving football-related concussions influenced the practices of high school coaches, if at all, in Texas?
3. How has the media attention regarding football-related concussion influenced the practices of high school coaches, if at all, in Texas?

Following the introduction, the second section of this chapter contains the setting of the study. The third section includes the demographic information of the participants. I will discuss data collection and data analysis in the fourth and fifth sections, respectively. In the sixth section, I will provide the evidence of trustworthiness of this study. The seventh section includes the findings of the study organized into themes to address the research questions. The final section includes a summary of the chapter.

Description of the Sample

I conducted this study in different school districts in Texas. I selected Texas for this study's setting due to the law that required high school coaches to be educated and trained for concussions (Johnson, 2012). I recruited eight high school football coaches from Texas school districts. Each coach served as a case in this study, and data sources included semistructured interview data, observation notes, and archival documents.

I recruited the high school football coaches through purposeful sampling. The sampling criteria were that the participants had to have at least five years of professional experience as a head coach of a high school football team and current employment in a school district in Texas. I assigned each of the eight participants a random pseudonym (e.g., Participant 1, Participant 2)

to conceal their identity. Demographics data for the sample population was obtained using a survey (See Appendix C) that unveiled the information presented in Table 1.

Table 1

Sample Population Demographics

Pseudonym	Race/Ethnicity	Age	Highest Educational Attainment	Number of Years Coaching	Number of Years as Head Coach
Participant 1	White	37	Bachelor's	15	6
Participant 2	White	40	Master's	18	11
Participant 3	White	35	Master's	13	8
Participant 4	Hispanic	35	Bachelor's	13	6
Participant 5	White	45	Bachelor's	23	5
Participant 6	White	59	Master's	36	27
Participant 7	White	37	Bachelor's	15	8
Participant 8	White	42	Master's	21	14

Note. Demographics data for the sample population was obtained using a survey (See Appendix C).

I calculated the response rate from the recruitment of participants at 67%, with eight of the 12 coaches agreeing to participate in the study. The participants completed an initial, unstructured, and brief interview that offered information on the parameters of the research study, and the expectations for volunteering in the study. I gave each participating coach a copy of the interview questions prior to the interview session. Participants read over the interview questions prior to the one-on-one semistructured interview session. Coaches elaborated on their responses during the interview. During the one-on-one interviews, four of the eight participants asked if their responses should be similar to answers given during an interview from media outlets. The initial read-through showed noticeable similarities in the responses of these four participants. I was concerned because the responses I received were generic, almost scripted, and coaches were well versed in answering politically correct answers for the media. I assured participants their answers were confidential, and it was my responsibility to protect the

participants' identity and let the data guide the research without imposing any concerns about the results of the study. After rereading the transcripts, I found instrumental pieces of data that contributed to the findings and results of the research study.

The participants completed an initial, unstructured, and brief interview that offered information on the parameters of the research study, and the expectations for volunteering in the study. Direct observations conducted with each coach were followed with individual, in-depth, semistructured interviews. After I transcribed the in-depth interviews and observation field notes, I shared the information with the participants during a member check session, which I conducted via secure email.

Research Methodology and Analysis

The research design that I employed in this study was a multiple case study. In a case study, a participant or a group of participants is studied over time to describe a behavior (Yin, 2013). Case studies are supported by numerous data sources, including qualitative evidence, to study a phenomenon in a real-life context (Yin, 2013). The setting of the study was eight different high schools in Texas, which I examined within and across cases.

This study's framework was guided by Vygotsky's (1962; 1978) social constructivism and Schön's (1987) reflective practice theory. These theories highlight the importance of learning as a collaborative, reflective, and continuous activity (Barge, 2012; Osterman & Kottkamo, 2004). Both theories permeated the study's arguments about how recent medical data and media exposure on football-related concussions influenced the perceptions and practices of high school football coaches.

Each of the participants voluntarily participated in the study. Prior to recruitment, I obtained permission from Concordia University's Institutional Review Board (IRB) to maintain

ethical integrity and protect the human subjects. After receiving approval from IRB, I telephoned participants, asked them to participate, and explained in detail the nature and purpose of the study. I contacted interested participants and scheduled individual face-to-face interviews based on the time and place preferred by the participants. I was guided by a semistructured interview questionnaire in data gathering. Prior to beginning the interview, I collected a signed informed consent form from each participant, in which I restated the nature and purpose of the study. The informed consent form also contained the assurance of confidentiality and permission to digitally record the interview session for the purpose of the study. I also recorded field notes and reviewed secondary archival documents as part of the data collection.

Immediately after data collection, I transcribed the digital recordings and field notes into Microsoft Word files. I reviewed and sent the Word files to the participants to check the accuracy of the transcription. Participants were permitted to change their responses to the interview questions as needed. After member checking, I imported the Word files to NVivo, a qualitative data analysis software that aided in storing, organizing, and analyzing qualitative data. I analyzed the data using thematic coding to derive themes and categories that addressed the research questions (Yin, 2013).

Throughout the data collection and data analysis processes, I worked to establish trustworthiness through the following techniques related to credibility, dependability, and confirmability. Reflexivity was used to establish an assessment of the influence of my own background, perceptions, and interests on the qualitative research process, which included my own personal history. I observed reflexivity through constant self-questioning to avoid researcher bias. I kept a reflexive journal that included all events that happened on the football field and personal reflections in relation to the study. Data triangulation was used to establish

conformability of the study as well as reduce researcher bias. I used different sources of data such as observations of football practices, interviews, and documents. Member checking was used to establish the accuracy of the data by providing participants with transcripts so participants could ensure the accuracy of data collected from interviews. Data saturation was used to ensure that no new information surfaced from the data. Proper documentation was used throughout the study for accurate cross-checking of references (Kirk & Miller, 1986).

Summary of the Findings

During the analysis of the semistructured interviews and direct observations, themes and patterns began to emerge. As I examined and coded the data, four major themes became evident. These themes included concussion awareness, CTE, coaching methods and practices, and UIL protocol. These four themes (Table 2) represent the thoughts and perceptions of the participating coaches as they responded to the interview questions.

Table 2

Description of Themes

Theme	Description of Theme
Concussion awareness	Does access to new concussion information raise awareness?
Chronic traumatic encephalopathy	Do CTE findings raise concussion awareness?
Coaching methods and practices	How have coaches changed methods and practices as a result of data from recent medical and media findings?
University Interscholastic League protocol	How has UIL protocol raised concussion awareness?

Note. These four themes represent the thoughts and perceptions of the participating coaches as they responded to the interview questions.

Concussion Awareness

The information provided by participants yielded similar perspectives in regards to the influence of media and medical findings on concussion awareness. All participants found media

reports useful in gaining more knowledge about concussions and became more aware of the problem. All participants spoke of instances in which medical findings and media reports enhanced their sensitivity towards concussion. Two participants shared they had received concussion information from recent media reports, and they shared that information with other coaches on their staff. The data revealed some positive aspects regarding concussion awareness in the form of collaboration and education. Collaboration is a form of support that is a critical component to increased concussion awareness among coaches. Opportunities for coaches to collaborate and share information on concussion must be prioritized.

The findings suggested there has been substantial progress in raising concussion awareness because of practices from the NFL. Participant 2 believed the saturation of NFL in the media raised concussion awareness in all coaches, and the NFL educated about the dangers associated with concussion. Participant 4 explained, “I believe the NFL has raised awareness with kids and parents because they all watch the NFL, and the NFL is always in the news.” In addition to media and medical findings, early retirement of NFL players raised concussion awareness in participants. Participant 6 noted that San Francisco’s Patrick Willis, Pittsburgh’s Jason Worilds, Tennessee’s Jake Locker, Oakland’s Maurice Jones-Drew, and 49er’s linebacker Chris Borland all retired early from the NFL. The participants also expressed concerns surrounding the media because of agenda-driven reporting.

Participant 3 expressed concerns surrounding the media, as he has become less trusting of the media because of agenda driven reporting. He explained the media acts best when it reports concussion facts as they are without the filter of the reporter’s personal bias. Participant 3 believed media reports were focused only on the dangers associated with playing football. Participant 5 and 7 verified the concerns of reports from the media regarding concussion.

Participant 5 shared “media reports pertaining to concussion tend to hold back parents from letting their children join the football team.” Participant 7 was straightforward in his stance in that he would like to read more articles that promoted the benefits of playing football. He added, “Not enough media attention is given to the benefits of playing football because that does not sell subscriptions.”

Chronic Traumatic Encephalopathy

During interviews, participants expressed worry over CTE findings, and participants believed CTE reports from the medical community and media raised concussion awareness. The main concern of Participant 1 was related to recovery from CTE. Participant 1 stated, “I do not think there is a specific medical report that makes a significant impact on me, but CTE findings have raised my concern. The reports are scary.” Participant 3 believed CTE findings raised awareness among the coaching profession and with parents. Participants 7 and 8 expressed the importance of understanding all risks with CTE. Participant 7 stated, “I am concerned about CTE, but medical findings have found that the risk of high school football players developing CTE later in life is no greater than if they had been in the band or part of the cheer team.” Participant 8 explained, “I think there are tendencies to, maybe, over react. It is not just plain and simple, if you look at all the data.” Participant 5 explained the complexity of understanding the disease chiefly because of the lack of an available test for CTE on a living brain. He also added, “There is not definitive data on the long-term cognitive damage caused by an abbreviated career—only four years of high school football.” The data received from the participants indicated a clear need for continued research regarding CTE for all coaches because participants expressed uncertainty in how CTE directly affected high school athletes. The findings showed the amount of information on the subject was precipitous, not all of it conclusive.

Coaching Methods and Practices

This research study on how medical data and media exposure influenced the practices and methods of football coaches used the semistructured interview to inquire about what practices deemed effective in preventing concussion. The results revealed participants took measured steps to reduce the risk of concussion during practice and games. Participants established relationships with players to ensure they reported concussion symptoms, and communicated with parents on the concussed player's progress and risks associated with returning to play too soon. Participant 5 explained players only returned to play after the parent or legal guardian signed and acknowledged the return to play protocol. These approaches were instrumental in how participants managed player concussions, and these findings aligned with current research on the concussion management process.

Based on the shared views from participants in the study, the findings identified four practices that changed because of modern medical findings: heads up tackling, limited contact during practice, baseline testing, and increased recovery time from concussion. Participants 3, 4, and 7 taught a certain type of tackling that many NFL teams employed called *hawk tackling*. This style of tackling focused on using the shoulder rather than the head when tackling an opponent. Participant 5 incorporated tackling drills similar to the NFL, where players practiced tackling on a large donut shaped dummy that forced players to repetition wrapping up low and keeping their head out of tackling. Participants 6 and 8 incorporated a rugby type of tackle that limited the use of the head.

In addition to modifying tackling techniques, many participants limited contact during practice. Participant 5 limited contact during practice. He stated, "Right now, there is the UIL rule of 90-minute full contact during the week, and we are less than 30 minutes a week of full

contact.” Participants 6 and 8 also limited the amount of contact during practice to less than 45 minutes a week of full contact. Participant 4 limited contact during practice, but he expressed concern that “if we do not teach kids how to hit in practice, they are going to get hurt in the games.” The challenge for participant 4 was to execute an elusive balancing act, reconciling two competing demands: to minimize contact in practice in order to reduce the number of concussions sustained in practice, while at the same time capitalizing on the amount of time in practice learning how to tackle and block without head-to-head contact.

The findings from coach interviews yielded that Participants 3, 5, 7, and 8 added baseline testing as part of concussion management. Participant 5 implemented baseline test for all student athletes in Grades 7–12 that participate in football. According to Participant 5:

If the student athlete suffers a head injury, then approximately 48 hours after the injury, the student will take the ImPACT test and the two scores are compared. After an evaluation from the athletic trainers, the ImPACT test results are examined, and a concussion diagnosis may be made.

Participant 3 stressed that one of the challenges faced by coaches that used baseline testing was that for a baseline assessment to be robust, reliable, and objective it required time. He also noted highly trained individuals must administer the test. Participant 3 added, “Hopefully as the need for a reliable baseline assessment becomes more widely recognized, there can be greater discussion and development of the resources and training needed for educators.”

UIL Protocol

Participants viewed UIL protocol as a necessary component that increased accountability, increased concussion knowledge, increased professional development opportunities, and increased communication with parents. Participant 7 reported that coaches were required to take

concussion training courses each year prior to the football season. Participant 6 stated UIL protocol outlined the coach's role in concussion prevention and the responsibility and involvement behind the role. Participants compared to coaches from other states that did not have concussion protocols and indicated that they felt privileged to work in such conditions.

In addition to new concussion guidelines, participants explained the UIL implemented new restrictions on time allowed for full-contact drills each week during practice sessions of Texas high school football. Restrictions were created in 2013 to reduce the number of concussions associated with football by limiting full-contact participation to 90 minutes a week (Silverman, 2013). Participant 3 believed these new restrictions reduced the risk of concussion among football players. Findings revealed following UIL protocols supplied coaches with the knowledge and direction necessary for improving safety for high school football players. Participant 2 believed UIL protocol was necessary to educate all coaches, because athletic trainers did not cover all football practices. Participant 2 explained, "Class 6A and 5A schools have at least one certified athletic trainer on staff, but 4A and smaller schools often do not." Prior to UIL protocol, participants detailed middle school and sub-varsity coaches lacked the knowledge to implement successful concussion management.

Presentation of Data and Results

I will arrange the presentation of the findings by the principle research question and subquestions. Arrangement of the presentation is contingent on the purpose and understandability of the data collected via semistructured interviews and direct observations. While there were common practices shared by the eight high schools, each school also had its own unique perspective in regards to the questions. These unique perspectives were reflected in

the data collection process, which was a straightforward and logical attempt to answer the principle research question and the three subquestions, which are displayed in Table 3.

Table 3

Analysis of Research Questions

Research Question	Participants' Responses
PRQ. How do high school football coaches in Texas perceive the recent medical data and media attention specifically from the NFL on the subject of football related concussions?	Increased awareness Increased collaboration with all stakeholders Increased athletes and parents exposure to concussion information Ignited a firestorm among public
SQ1. How have present day medical studies and media attention raised awareness of the concussion issue in high school coaches, if at all, in Texas?	Increased communication with athletes Reflected on current coaching methods Increased concussion awareness Raised concern over CTE findings
SQ2. How have recent medical studies involving football-related concussions influenced the practices of high school coaches, if at all, in Texas?	Taking the head out of tackling Increased recovery time Implemented baseline testing prior to season Reflected on coaching methods Limited contact during practice
SQ3. How has the media attention regarding football-related concussion influenced the practices of high school coaches, if at all, in Texas?	Improved concussion education efforts Reflected on coaching methods Increased pressure to identify concussion in players

Note. These unique perspectives from participants were reflected in the data collection process, which was a straightforward and logical attempt to answer the principle research question and the three subquestions.

Analysis of Research Questions

Principle Research Question

The principal research question was, “How have high school football coaches in Texas perceived the recent medical data and media attention specifically from the NFL on the subject of football related concussions?” Based on the data gathered through semistructured interviews, participants were consistent in indicating that media reports medical findings were successful in

raising concussion awareness. The attention in concussion and media coverage increased the participants' awareness of the potential seriousness of concussions and influenced their coaching practices and attitudes towards the sport. Moreover, in participants' approaches, medical data and media attention increased concussion awareness by facilitating collaboration with other coaches, increased concussion knowledge in all stakeholders, and increased reflection on current practices. Furthermore, medical and media attention increased participants' concussion awareness because of extensive concussion coverage in the media and CTE findings. However, participants expressed apprehensions surrounding the validity of all media reports pertaining to concussion. Equally important, participants acknowledge UIL protocol played a significant role in concussion awareness by improved accountability, increased concussion knowledge, improved professional development opportunities, and increased communication with parents.

Subsequently, findings revealed mandating education on concussions did not give participants medical training; it simply clarified what a rational coach should know about concussions. Moreover, findings revealed education efforts that boost awareness clarified the standard of care for return-to-play, and helped participants enforce return-to-play laws and policies. To conclude, findings from the study suggested a need for a continuation of increased concussion awareness that emphasized improving attitudes and beliefs about concussions among athletes, coaches, and parents in order to improve concussion reporting among youth athletes.

Subquestion 1

The first subquestion was, "How have present day medical studies and media attention raised awareness of the concussion issue in high school coaches, if at all, in Texas?" Over the past 6 years, the escalating numbers of reported concussions in the NFL, pending concussion litigation by former players against the NFL, and the suicides of former players linked to CTE

have increased participants awareness about the potential dangers of concussion. In addition, the study revealed medical studies and media attention increased athletes and parent's exposure to concussion information leading to increased awareness. All participants acknowledged the seriousness of concussion injuries and strictly enforced return-to-play policies. Further findings revealed participants had an understanding of the incredible complexity of a concussion and as a result, participants acknowledged there was still much to learn about the injury. Clearly, the access to new concussion information for participants created a boost in their devotion to concussion awareness.

Subquestion 2

The second subquestion asked, "How have recent medical studies involving football-related concussions influenced the practices of high school coaches, if at all, in Texas?" Participants trusted the validity of medical findings, and participants used medical findings as a catalyst for transformation practices that reduced concussion risks in practices and in games. Based on the shared views from participants in the study, I identified four practices that have evolved because of modern medical findings: hawk tackling, limited contact during practice, baseline testing, and strict enforcement of return to play policies. In addition, findings from the study suggested the concept of limited contact during practice was fundamentally sound, and implementation of drills that reduced the number of impacts or for the magnitude of impacts per week or per season reduced concussions and other injuries. Further findings concluded high school football should consider neurocognitive baseline testing as a regular part of a player's preseason physical. Equally important, return to play policies must be followed, and school districts, athletic directors, coaches, athletes and parents must adopt the medical community's mantra, "if in doubt, sit them out." To conclude, this study revealed new concussion information

facilitated participants to reflect critically on their current prevention and care methods and consider alternative tools for concussion prevention and management. As science and medicine develop better treatment and practices, high school football will likely see participants implement the newest and best concussion management practices.

Subquestion 3

The third subquestion asked, “How has the media attention regarding football-related concussion influenced the practices of high school coaches, if at all, in Texas?” The study revealed the NFL educated participants to new methods that reduced concussion. Furthermore, the NFL has made great strides in the past six years to address the concussion issue in football. The customs it has developed through rules and policies has trickled down to high school football. In addition, the findings from the study revealed that media increased participants concussion awareness by improved accountability, increased concussion knowledge, improved professional development opportunities, and increased communication with parents. Media attention regarding concussion caused continuous reflection in current practices from participants, and concussion articles from the media facilitated collaboration among participants and participant’s staff members. To conclude, participants felt the media increased accountability to ensure players did not play with a concussion because parents, athletes, and even fans were better educated on the risks and dangers associated with playing through a concussion.

Summary

In this chapter, I presented the findings of this study through themes generated from thematic analysis. The purpose of this qualitative multiple case study was to explore how medical data and media exposure on the subject of football-related concussions influenced the

perceptions and practices of Texas high school football coaches. In response to the central research question, findings revealed that football coaches believed that media reports from the NFL and medical reports raised awareness and knowledge about concussions, and helped in promoting coaching methods that protected players from concussion. However, medical data appeared to be more trusted than media reports from the NFL. Participants believed medical data had a scientific basis and continued to develop as technology advanced. Media reports, specifically from the NFL, raised awareness with all stakeholders; however, the coaches cautioned that not all data in these reports were accurate. Finally, UIL protocols drastically increased concussion awareness and improved prevention and treatment.

Chapter 5: Discussions and Conclusions

Introduction

In this qualitative multiple case study, I investigated how medical data and media exposure on the subject of football-related concussions affected the perceptions and practices of Texas high school football coaches. This chapter is organized into five sections. The first section contains a brief overview of the problem, the purpose statement, research questions, review of the design, participants in the study, data collection, and analysis and summary of the significant findings. The second section encompasses the research questions and conclusions based on the findings. In the third section, I will discuss recommendations for practitioners to implement in practice. In the fourth section, I will suggest future possible research topics. The final section includes a summary and concluding remarks.

Summary of the Results

Overview of the Problem

With an emphasis on player safety and recent media attention given to head injuries related to football, I investigated how medical data and media exposure on football-related concussions influenced the practices and perceptions of Texas high school football coaches. As someone who has been a player, football coach, and currently an athletic director, I have witnessed a shift in the concerns of parents from broken bones and torn ligaments to the brain. The National Federation of State High School Associations (NFHS) revealed that 1.1 million athletes engaged in high school football in 2013, making it the most popular sport in this country (Talavage et al., 2014). With the number of players participating in football each year in the United States, concussions or head injuries have morphed into a major health concern that has received vast amounts of medical and media attention.

A report estimated that a minimum of 96,000 children aged five to 18 experience sports-related concussions annually, and 3.8 million sports and recreation-related concussions occur each year in the United States (Diehl, 2010). Conservative estimates have indicated that 300,000 sport-related concussions transpire each year in the United States, but that figure only represents head injuries resulting in hospital admissions (Diehl, 2010). Students participated in high school football in prior years exceeded 1.1 million, and approximately 67,000 student athletes were diagnosed with a concussion (Talavage et al., 2014). It is well documented that Friday nights in Texas are for high school football. It encompasses the whole community (Talavage et al., 2014). In Texas, because such value is placed on high school football, it benefits our youth by providing life lessons not found in the classroom. Unfortunately, we cannot eliminate all concussions or other injuries in football. To end, loud cries from media and medical communities have increased pressure on coaches to teach athletes better techniques that prevent concussions and for parents to assess the risks associated with football. With so much worth placed on football success in Texas, high school head coaches must manage the pressures of coaching football coupled with the responsibility of protecting the well-being of athletes.

Purpose Statement and Research Questions

The purpose of this study examined how medical data and media exposure on football-related concussions influenced the perceptions and practices of Texas high school football coaches. I collected data using semistructured interviews, direct observations, and document reviews. I interviewed and observed high school football coaches to explore their perceptions and practices. The research also involved examining relevant documents such as official memos, team meeting reports, and records that were devoid of personal information of students to gain

insights into the practices of high school football coaches with regard to football-related concussions.

The principal research question of the study was, “How do high school football coaches in Texas perceive the recent medical data and media attention on the subject of football related concussions?” Based on the principle research question, the corresponding subquestions were:

1. How have present day medical data and media attention raised awareness of the concussion issue in high school coaches, if at all, in Texas?
2. How have recent medical studies involving football-related concussions influenced the practices of high school coaches, if at all, in Texas?
3. How has the media attention regarding football-related concussion influenced the practices of high school coaches, if at all, in Texas?

Theory and Significance

The theoretical framework of the study was based on Vygotsky’s (1962; 1978) social constructivism and Schön’s (1987) reflective practice theory. Theory surrounding on the practices and perceptions on modern concussion information centered on collaboration, reflection, and communication (Barge, 2012; Osterman & Kottkamo, 2004). I applied both social constructivism and reflective practice theories to this research study. These theoretical perspectives supported the notion that coaches implemented collaborative and reflective practices when introduced to new concussion information. Theory supported the notion that learning occurred among coaches because of social relations through collaboration (Barge, 2012). Central to the notion of socially constructed learning, participants facilitated the learning and organizing of new concussion information (Stroet et al., 2016). Furthermore, the findings in

this research study showed participants used collaboration with other peers when introduced to new concussion information.

The significance of this study revolved around the usefulness and applicability the results will provide to coaches and stakeholders in schools across the country on the practices, techniques, and strategies needed for effective concussion management. The results will assist district and local athletic directors in the decision making process regarding the appropriation of funds, instructional resources, and training opportunities for all coaches tasked with providing concussion management and prevention.

Review of Seminal Literature

Seminal literature on Schön's (1987) reflective practice theory was vital to this research study. Reflective practice was significant to understanding how coaches processed and reflected on new information regarding concussion. Through reflective practice, coaches adapted to new methods and philosophies that protected players from concussion. The concept of change permeated from the need for collaboration and conversations with everyone involved in a particular situation. Paterson and Chapman (2013) defined reflection as an ongoing process of purposeful observation while thinking about one's activities, emotions, and reactions with the goal to learn. Reflection enhanced the level of insight and could lead to meaningful change.

Like the theory of reflective practices, social constructivism was also pertinent to the successful education efforts from coaches learning new information pertaining to concussion. Researchers defined social constructivism perspective in that the individual understands the world of knowledge through a process of organizing and restructuring subjective experiences (Kiraly, 2015; McKee et al., 2009). Kiraly (2015) noted communication of ideas and insights is central to this perspective of knowledge, in that learning is only gained through interaction with

others. Within the context of the study, the social constructivism theory provided a framework for understanding how social learning was gained from medical data, and how the media influenced the practices and perceptions of coaches regarding football-related concussions. In a case study conducted by Caron et al. (2015), the results led the researchers to conclude that media reports were useful in gaining more knowledge about concussions and became more aware of the problem. Furthermore, the media coverage of retired football players with degenerative neurologic conditions due to repeated bouts of concussion changed the coaches' perceptions about concussion.

Further findings from this study revealed media and medical findings changed the perceptions of the participants through collaborative and reflective practices. The discussion of different opinions from the media and recent medical findings boosted concussion awareness as well as promote a football culture with increased sensitivity towards head injuries. Caron et al. (2015) substantiated the findings and viewed media reports as an asset that provided coaches with more information and insight on the concussion problem. Caron et al. (2015) concluded newfound information about concussion influenced the coaches' training practices.

Moreover, the research conducted at high schools in Texas revealed participants found direct experience useful in increasing knowledge about concussions and becoming more aware of the problem. Caron et al. (2015) substantiated the findings and viewed personal experience of concussion helped coaches in the management of concussed players. Caron et al. (2015) concluded personal experience increased the coaches' knowledge on concussion and influenced their coaching practices and attitudes toward the sport.

The interviews and observations revealed participants supported the notion that the culture of football changed due to recent medical data and media coverage of concussion.

Participants 2, 3, 5, and 7 all pulled players aside during practice to check on their health.

Participants pulled the players from the football field, and the players were sent to the athletic trainer for further evaluation in this research study. Beaver (2013) agreed with the findings and noted the game of football has increased efforts to detect and report concussions. Similarly, Conine (2016) and Varney (2014) both produced data that supported the concept that the culture of football has changed due to recent medical data, media coverage of concussion, and the public's realization of the seriousness of this health risk.

Participants acknowledged UIL concussion protocol increased professional knowledge on concussion and raised concussion awareness. All participants had completed concussion training mandated by state law. Graham et al. (2014) validated the findings from the study and viewed state regulations on concussion effective in improving the insight, knowledge, and awareness in coaches and stakeholders.

Methodology

The research design employed in this study was a multiple case study. The setting of the study was eight different high schools in Texas from a school district, which I examined within and across cases. A semistructured interview questionnaire guided me in data gathering. Data collection involved conducting individual semistructured interviews, direct observations, and documents such as official memos, team meeting reports, and records that did not include personal information about students. The use of three different sources of data provided a comprehensive description and understanding of the case study (Yin, 2013). I used the semistructured to explore medical data and media exposure on the subject of football-related concussions influenced the perceptions and practices of Texas high school football coaches. I used the semistructured interviews as a qualitative data collection tool where participants were

asked a series of open-ended questions central to understanding the research problem (Galletta, 2013). The semistructured interview was both structured and flexible so that researcher had a clear idea of the direction of the process but have adequate space to make modifications based on the actual interview. I scheduled the date and time of the semistructured interview individually. I provided all participants with information about the study and required them to sign the informed consent forms. I digitally recorded all interviews and transcribed the conversations for analysis. I conducted observations to collect data needed to explore how the practices of coaches are influenced by medical data and media exposure regarding football-related concussion. I used observation data with interviews to complement the findings (Merriam, 2009). Conducting observations entailed “noting a phenomenon in the field setting through the five senses of the observer” (Creswell, 2013, p. 166). As an observer, I took detailed field notes from a distance that noted important practices and behaviors associated with the head football coach. As a part of the data collection process, I conducted document reviews of official memos, team meeting reports, and records without personal information about students. The documents collected served as an alternative source of data, where findings from the semistructured interviews and observation were corroborated or enhanced. Creswell (2013) contended that documents could be valuable because of their defined role in any data collection in doing case study research. All participants provided documents of football practices and team meetings that enhanced my understanding of their perceptions, medical related issues, and practices.

Analysis

After the collection of all the data, I organized the data for analysis based on the framework outlined by Creswell (2013). All semistructured interviews were transcribed, all documents were collated, and all observation notes were transferred in Microsoft Word files.

The organization of qualitative data also involved putting all data in NVivo software so that the information was in a single location. I used this software for the organization and storage of the data while also keeping the data secure and confidential (Bazeley & Jackson, 2013). I developed a general opinion about the prevailing ideas, perceptions, or thoughts relevant to the research problem and research questions from preliminary read-through of the data. The analysis involved use of a coding process to identify themes needed to answer the research questions of the study (Creswell, 2013). According to Creswell (2013), the coding process “represents the heart of qualitative data analysis” (p. 184). The analysis produced key themes central to understanding the case study. I used NVivo software to generate themes by coding and managing data by organizing a number of muddled data documents that includes interview transcripts, notes of observations, and documents. I used the software to manage ideas to understand the conceptual and theoretical issues generated in the course of the study. I also used the software system to query data by posing several questions of the data resulting in an ongoing enquiring process to create themes (Bazeley & Jackson, 2013).

After all themes were developed, the data were visualized and represented. The representation of data involved generating a detailed description of the case regarding how medical data and media exposure on the subject of football-related concussions influenced the perceptions and practices of Texas high school football coaches. I used NVivo codes, which are the “exact words used by participants” (Creswell, 2013, p. 185) to strengthen findings. I developed the study’s research questions based from the studies critiqued in the literature review. Using these questions, I developed and implemented an interview protocol (Appendix D).

Participants

The target population was eight football high school coaches in Texas, who provided data from semistructured interviews, observations, and document reviews. I used the purposeful sampling technique to select participants from multiple school districts. I calculated the response rate from the recruitment of participants at 67%, with eight of the 12 coaches recruited agreeing to participate in the study. I recruited all eight participants from high schools in Texas, which is a state with a law that requires coaches to have education and training for concussions (Johnson, 2012). I selected this population of high school football coaches based on the seriousness of football-related concussion among high school athletes, who are likely to recover slowest when compared to college and professional athletes (Miyashita et al., 2016). This particular population was important to the study because of their role in preventing or minimizing football-related concussions in high school. Participants were full-time high school head coaches who had at least five years of coaching experience in Texas. Following school district and IRB approval, I contacted the coaches via email with an invitation to participate in the research study. Each participant signed a consent form stating they would participate in the study and were briefed on the study parameters and requirements. Next, I assigned pseudonyms to protect the confidentiality of participants. I did not use any data that might have compromised the individual or the school's identity in this study. Then, I scheduled participants' one-on-one interviews once information was shared with all participants. Shortly after, all participants engaged in one interview that lasted 45 minutes, which was followed with debriefings to assess the validity of the transcription. I observed each participant three times for 45 minutes during the study, and I reviewed field notes transcribed from interviews and observations during the study with participants.

Summary of the Findings

The findings from this study indicated media and medical findings facilitated a great deal of discussion among participants. The discussion increased participants' awareness in the seriousness of concussions, and challenged participants' traditional beliefs with new concussion information that led to cultural changes in the attitudes of participants and players. Moreover, participants collaborated with coaches from other schools in an effort in improving concussion safety. Participants reflected and compared their own concussion knowledge with current information available becoming more educated on the subject. In addition, all participants followed UIL concussion protocol after an athlete suffered a head injury. UIL concussion protocol lessened the encumbrance off participants, as it prevented outside forces from influencing a participant's decision as to when a player should return to the field after sustaining a head injury. To conclude, a major finding from the study revealed that all participants believed football was safe for high school students, and participants noted the game of football has never been safer.

Discussion of the Results

The results of this study were a byproduct of the principle research question and the three subquestions that drove the review of literature and the data collection for the study. The principal research question sought to uncover how high school football coaches in Texas perceived the recent medical data and media attention specifically from the NFL on the subject of football related concussions. I interviewed eight Texas high school head coaches to claim their personal and professional experience with football related concussions. I found participants used medical findings and media attention as a tool that increased concussion knowledge and awareness.

Results from the study revealed the most important aspects gained from medical data and media attention were increased collaboration with other coaches, increased concussion knowledge in all stakeholders, and increased reflection on current practices. The identification of the actions used by the participants contributed to the providing a response to the principle research question.

The first subquestion gleaned information as to how present day medical data and media attention raised awareness of the concussion issue in high school coaches in Texas. The purpose of this question was to gain insight into the degree medical data and media attention raised awareness of concussion. The study participants consisted of head football coaches in Texas from multiple high schools. Head coaches from different schools broadened the scope of the information gathered through interviews and observations.

The study revealed football has seen a significant culture change. The access to new concussion information had an impact on the fidelity of concussion awareness for all participants. Importantly, the study revealed a raised concussion awareness and education levels of everyone participating from team officials, to the participants, to the athletic trainers, to the players themselves, to either identify the signs and symptoms of an injury, or even point to a teammate who they believed needed a concussion evaluation.

The literature on concussion stressed the importance of continuous learning for effectively implementing concussion management. Therefore, the second subquestion of this study aimed at uncovering how have recent medical findings influenced the practices of high school coaches in Texas. As I have noted, based on the shared views from participants who participated in the study, I identified four practices that transformed because of modern medical findings: heads up tackling, limited contact during practice, baseline testing, and increased

recovery time from concussion. Further findings revealed the participants' main practices in the handling of concussions were to communicate with parents, players, and team members on the concussed player's progress and risks associated with returning to play too soon. These approaches were instrumental in how participants managed player concussions, and these findings aligned with current research on the concussion management process.

The final subquestion delved into how media attention regarding football-related concussion influenced the practices of high school coaches in Texas. The change in the practices of participants was reflected in a cultural shift from the attitudes of players' regarding concussion. Data collected from participants noted the number of self-reported concussions has increased over the years, which was tribute to media attention from concussion. Remarkably, findings from the study revealed players were more aware of the symptoms of concussions and were concerned for their health. Equally important, participants understood the need for player evaluation by the athletic trainer and a doctor. The study revealed the media pushed participants to reflect on innovative ways to lower concussion numbers. Further findings suggested participants felt an increased pressure to identify concussions in players. In conclusion, participants expressed an increased effort in promoting the benefits of football because participants felt most articles only emphasized the negative risks associated with playing football.

Discussion of the Results in Relation to the Literature

The problem addressed in this study focused on how football coaches integrated modern concussion findings into their practices and philosophy. In light of this problem, it was important to demonstrate how the results of the study related and connected to the literature and the wider community of practice and scholars. The results focused on incidence, prevention,

regulations, awareness, popularity, football culture, and football in Texas. With the new information regarding degenerative neurological problems, researchers have linked Alzheimer's disease with repeated head injuries such as a concussion. The new findings resulted in a firestorm from the public, and the medical fraternity provided more data and safety for the players. To this end, football regulations have been amended and player education, especially at high school level, has been implemented. The results of this research coincided with the problem under study, and the data collected from the participants aligned with the literature gathered during the research process.

One goal of this research study was to inform coaches the importance of increasing concussion awareness and education. By raising awareness, researchers believed coaches have evolved with new practices and methods that prevent concussion (IOM, 2015). Likewise, by increasing education, participants changed their coaching methods that reduced concussion incidence. Moreover, participants collaborated with other coaches passing along useful drills, and new innovative training methods that reduced concussions. Participants raised concussion awareness by communicating with parents on the risks and the rewards of playing football.

The results of this study also aligned with coaches on the identification of a concussion in players. According to Giza et al. (2014), the most standard method of diagnosis was to interview, determine, and examine the patient for any neurologic signs or symptoms. Similarly, participants applied standard neurological tests that included tests of strength, sensation, reflexes, coordination, cranial nerve functions, mental status, and other neurologic functions. According to Leong et al. (2015), the King–Devick (K–D) was an eye test that successfully diagnoses concussion. Comparable, participants in this study used baseline tests that tracked eye movement before and after a head injury. The test focused on eye movements, language

function, and attention in order to perform functions which have been shown to reflect suboptimal brain function in concussion.

It is my belief that that the culture of football has changed due to recent medical data, media coverage of concussion, and the public's realization of the seriousness of this health risk. Just a few years ago, research conducted by Beaver (2013) noted that the implications of the possible health risks of concussions were not fully respected by all players, coaches, and parents. However, Beaver (2013), Conine (2016), Rankin (2012), and Varney (2014) all supported the notion that the landscape of football has changed due to recent media coverage, medical data, and the public's realization of this health risk. Presently, the overall culture of football encourages self-reporting of concussion symptoms by players, and football players conforming to the return-to-play regulations. Equally important, the communication between coaches, players, and all stakeholders about the safety of the players has established a culture of responsibility and compliance to the regulations of football (Kroshus et al., 2015). Specifically, the game has changed in two ways: (a) less contact allowed, and (b) increased sensitivity to detect and report concussion (Beaver, 2013; Lawrence et al., 2015) Indeed, the NFL was reluctant to acknowledge the association between head knocks and TBI, but even this organization has changed its opinion in light of the many studies (Beaver, 2013; Lawrence et al., 2015).

Lastly, I assessed the coaches' role and responsibilities for raising concussion awareness and improving concussion management. The results of this study revealed participants found deciphering through large amounts of new and ever-evolving concussion data challenging, but expressed positivity and great appreciation for the responsibility of protecting the safety of high school football players. Similarly, coaches who participated in a study by Caron et al. (2015)

concluded that the coaches' main responsibility in the handling of concussion was to protect players by communicating with parents, players, and team members on the concussed player's progress.

Limitations

The limitations of this research study included sample size and selection, and assumptions about the validity and honesty of the information provided by participants. As I reflected on the sample of participants and the sample size for this research study, I realized that the study did not include a full representation of the coaching population. The sample population consisted of eight head football coaches in Texas within five school districts. While the participants represented a diverse range in age and experience, the majority of participants were from large high schools.

The analysis of the data revealed another limitation to the research study. I found the decision to collect data from eight high schools within five school districts a limiting factor to the potential information and data gathered through this research study. If the sample selection had been expanded, it is likely the data would have resulted in wider range of perceptions and practices of football coaches in relation to modern concussion findings.

Finally, I considered the validity and truthfulness of the information provided by participants to be a limitation. As I entered into the fieldwork, I assumed participants would provide honest, valid information about their perceptions and practices regarding modern concussion data and findings. During the one-on-one interviews, four of the eight participants asked if their responses should be similar to answers given during an interview from media outlets. This quest for reassurance created concern regarding confidence and validity of the data.

I assured the participants that their answers were confidential and that it was my responsibility to protect their identities.

Implication of the Results

Implications for Practice

The implications of the results for current coaching practice are far reaching. The findings of this highlighted the importance of concussion awareness, professional development in concussion management, and the appropriate methods to all coaches. The participants sought support in the areas of coaching and collaboration with colleagues, medical findings, and assistance from UIL protocol. The results from this study can be used to help coaches make informed decisions concerning strategies, techniques, and methods used to provide effective prevention and care of concussion. This study may also allow coaches and athletic directors to reflect critically on their current prevention and care methods and consider alternative tools for concussion prevention and care. Results from this study will add to a limited body of concussion research with youth sport coaches.

Equally important to practice is that coaches are community leaders and role models who are responsible for athletes' health, well-being, and personal development. According to Carroll and Rosner (2012), there is a need to improve concussion education and prevention efforts for youth athletes and those responsible for their care. With the findings of this study in mind, coaches must be aware of the following:

1. Most coaches enter the profession lacking appropriate concussion training;
2. Awareness of football concussions has increased because of media and medical data;
3. Participants acknowledged their coaching practices, philosophy, and attitudes on the subject of football concussions had changed in recent years;

4. The UIL protocol regarding concussion management in high school football has advanced in recent years, but there is still room to improve;
5. Empirical evaluation of implementation and effectiveness of such UIL concussion protocol is needed;
6. Coaches must be diligent in raising awareness and continuing their own educational effort on concussion;
7. Baseline testing is the future tool in concussion management;
8. As research increases, policy and education should evolve accordingly.

Implications for Theory

It is my belief that there is a disconnect between theory for concussion management and actual practice. In order to bridge the gap, it is important that theory become more applicable to current practice. The results from this study, as well as literature on the topic, suggest reasons for the perceived gap between theory and practice. Indeed, researchers studying concussions have suggested that there is a need for more research using the same assessment methods. Pearce et al. (2015) affirmed this notion and noted a need for more research using the same assessment methods, as well as longitudinal assessments to determine the effect of concussion over a longer period of time.

Lastly, sufficient data on treatment and recovery periods—especially prolonged recovery periods—are needed, as this information is needed to determine return-to-play policies (Abdullah et al., 2015). There is no specific test or method of assessment to determine whether a player has recovered from concussion (Giza et al., 2013). There is a wealth of knowledge on concussion in sports and especially football; however, a gap exists in the research on coaches’

perceptions of the medical and media information on concussion and the changes they apply in their coaching practices.

Recommendations for Further Research

The results of the study focused on the effects of medical data and media exposure on the perceptions and practices amongst Texas high school football coaches. The study should extend to a larger population of football coaches since the sample size of eight participants is insufficient for making broader conclusions. Future researchers should expand this study to increase the number of participants and carried across many districts in the state of Texas for easy transferability. There is a need for medical data relating to concussion to be required in preseason training. Understanding how former football players have suffered from concussions will be helpful in establishing the case for mandated concussion safety policies throughout all states. The researcher also recommends the following for further research:

1. Conduct a study of middle school programs comparing and contrasting their knowledge and practices in regards to football related concussion;
2. Conduct a study of youth league programs comparing and contrasting their knowledge and practices in regards to football related concussion;
3. Conduct a longitudinal study of players who actually received concussions in high school and the impact of long-term health outcomes;
4. Conduct a study on how budgets and revenue affect concussion knowledge, practice, and management in regards to football-related concussion;
5. Conduct a study on whether there is a decline in participation due to increase public concussion awareness.

Conclusion

The purpose of this research was to examine the role of medical data and media exposure on football-related concussions in changing the perceptions and practices of Texas high school football coaches. Eight head coaches shared their experiences and perceptions on football concussions. I used Vygotsky's social construction and Schön's (1987) reflective practice theories, which define learning as a collaborative, reflective, and continuous process. I accomplished the original objectives of the study by examining whether medical data and media exposure led to changes in perspective and practice by coaches interviewed for the study. The findings highlighted the problem of concussions amongst high school football players. The literature showed that there is an incumbent need for concussion research and practice implementation (Abdullah et al., 2015). Concussion education, prevention, training, collaboration with all stakeholders, and protocol will continue to play an important role in this evolution of player safety in the sport of high school football in the state of Texas. This discussion in Chapter 5 concludes the study.

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APPENDIX A: IRB Approval Letter



CONCORDIA
UNIVERSITY

-PORTLAND, OREGON-

DATE: August 1, 2016

TO: Justin Hefley

FROM: Concordia University – Portland IRB (CU IRB)

PROJECT TITLE: [933194-1] HEAD TRAUMA IN FOOTBALL: A STUDY OF THE IMPACT OF MEDICAL DATA AND MEDIA ON THE PERCEPTIONS AND PRACTICES OF TEXAS HIGH SCHOOL COACHES

REFERENCE #: EDD-20160718-McCann-Hefley

SUBMISSION TYPE: New Project

ACTION: APPROVED

APPROVAL DATE: 28, 2016

EXPIRATION DATE: July 28, 2017

REVIEW TYPE: Full Committee Review

Thank you for your submission of New Project materials for this project. The Concordia University – Portland IRB (CU IRB) has APPROVED your submission. This approval is based on an appropriate risk/ benefit ratio and a project design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission.

Your project includes research that will be conducted within an institution that is not Concordia University. You are responsible for following the procedures of any institution where you collect data. This approval is on the condition that you will have permission. You need to follow their policies and the policies of Concordia University.

This submission has received Expedited Review based on the applicable federal regulations. Attached is a stamped copy of the approved consent form. You must use this stamped consent form. Please remember that informed consent is a process beginning with a description of the project and insurance of participant understanding followed by a signed consent form. Informed consent must continue throughout the project via a dialogue between the researcher and research participant. Federal regulations require that each participant receives a copy of the consent document.

Please note that any revision to previously approved materials must be approved by this committee prior to initiation. The form needed to request a revision is called a Modification Request Form, which is available at www.cu-portland.edu/IRB/Forms.

All UNANTICIPATED PROBLEMS involving risks to subjects or others (UPIRSOs) and SERIOUS and UNEXPECTED adverse events must be reported promptly to this office. Please email the CU IRB Director directly, at obran@cu-portland.edu, if you have an unanticipated problem or other such urgent question or report.

All NON-COMPLIANCE issues or COMPLAINTS regarding this project must be reported promptly to this office.

This project has been determined to be a Minimal Risk project. Based on the risks, this project requires continuing review by this committee on an annual basis. Please use the appropriate forms for this procedure. Your documentation for continuing review must be received with sufficient time for review and continued approval before the expiration date of July 28, 2017.

You must submit a close-out report at the expiration of your project or upon completion of your project. The Close-out Report Form is available at www.cu-portland.edu/IRB/Forms.

Please note that all research records must be retained for a minimum of 3 years after the completion of the project.

If you have any questions, please contact Dr. OraLee Branch at 503-493-6390 or irb@cu-portland.edu. Please include your project title and reference number in all correspondence with this committee.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Concordia University – Portland IRB (CU IRB)'s records. August 1, 2016.

APPENDIX B: Informed Consent Form

Concordia University – Portland Institutional Review Board
Approved: July 28, 2016; will Expire: Julie 28, 2017

CONSENT FORM

Research Study Title: HEAD TRAUMA IN FOOTBALL: A STUDY OF THE IMPACT OF MEDICAL DATA AND MEDIA ON THE PERCEPTIONS AND PRACTICES OF TEXAS HIGH SCHOOL COACHES

Principle Investigator: Justin Hefley
Research Institution: Concordia University – Portland
Faculty Advisor: Julie McCann, Ph.D.

Purpose and what you will be doing:

The purpose of this research is to explore how medical data and media exposure from the NFL on the subject of football-related concussions influence the perceptions and practices of Texas high school football coaches. Head coaches will be interviewed for their interpretations and input on the history and implications on the subject of football concussions. We expect approximately 8 volunteers. No one will be paid to be in the study. We will begin enrolment on August 28, 2016 and end enrollment on September 15, 2016.

To be in the study, you will be asked to:

- Read and sign a Consent Form for participation in the research study.
- Complete a demographic survey that discloses information such as your name, age, gender, years of coaching experience, level of educational attainment.
- Participate in one semistructured interview to answer questions about how medical data and media exposure on the subject of football-related concussions influence the perceptions and practices of Texas high school football coaches.
- Allow the researcher to observe practice and interaction with students in a football practice.
- Allow the researcher to review documents such as practice plans, training and conditioning plans, and documents from the trainer.
- Be available for follow-up questions and member checking to review interpretations and conclusions about the research study.
- Inform the researcher at any point if you would like to withdraw from the study.

Doing these things should take approximately four (4) hours or less of your time.

Risks:

There are no risks to participating in this study other than providing your information. However, we will protect your information. Any personal information you provide will be coded so it cannot be linked to you. Any name or identifying information you give will be kept securely via electronic encryption or locked inside the When we or any of our investigators look at the data, none of the data will have your name or identifying information. We will only use a secret code to analyze the data. We will not identify you in any publication or report. Your information

will be kept private at all times and then all study documents will be destroyed 3 years after we conclude this study.

Benefits:

Information you provide could be beneficial to football coaches and athletic directors. The results of this research can be used as foundational support for future changes and reforms that can positively impact high school athletics and coaching practices in Texas and other parts of the country. You could benefit from this by providing information on concussions that will lead to safer athletics policies. The results of this research can be used as foundational support for future changes and reforms that can positively impact high school athletics and coaching practices in Texas and other parts of the country.

Confidentiality:

This information will not be distributed to any other agency and will be kept private and confidential. It will be published in my dissertation. The only exception to this is if you tell us about abuse or neglect that makes us seriously concerned for your immediate health and safety.

Right to Withdraw:

Your participation is greatly appreciated, but we acknowledge that the questions we are asking are personal in nature. You are free at any point to choose not to engage with or stop the study. You may skip any questions you do not wish to answer. This study is not required and there is no penalty for not participating. If at any time you experience a bad emotion from answering the questions, we will stop asking you questions.

Contact Information:

You will receive a copy of this consent form. If you have questions you can talk to or write the principle investigator, Justin Hefley at e-mail justin.hefley@amaisd.org If you want to talk with a participant advocate other than the investigator, you can write or call the director of our institutional review board, Dr. OraLee Branch (e-mail obranch@cu-portland.edu or call 503-493-6390).

Your Statement of Consent:

I have read the above information. I asked questions if I had them, and my questions were answered. I volunteer my consent for this study.

_____	_____
Participant Name	Date
_____	_____
Participant Signature	Date
_____	_____
Investigator Name	Date
_____	_____
Investigator Signature	Date

APPENDIX C: Unstructured Interview

Demographic Data for Sample

Name or pseudonym

Race/ethnicity

Self-identified age

Highest education attainment

Number of years coaching

Length of time in head coach position

Experience with concussion management

APPENDIX D: Interview Protocol

Guiding Interview Questions

Name of Interviewer:

Name or Pseudonym of Interviewee:

Time and Length of Interview:

Date and Location of Interview:

Semistructured Interview Questions:

- How would you describe in detail your personal experience with football-related concussions?
- How do you perceived your role with a concussed athlete?

- How do you perceive the recent medical data available about football-related concussions?
- How do you perceive the recent media attention available about football-related concussions?
- How have your coaching practices changed, if at all, because of the recent media attention regarding football-related concussion?
- How have your coaching practices changed, if at all, because of the recent medical data regarding football-related concussion?
- How has the recent media attention about football-related concussion helped your coaching, if at all?
- How has the recent medical data about football-related concussion helped your coaching, if at all?

APPENDIX E: Observation Protocol

Date:

Beginning time:

Ending time:

Observer:

Unique identifier or code:

Practice format: Whole group Small group Individual

Grade level:

Observations:

Reflective Thoughts:

APPENDIX F: Member Checking Discussion Form

Member Checking: Member checking is viewed as a technique for establishing the validity of an account and will serve as a debriefing method after data has been collected from interviews and observations. This can be done both formally and informally as opportunities for member checks may arise during the normal course of observation and conversation.

Transcripts are supposed to document natural conversational language, which rarely consists of complete and grammatically correct sentences. Your contributions are worthy, valid and respected and your signature and voice are of higher value than the accuracy of the grammar depicted in the transcript (Carlson, 2010). However, any quotes used in the final dissertation will be grammatically edited for professional purposes.

I, _____, would / would not like to listen to the audio of the interview.

Member Checking Discussion: Please indicate the question(s) and page number(s) you would like to edit/revise.

Question or Page Number	Suggested Changes
-------------------------	-------------------

I, _____, agree or disagree that the transcript reflects my views, feelings, and experiences, and that accuracy and completeness are or are not affirmed.

APPENDIX G: Statement of Original Work

The Concordia University Doctorate of Education Program is a collaborative community of scholar-practitioners, who seek to transform society by pursuing ethically-informed, rigorously researched, inquiry-based projects that benefit professional, institutional, and local educational contexts. Each member of the community affirms throughout their program of study, adherence to the principles and standards outlined in the Concordia University Academic Integrity Policy. This policy states the following:

Statement of Academic Integrity

As a member of the Concordia University community, I will neither engage in fraudulent or unauthorized behaviors in the presentation and completion of my work, nor will I provide unauthorized assistance to others.

Explanations:

What does “fraudulent” mean?

“Fraudulent” work is any material submitted for evaluation that is falsely or improperly presented as one’s own. This includes, but is not limited to texts, e>ographies and other multi-media files appropriated from any source, including another individual, that are intentionally presented as all or part of a candidate’s final work without full and complete documentation.

What is “unauthorized” assistance?

“Unauthorized assistance” refers to any support candidates solicit in the completion of their work, that has not been either explicitly specified as appropriate by the instructor, or any assistance that is understood in the class context as inappropriate. This can include, but is not limited to:

- Use of unauthorized notes or another’s work during an online test
- Use of unauthorized notes or personal assistance in an online exam setting
- Inappropriate collaboration in preparation and/or completion of a project
- Unauthorized solicitation of professional resources for the completion of the work.

Statement of Original Work

I attest that:

I have read, understood, and complied with all aspects of the Concordia University Portland Academic Integrity Policy during the development and writing of this dissertation.

Where information and/or materials from outside sources has been used in the production of this dissertation, all information and/or materials from outside sources has been properly referenced and all permissions required for use of the information and/or materials have been obtained, in accordance with research standards outlined in the Publication Manual of the American Psychological Association



Signature

Justin Hefley
Name (Typed)

March 15, 2017
Date
