AN IN-DEPTH ANALYSIS OF THE USE OF FOOTBALL VIDEO TECHNOLOGY:
A STUDY OF COLLEGE FOOTBALL VIDEO COORDINATORS

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AN IN-DEPTH ANALYSIS OF DIVISION I-A COLLEGE FOOTBALL VIDEO TECHNOLOGY: A STUDY OF COLLEGE FOOTBALL VIDEO COORDINATORS

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Thesis

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ABSTRACT

Ever since the early 1900’s technology in some form has played a part in how coaches prepare their athletes for competition. It is the most recent years in which the world of college football has seen such technology come full circle. The present study examines specifically how technology has changed in college football since the mid-1990’s, as well as giving a historical background of football film that dates back to the early 1900’s. Along with examining how the technology has changed, this study evaluates how the role of the college football video-coordinator has changed as a result of the technological advances.

The results of the study show that all college football programs studied incorporate video editing software into the game planning process. In regards to the job analysis aspects of this study the researcher found that the role of the video coordinator has changed, simply because the computer component of the video process is so detailed. Video analysis is becoming a gigantic business; it deserves attention in sport science research such as this. It is important that universities and coaches take the time to understand what these video-coordinators do, and what these costly programs are used for. Video is being used in football through all levels of college competition. This study analyzed the changes that have taken place in college football video in the past ten years.
ACKNOWLEDGEMENTS

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CHAPTER I
INTRODUCTION

The method in which football coaches at every level of organized American football view game film has undergone monumental changes in the past forty years (McDonald & Milne 1999). In 1964, Paul Brown the head coach of the Cleveland Browns, revolutionized how coaches and players study the game by filming live game play for the purpose of evaluation (McDonald & Milne 1999). Throughout the 1960’s and 1970’s film was used for this purpose, however, not until 1986 did the National Football League convert to complete use of videotape technology (McDonald & Milne 1999). This technology has created a new method of game and practice film evaluation. In the mid to late 1980’s, game film was captured live to videotape, and viewing was done through watching the tape on a television. However, today college and NFL programs evaluate film with the use of computers and video-editing programs. The basic purpose of this software is to take digital video from the camera and import video to a computer system so viewing can be more efficient.

Although the use of video by coaches has undergone significant changes, a limited amount of research has been conducted on the use of video to improve the coaching process. Specifically, only in recent years have researchers begun to evaluate
the role of video editing in college football game preparation. For example, McCormick (1997) investigated how the use of video evolved in college football, along with the development of the video-coordinator position.

To help increase an understanding of how video and computer technology are used in college football, researchers have examined the role of the college football video-coordinator, and also how film is used in professional football. To date no studies have examined specifically how and at what level of effectiveness college football programs at the division I-A National Collegiate Athletic Association (NCAA) level utilize computerized video editing software.

The use of film in sport has undergone significant evolution through the years; the use of filming was first introduced in the 1920’s and shortly thereafter used in the training of coaches (McCormick, 1997). Before the 1920’s still-photography was used. Between the 1920’s and 1980’s motion picture film developed, both 8mm and 16mm (McCormick, 1997). It was not until the late 1980’s that film technology begun to undergo drastic meaningful changes toward the type of video technologies seen today. At this time college football programs at the Division I-A level, transitioned from film to video technology (McCormick, 1997). Specifically, video technology is the use of videotape as opposed to reels of film. As the use of video became popular, coaches began to use computer technology. The late 1990’s brought about the current level of film technology as the era of digital video began (McCormick, 1997). The current digital video era uses a combination of computer technology and video technology as virtually the same thing.
Along with the evolution of new video-editing computer software has come the creation of new personnel positions within college and professional football coaching staffs. These positions are known as the football video-coordinator and quality control coach. The quality control coach is typically a job at the professional level, but the majority of programs on the NCAA Division I-A level are employing a video-coordinator as part of the football support staff. Thus, along with an evaluation of how NCAA division I-A college football programs use video-editing software a job analysis of the college football video-coordinator was also conducted.

The next aspect of sport video technology evaluated in the present study was the specific job role and function of the college football video coordinator. This research will add to previous literature, which has analyzed the job role of the video coordinator on a college football staff. A job analysis is a case study in which foundational characteristics of a job are described (Thomas, Nelson, & Silverman, 2005). Some key characteristics of a job that are described within a job analysis are the types of preparation needed for the chosen job, for example the educational or vocational training required (Thomas, Nelson, & Silverman, 2005).

There are various ways in which a researcher can conduct a job analysis. Observation is a method in which the individual conducting the job analysis observes the work being done (Thomas, Nelson, & Silverman, 2005). Questionnaires and interviews are another way in which a job analysis can be conducted. This allows research questions to be answered more completely (Thomas, Nelson, & Silverman, 2005).

The existing literature provides many examples of how a job analysis can be carried out. Dillion (2006) provided a job analysis of physical education teachers. This
study had a pre-defined job role for physical education teachers, and through interviews the researcher determined which educators met the criteria (Dillion 2006). This research by Dillion was a continuation of previous research on the role of the physical educator. Following the research method of Dillion (2006) the purpose of this research is to provide an updated analysis of the roles and responsibilities of those who are video coordinators in 2007.

This study seeks to compliment previous research on the role of the video-coordinator in college football. Multiple technological changes that have taken place in reference to sports video technology since the mid 1990’s were analyzed. The McCormick study ends with the 1995 football season; it was at the end of and immediately following this season that football video moved towards digital technology (McCormick 1997). McCormick suggested that within five years of her study that the evolution of the Internet and continued overall advancement in technology that the current protocol of football video editing will have changed drastically. The researcher also evaluated specifically in what ways the process of football video editing has changed.

In addition to evaluation of technological changes in sports video since the mid 1990’s changes in the role of the video-coordinator since the mid 1990’s were analyzed. With the added technology, McCormick suggested that the role of the video-coordinator will rapidly change. As a result, video personnel may need a higher level of computer skill (McCormick 1997). This study will look to identify how the job role of the video-coordinator has changed with the influx of digital video technology.
Another question raised by the McCormick (1997) that will be addressed in this study is if added education will be needed for a video-coordinator in the digital age. Ten years after McCormick (1997), this study will seek to identify if training to be a video-coordinator is more experienced based or if higher levels of education will be necessary as the complexity of the position increases. McCormick states that access to digital editing systems is difficult for one to obtain outside of an academic environment, or for one with no formal education. McCormick suggested that future research should focus on whether or not added technology decreases the amount of work that a video-coordinator has, or simply creates more work in general. Through interviews with the video coordinators the current study investigated specifically how the workload on a video-coordinator has changed.

The role of the coach is yet another element that the researcher seeks to identify through investigation. McCormick (1997) suggested future research of the digital video era should analyze whether or not coaches are going to use the computer systems or if the video-coordinator will have to prepare everything for the coach in order to view the film. At the time of the McCormick (1997) study it is suggested that coaches have a phobia of technology and do not use it to its fullest extent on their own. With the increased levels of technology in the mid 2000’s this study seeks to investigate if computer literacy of football coaches has increased, in terms of their ability and comfort in computer video editing software.

The present study will not only build on the current body of research on the profession of the video coordinator, and the development of computer video editing software, but will be determining specifically at what level of efficiency each program is
using these new technologies. The specific research questions that will be evaluated in the present study begin with an analysis of the multiple technological changes that have taken place in reference to sports video technology since McCormick (1997). This study looks to detail the job role of the video-coordinator in the digital era. Another question raised by McCormick (1997), that will be addressed in this study is if added education will be needed for a video-coordinator in the digital age. The current study will investigate specifically how the workload on a video-coordinator has changed since the mid 1990’s.
CHAPTER II
LITERATURE REVIEW

A drastic paradigm shift is taking place in regards to how technology is used in college football today. With the onset of increased availability of computer technology, college football programs are using such technology in ways some thought never imaginable. The area of college football that is being affected the most drastically is football video analysis. College football coaches have been utilizing the process of watching opponent film to help prepare for competition for many years. Only in recent years though has film analysis become a multi-million dollar enterprise with the incorporation of computer digital technology. College football programs are spending large amounts of money to purchase top of the line digital video software to help capture a shred of advantage over their opponents.

College football is a multi-billion dollar industry with an increased emphasis being placed on winning each and every year. Coaches are being hired and fired rapidly as university administrations are always looking for the coach that will help their respective program sustain the most revenue. The most obvious way that a college football program can incur the maximum amount of revenue is by having a winning program, going to bowl games, and winning championships. With all the pressure of winning it is no surprise that coaches are looking for any possible edge to help them win ballgames.
At every level of the game the complexities are changing rapidly, the playbooks are growing as coaches are constantly searching for that winning edge. The environment in which a coach operates from day to day is filled with uncertainties (McCormick, 1997). College football coaches use extensive game planning not only to help the team win, but as a mechanism for coping with the ambiguity of the college football world (McCormick, 1997). Coaches are using technology in new ways to gather information that will help them prepare for any and all scenarios that may arise during the course of a game. It would seem that most college football coaches gather as much information, information that may be the difference between a winning season and losing season.

Along with the need for universities to purchase state of the art digital video software, and the equipment to run such software, new personnel positions are developing within athletic departments to support such technologies. The only previous research on the new video coordinator positions that have been developed within college football is McCormick (1997). Since 1985, the majority of all Division I-A college football programs have employed technology personnel as a part of the staff (McCormick, 1997). McCormick (1997), defined the role of such video personnel as someone who “Although typically oversees video-related operations for all sports within an athletic department, their primary responsibilities certainly revolve around football” (McCormick, 1997, p. 30).

The purpose of this chapter is to discuss the beginnings of film and to evaluate its progression through time. Next an analysis of how film has moved towards video, and consequently from video to digital technology will be presented. Once the groundwork is set in place on the history of how film has been transformed over the years, the research
will stipulate how coaches began to use video will be described. An organizational
layout of the structure of a college football video staff will be created as well. Specific
attention will be placed on the role of the video coordinator on a college football staff.
The chapter will conclude with a broad analysis of all previous research conducted.

Introduction to Film

The early 1900’s through the 1980’s brought about the motion picture age; during
this time 8mm and 16mm motion pictures was used (McCormick, 1997). The process of
film evolution between the 1920’s and 1980’s laid the foundation for the post 1980’s in
which the current video technologies have come about. The foundations of sport video,
specifically football video evolution can be found in the development of motion pictures.
Such development can be seen in simply making a series of drawings and flipping
through them (King, 1999). Although quite basic this is how the thought process of
having moving media otherwise known as motion pictures was developed.

The early beginnings of motion pictures were developed by Thomas Edison, and
his extensive work with the Kinetoscope (King, 1999). In Edison’s lab he produced the
first film on record in 1890 (King, 1999). As the technology of motion pictures began to
take hold, by the 1920’s “movie houses” began to open (King, 1999). As an example of
how quickly motion pictures took off in America by the 1930’s nearly ninety million
people had attended motion pictures. With the rapidly increasing awareness of such
equipment it should be no surprise that motion picture technology became a part of
football.

We can trace back the use of motion pictures for entertainment purposes, but what
about for educational or instructional purposes? It was the educational use of motion
pictures, that undoubtedly spawned interest of football coaches such as Sid Gillman who were interested in using film for football instruction purposes. According to Saettler (1990) the first use of film for something other than entertainment was in 1902. Usage of film for educational purposes at this time was specifically for the sciences. One example given by Saettler (1990) is an underwater view that was produced for science education. Another example of film being used for something other that enjoyment, is in 1904, insect flight was filmed for educational reasons (Saettler, 1990). It was this use of film that set a president throughout America for the use of film for more useful purposes than just pleasure, for example football coaching and instruction.

Percy Haughton, a football coach from Harvard, was instrumental in the development of the use of film in football (Hoffman, 1920). Haughton’s work began by simply using a still camera and snapping pictures of the player movement. The obstacle with using still photography to film movement is that the photographer did not know the exact best time to take the picture (Hoffman, 1920). Eventually this moved towards the use of film, and filming an entire play (Hoffman, 1920). It is the work of Percy Haughton at Harvard University that laid the groundwork for others such as Sid Gillman.

The 1920’s brought about the beginning of the film technology age (McCormick, 1997). It was during the 1920’s when college football games were captured on film for the first time (McCormick, 1997). Universities then began to film games to help promote themselves, and to boost press coverage (McCormick, 1997). McCormick (1997), gives the example that Northwestern’s film library dates back to 1929, it is believed that most universities at the Division I level were in some way filming their games by the 1930’s (McCormick, 1997). These films however typically were not used for purposes of game
analysis. McCormick (1997) makes the point that when a new technology arises it takes some time for any real worth to come of it.

Sid Gillman is known as another of the early pioneers in revolutionizing the technology scene of college football (McCormick, 1997). Gillman is considered the person who set the groundwork for the entire concept of football video analysis. As an assistant coach at Denison University, in the 1930’s, Gillman began to utilize 35mm film as a part of his game preparation (McCormick, 1997). During his time Coach Gillman would spend hours studying film, this was new to the coaching philosophies of his time (Bach, 2001).

Coach Gillman and Coach Paul Brown are considered the first two coaches to ever cut-up film (Bach, 2001). Things have come along way from this time when film was literally cut up with scissors to present day when a computer can do the same thing digitally in seconds. Between 1949 and 1954 Coach Gillman lead The University of Cincinnati to three Mid American Conference championships, and two bowl games (Bach, 2001). Since film analysis was in such an infant stage during Gillman’s time the NCAA had to step in and evaluate if Coach Gillman’s use of film was an unfair advantage (Bach, 2001). Gillman would have the film from the first quarter of the game sent to a studio and have to the locker room by halftime (Bach, 2001). The NCAA quickly forbade this practice, and to this day coaches are not permitted to use film during a game. Gillman set the tone for other coaching staffs around the country to begin filming games and practices for the purpose of coaching preparation.
How Coaches Began To Use Film

Since the time of Sid Gillman, film has had a profound effect on the profession of football coaching. Gillman put it as bluntly as one could when he said "Game films. You couldn't coach today without them. Studying films is the most important thing a coach can do" (Bach, 2001, p.2). One of the biggest early advantages to coaches that film brought about was simply not relying on memory for purposes of scouting (McCormick, 1997). For the first time, with film a coach can refer back to it as many times as necessary to get the desired information about its opponent, or about ones own players. Since the majority of college football games are played at the same time it would be next to impossible for coaches to go out and scout their opponents in person, with film use a coach is able to watch opponent film at any time.

The phrase “The eye in the sky doesn’t lie” holds true with film use by football coaches. Many coaches will admit that watching film of their respective team in competition or in practice is invaluable. During practice or a game a coach can only see so much. The aspects of the competition that the coach missed during live competition can be picked up during a film session. Reynolds and Barba (1996) stated that the process of watching videotape in a classroom setting allows the students to essentially control time and learn at a desired pace. In the classroom this is critical because students can study the specific details as many times as necessary, the same holds true with football coaches.

The first premise for coaches to utilize film was to study their own teams during both practice and game situations (McCormick, 1997). By watching game film a football coach can see at a very precise level which parts of their game plan worked and which
parts should be changed for the next game (McCormick, 1997). By viewing opponent
game film a football coach can analyze which plays or strategies other teams had success
with against their future opponents, and curtain their game plans accordingly. Reynolds
and Barba (1996) make the point that video can be adapted to various instructional
approaches. This holds true with football video. Instead of a classroom setting a coach
needs to use video to instruct his respective position group as well as giving the coach the
ability use film outdoors and indoors.

The process of grading film is one that has been employed since the early days of
Sid Gillman. As coach Gillman would watch the footage of game and practice film, he
would not only be looking for ways to improve but he would grade each and every aspect
of his teams performance (Bach, 2001). During a game there are so many things going
on, so many distractions that it would be next to impossible for a coach to evaluate every
aspect, or grade every aspect of his team, hence film is used. Going back after the game
and analyzing each play and each player with a grading system has proven extremely
beneficial in the process of coaching. With film; coaches can now show players in
meetings exactly what they did wrong, and begin to give feedback on how such errors
can be corrected.

As the evolution of film accelerated through the years, game film was the obvious
type of film that was watched most. From viewing game film, and Sid Gillman had a lot
to do with this, practice film was being viewed more readily. Now coaches can go back
and pinpoint pros and cons from a game situation but could watch the team through a
week of practice. Some might ask well how does this shorten game plan time, since now
after practice the coach watches it again? Whether this aspect of film viewing shortens time or not it certainly can be valuable.

During the 1950’s and 1960’s colleges were just beginning to shoot practice on a reserved basis (McCormick, 1997). Filming of practice began with just shooting the scrimmage type sessions of practice otherwise known as team sessions (McCormick, 1997). Early on as stated by McCormick (1997), teams would film the games on Saturdays and them film any scrimmage work with the players who did not play in the regular game during Monday practice. This type of film work now gives the coach an opportunity to analyze the players who are younger; it also gives those younger players a chance to see themselves, helping to better prepare them for future competition.

Not only does the ability for a football coach to watch game and practice film, help to delineate between fair strategies and poor strategies, the time in which it takes to figure out such information declines. With the constraints and feasibility of having to rely on seeing something live on the field a coach has the opportunity with such technologies to watch the taped game or practice in the confines of his office. Football coaches at the collegiate level put in extremely long hours, such technologies help them to use there time more wisely, hence decreasing preparation time needed for a game.
It was not until the early 1970’s that film really began to loose ground in the media world. It was the inception of video that gave those utilizing such technology more options. For example, educational institutions began to move from film to video for purposes of instruction by the end of the 1970’s (King, 1999). With the film era the statistical analysis aspect of football game evaluation was done solely with pen and paper, or typed up on a computer, separate of the raw footage. The original quality of video was actually a bit lower than that of video (McCormick, 1997). The un-relenting pros of video though out-weighed any worries about the initial dimmed quality of the picture (McCormick, 1997).

The first change that took place between the film age and the video age was the incorporation of videotape. Instead of reels of film, one could more efficiently view graphical media, in a more low cost and effective manner (King, 1999). Motion picture film was much more expensive and complicated for one to operate, videotape began to simplify and make film more affordable (King, 1999). With the development of videotapes; cut-ups were no longer made by coaches actually cutting up a strip of film, but could be made with videotape recorders (vtr’s). McCormick (1997) puts the date at 1988 when video was starting to take hold with most college football programs; at the same time the author shows examples of its limitations.

One of the main foundational problems that video ran into as it came onto the college football scene is the level at which such technology had evolved. When coaches such as Sid Gillman and Paul Brown discovered film, they had found a medium that was well enough in place (McCormick, 1997). Film had its groundwork in the early 1900’s in
motion picture evolution, leaving a gap of many years after film was developed before coaches began using it, hence shortening the learning curve. The possibilities of video were so great that many programs moved quickly from film to video, at the same time the video technology had not quite caught up with the expectations. Even since the McCormick (1997) study, there are still areas in which the technology has not quite fulfilled all its possibilities.

The first main obstacle that video faced was its lack of quality as opposed to the 16mm film that coaches used at this time (McCormick, 1997). As video entered the sports world it underwent the same obstacles that any new product does. The economics of video as opposed to film are much different; the raw videotapes are much more cost effective, but new sometimes-expensive video equipment was needed (McCormick, 1997). As is the case currently with high tech video editing software, some coaches simply did not know at the time when film was moving towards video, that such a thing existed. With any new product or technological advance it takes some time for the consumer, in this case the football coaches, to become aware and affluent with the product.

The most prominent notable advantage of vtr or vcr technology was its duplication capabilities (McCormick, 1997). Upon completion of a practice the video staff could simply make copies with a vtr system of the practice and have them available for coaches who wanted to view them after practice. Wall video projectors were an advancement that coincided with the development of video technology. During the mid 1980’s large projectors were used, these systems were quite limited in there respective level of quality and brightness (McCormick, 1997). The video projectors of the 1980’s
were grounded in red, green and blue light, causing constant need for the projector to be re-focused, often leaving a blurry picture (McCormick, 1997). According to McCormick (1997) the next advancement in video projectors was the Analyst projector system. Coaches and players needed to view film away from the confines of their respective football offices (McCormick, 1997). This new wave of projection system would allow for a smaller projection system that could be stored on a bus during travel (McCormick, 1997).

One facet of the process of coaches watching film that has remained consistent since the McCormick (1997) study is the issue of how a coach controls the film that is being viewed. Before the video age, the directional control of film was much more difficult than it is with VTR’s that allow coaches to rewind and forward film quickly and efficiently (McCormick, 1997). Coaches can watch one play hundreds of times, rewinding and fast-forwarding to see just a precise portion of that play. In my own experience with video, on the digital level, which will be detailed later, I have run into many instances where a coach wants to be able scroll though a play and cannot with new digital technology. The same obstacles that McCormick faced in the mid 1990’s with the inception of video from film, I have faced in the mid 2000’s with the inception of digital computer technology from video.

Another form of sports video software was released in 1994 named Avid Sports Pro video software (McDonald & Milne 1999). This software was one of the first of its kind, and gave college football programs the opportunity to drastically change the way in which they analyzed game and practice film. Avid Technology Inc. got its beginnings in
1818. Besides sports video technology Avid has programs designed for television, movies, and sound tracks (McDonald & Milne, 1999).

As the technology grew and the need for such technology in sport increased the size of Avid Technology Inc. From 1994 to 1995 the number of employees at Avid Technology Inc. went from 100 to 1,000 with the quick increased demand for such technology (McDonald & Milne, 1999). At this time some of the main professional and collegiate sports programs that were employing Avid’s SportsPro software included the Cleveland Browns, Green Bay Packers, Chicago Bears, and Duke University (McDonald & Milne, 1999). As an example of how rapid change occurs in the sports video world, by 1996 Avid Technology Inc. was sold and was now under the name Avid Sports LLC (McDonald & Milne, 1999). To this day Avid Sports represents the video-editing software of numerous professional and college sports organizations.

Along with Avid and the many other video-editing software’s that are currently on the market as of 2007, one of the programs that is emerging as one of the leading companies is DV-Sport software, based in Pittsburgh Pennsylvania. DV-Sport is currently used by the Cleveland Browns, Ohio State Buckeyes, Akron Zips, Miami Redhawks, Pittsburgh Steelers and the Pittsburgh Panthers just to name a few of the many teams that have incorporated DV-Sport into their video editing process. The researcher seeks to find exactly why college football programs are spending thousands of dollars on such video software. DV-Sport has advanced past any other video-editing program that is currently on the market for many reasons. Most video-editing companies have marketed the price of their product to the consumer based on the size of the consumer for example a Division 1-A college football program would pay more for an
more advanced software than would a high school football program. This is one critical area in which DV-Sport has separated itself; DV-Sport will customize itself to the individual needs of each respective program.

There are three basic phases of video editing that are employed with the majority of the top video-editing programs those three phases are; the capture phase, cutting phase, and the indexing / data input phase. The first phase is the capture phase; during this phase video is captured from the camera to the computer system. There are two ways that this can be done the first and most time effective way is live capture, in which video is captured to a computer system as it is being filmed. This can be done through a camera to laptop firewire connection, or in some cases a camera to laptop USB connection. The live capture phase is one of the most critical improvements in video-editing software because it allows coaching staffs to watch film on a computer system immediately following a game. This is most beneficial when a team is playing a game on the road, and can use there time more effectively on the trip back to the office from the game.

The second phase of sports video-editing software is the cutting phase, in which each individual play is cut, so that analysis can be done play by play, as opposed to a continuous loop of film for the entire game. The cutting of game film is done by marking the start and stop of each individual play. Usually the progression of a play in football is the filming of the scoreboard, followed by the sideline view of the play and the end zone view of the play. Baseball usually follows the same pattern in which the scoreboard is filmed before each play. Other sports such as basketball, soccer, hockey, tennis, and volleyball do not have definite starts and stops to each play making it the video
coordinators decision as to how plays will be segmented (McDonald & Milne, 1999). To get a play cut so that the progression goes from the scoreboard to sideline view then to end zone view is done by a process known as intercutting. Intercutting film is done by matching up the sideline plays with the end zone plays and then combing those camera views to create one play. Once the cutting phase is done the film is ready for initial viewing by the coaching staff.

The third and final phase of computerized video editing is the data input phase. This is the process of actually putting information to each play of video. Some of the basic data that is entered for each play is down and distance, personnel, play result, play called, just to name a few. This process is where the role of the video coordinator enters a gray zone. Most college programs have extra coaches on there staffs just for this phase of video editing. Quality control coaches are hired to do the data entering, which can be time consuming. For the college football staff that does not have the resources or the desire to hire such quality control personnel, the graduate assistants on the staff usually do the video data input.

McCormick (1997) explains how with the digital technology era, many types of equipment that were made to accommodate such technology came and went quickly. With the current era of technology, computers are considered obsolete almost as soon as they are purchased. The same was the case as video technology began to take hold, this concerned athletic departments who were weary of investing in a product that soon would be considered archaic (McCormick, 1997). McCormick (1997) also makes the point that many of the new types of equipment that would be developed would not be compatible with previous technologies, causing problems for video personnel. It was the move from
film technology to video technology that McCormick (1997) evaluated, this study seeks to evaluate the move from video technology to computerized video technology.

Evolution Of The Video Coordinator

The McCormick (1997) dissertation goes into great detail on the role of the college football video coordinator in college football. This study seeks to expand upon the McCormick research and evaluate how as of 2007 the video coordinators role has changed. During the time of McCormick in the late 1990’s the role of video personnel was completely new to the world of college athletics. Immediately many questions were raised, for example what type of people should be hired to fill such a position, should it be a person who is involved in coaching who has a knack for electronics, or should it be strictly a person with training in such an area. McCormick describes her path to college football video as being an example of someone who got there though the back door. One of the main points this study is seeking to determine is how the role and job description of the video coordinator has changed since McCormick (1997).

With the increase of all this technology in college football, athletic departments needed to address the concept of hiring personnel that will be able to operate such technology. The evolution of the video coordinator began with a cameraman or two overseeing the entire operation (McCormick, 1997). McCormick (1997) gives examples of people starting in filming simply because it was an enjoyable way for a college student to become part of the football program. As the assistant video coordinator at The University of Akron, that was how my supervisor got into the business at The Ohio State University. He was an education student, and life-long Buckeyes fan, with very little computer experience but started to help film football practice in his spare time and it
spawned into a career. The second specific purpose of this study evaluation of how this position has evolved is to evaluate how current video personnel have entered the field and if that has changed since McCormick (1997).

McCormick makes the statement: “I was always constantly amazed at the degree of helplessness coaches felt when faced with the necessity of cabling vtrs and monitors.” (McCormick, 1997, pg. 194). This is an example of how quickly the necessity for video personnel, someone who understands the most basic level of video technology, was needed on a college football coaching staff. In the beginning of the age of the video coordinator, football programs would seek out someone from the universities film department, or a coach who had some background skill in technology. No longer is this type of practice seen, at the time of McCormick (1997) there were still programs employing these types of people to take care of their video needs.

The art of filming football is a skill that can take sometime to develop. Eilish McCormick gives the example: “It took me about five or six games before I felt confident that I could shoot an entire game with no mistakes, no late starts of the camera, no missed plays, no fake outs” (McCormick, 1997, pg. 131). A missed play in a game or even a practice is a glaring mistake in the face of a cameraman. No matter how solid the skills of the video personnel are one missed play can leave a bad taste in the mouth of the respective coaching staff for a long time. In my personal experience, a missed play or two in practice was one thing, but missing anything in a game would prove catastrophe, hence an increase focused was required during a game.

Along with the evolution of the video coordinator came the creation of a video support staff. Graduate assistants, student assistants, injured players, and film coaches
are an integral part of a video staff. McCormick (1997) puts the job role of such support staff as someone who films practice, helps to facilitate tape exchange with opponents, and generally assists the video coordinator in anyway possible. The third point that this study seeks to expand on from the McCormick (1997) study in regards to video personnel is to evaluate how the support staffs have changed since the late ninety’s.

Analysis Of Previous Research

The foundation for the current study is the McCormick (1997) dissertation, the initial research of its kind that specifically evaluates sports video at the collegiate football level. Through qualitative research and her own personal narrative of her experience as video-coordinator at her respective program; a foundation for the current study can be created. Along with an in-depth analysis of the major rudiments of football video technology and how it has evolved from the film age, the McCormick (1997) study explores how the video coordinator has found its way into college football. The McCormick (1997) study also brings to light how women are beginning to invade the world of college football. Eilish McCormick, the former video coordinator for Northwestern University, is a female who made her way into the world of college football via the path of football video.

The primary aspects of the McCormick (1997) study that the present study seeks to expand upon are how the scene of college football video has changed in ten years. At the time of the McCormick (1997) research on video was evolving rapidly as the film era came to a close. The current computer video technologies were just in the beginning stages at the time of McCormick (1997). It is of critical importance to this research that evaluation is done to see how far along such computer video technology has come since
McCormick (1997). It is apparent that technology in general has escalated at drastic rates since 1997, one of the foundational purposes of this research will be to see in what ways video technologies have escalated.

Additionally, by 1923 the NCAA had conducted a study of how many football programs were using either photography or film. At this time the NCAA had come to a negative conclusion in regards to how film is or should be used in college football (Richardson, 1924). The committee at the time of 1923, felt that film could bring more harm than good to the world of college football (Richardson, 1924). With any new advancement in technology we see some skepticism, this is the first of its kind in regards to using film to enhance coaching.

Beyond an evaluation of how video technology as a whole has progressed since McCormick (1997), this study will identify how the role of the video coordinator has progressed as well. Through in-depth interviews with college football video coordinators the researcher will be able to identify how current video personnel seem to fit into the organizational structure of an athletic department. At the time of the McCormick (1997) study video coordinators were fresh on the scene of the college football world. It was at this time that athletic departments were just beginning to realize the necessity for such technology and the people to operate this technology.

Conclusion

With limited research on the booming industry of college football sports video, the present study has just a few previous studies to build its foundation from. McCormick (1997) is the only previous research that deals specifically with sports video, and the profession of the video-coordinator. The literature foundation for the present
study branches from McCormick (1997) to a review of research on how film began and how educational practices have incorporated film. Through triangulation a definite pattern can be seen in how the education system has used technology to teach concepts to students. This literature has been used to evaluate how football coaches use video technology to teach their athletes.
CHAPTER III
METHODS

Participants

The purpose of the present study was to assess how productively college football programs utilize their respective video editing software, and to add to the current body of research on the role of the football video-coordinator on a college football staff. In-depth confidential telephone interviews were conducted. The researcher recruited six (n=6) NCAA division I-A Mid American Conference (MAC) video coordinators to participate in the interview process. The video-coordinators name and university of employment are not be used to help protect his or her confidentiality, and uphold the integrity of this study. The researcher found that five of the six video-coordinators had at least a bachelor’s degree, and one had a master’s degree.

Procedures

Under the methodology of qualitative research there are many approaches to conducting an in-depth interview. Non-directive and semi-structured interviews are two of the primary methods of qualitative research (Jarratt, 1996). Jarratt (1996) has suggested that a non-directive interview style creates a more relaxed environment for the interview, creating a positive relationship between the researcher and participant (Jarratt, 1996). Semi-structured interviews follow a more specific topic line than do non-directive interviews. The semi-structured format for qualitative interviews allow the researcher to
focus on specific topic criteria (Jarratt, 1996).

With the permission of each participant, confidential semi-structured telephone interviews were conducted and audio taped. Upon beginning each interview the participant was made aware of the confidentiality of their responses and the distinct purpose of the study. Semi-structured interviews allowed the researcher to address each topic area specifically without preventing the development of other topic areas. The rationale for using telephone interviews is based on Giacobbi et al. and on Nicholls et al. Nicholls et al. illustrated some of the limitations of a telephone interview; the main limitation is the difficulty of establishing rapport with the participant. To help facilitate this process the researcher contacted the participant before the interview in an attempt to lay the foundation and set a time and date for the semi-structured interview. The researcher talked with the participant about sports video and football for a short time to help generate some “small talk” in hopes to help develop credibility and a level of comfort with the participant (Nicholls et al., 2005). Data was collected using a semi-structured interview protocol, which has been established by the Interpretive Phenomenological Analysis (IPA) (Smith, 1995; Smith & Osborn, 2003).

The format of the semi-structured interview is a schedule or list of questions that the researcher asked the participant (Smith, 1995; Smith & Osborn, 2003). It is important to note that the schedule of questions, although an important guide, does not dictate word for word how the flow of the interview should be. The researcher used the interview list of questions as a guide, but it will be important for the researcher to enter into a free-flowing dialogue with the participant (Smith, 1995; Smith & Osborn, 2003). The main benefits of an interview style as suggested by IPA methodology is that credibility and
rapport are created, and other sub-topic areas that arise can be explored. Additionally, the researcher followed the responses and interests of the participant, which created an overall more productive interview session (Smith, 1995; Smith & Osborn, 2003).

Interview Schedule / Guide

An interview guide (See Appendix A) was developed for the present study based on the qualitative methodology literature (Charmaz, 2002; Morgan, 2002). The interview guide was pilot tested on an employee of one of the video-editing software companies mentioned in Chapter 1. The pilot test was important since shortcomings of the interview schedule were analyzed (Charmaz, 2002; Morgan, 2002). Along with looking for specific shortcomings in the interview schedule the researcher tested the laptop recording setup that was used for all the interviews.

As per the IPA format the interview began with basic dialogue between the researcher and participant and a very basic question (Smith, 1995; Smith & Osborn, 2003). The purpose of starting the interview this way is to build rapport between participant and researcher as well as to probe for possible directions to take. A basic understanding of the video-coordinators staff and responsibilities was established at the beginning of the interview, and whether or not the respective program uses digital video as these two ideals were central to the purpose of the study.

As per Smith and Osborn (2003) when general questions did not produce a significant enough response, a list of probing questions was used to bring about more specific answers. It was important that the researcher try to get as many specific examples or real-life examples from the participant in regards to his or her job responsibilities as a college football video-coordinator. The researcher also tried to get
emotional responses by probing the participant and asking questions such as “How did that situation make you feel” or “Did that situation help clarify or skew your role in the profession.” This research style will help to make certain that the participant’s view of the role of the video-coordinator is gathered, rather than the researcher’s perception (Nicholls et al., 2005).

The video technology incorporated by the college football program of the participant, was investigated. The first question for the video-coordinator was simply whether or not his or her football program incorporates digital technology. From here a question and answer dialogue will take place between the participant and researcher in order to determine specifically what level of digital video technology the program is utilizing. One of the McCormick (1997) suggestions for further research is to evaluate how the move towards digital technology has changed the game analysis process. McCormick (1997) also suggested that within five years of her study that the tape exchange process will change, and that networking technologies would change how coaches watch film in their football offices. Specifically this question and answer session with the video-coordinators will evaluate how technologically advanced their respective college football program is and how effectively such technology is used.

Specific questions in regards to the specific job responsibilities of each video-coordinator will continue the interview process. The researcher will seek to identify how the influx of digital video technology has changed the role of the video coordinator since previous studies were conducted. The researcher is seeking to identify what job responsibilities have been deleted or created. Another question that will be raised in regards to job responsibilities is whether or not the participant is solely responsible for
football video at his or her institution. The researcher seeks to determine through the interview if the job responsibilities of the video-coordinator have changed since the mid 1990’s.

Data Analysis
The researcher followed the IPA guidelines in regards to data analysis (Smith, 1995; Smith & Osborn, 2003). The researcher analytically investigated each response that the participant provided during the interview session. This analysis allowed the researcher to delve deep into the participants thought process (Nicholls et al., 2005). Since each semi-structured interview was audio taped, the researcher transcribed the audio of the interview into a Microsoft Word document. The researcher then read the transcript four times through, and made appropriate notes (Nicholls et al., 2005). The researcher recorded any emotion that the participant exhibited, and speculated as to the reason for such emotion. Along with the collection of the participant’s responses, the researcher made notes about the researcher’s thoughts in regards to the participant’s responses (Nicholls et al., 2005).

Following the guidelines of Smith and Osborn (2003) the researcher created themes from the transcribed notes that were made from the interview. Connections were made from the participant’s language and how the researcher interpreted the participant’s language (Smith, 1995 & Osborn, 2003). Upon completion of analysis of all the responses an inventory of the main ideas was be generated (Smith, 1995 & Osborn, 2003). After the main ideas were generated from each individual common ideas from participant to participant were established (Nicholls et al., 2005). Answers to common questions were grouped together; so all the participant answers are together. Finally,
after all main ideas of the participants were established, the final step in the data analysis process was to create a written illustration of such ideas (Nicholls et al., 2005). From this stage the responses (data) were analyzed and the discussion and conclusion process begun.
CHAPTER 4

RESULTS

In an attempt to bring all the data together for the purpose of gathering results the researcher followed the flow and format of the interview guide (Weinberg et al., 2001). The information on the video-editing software and how it’s used during practice and games were combined, as well as the information on the professional and educational background of the video coordinator. In order to help organize the information that was gathered through the semi-structured interviews the researcher organized and grouped the common themes (Weinberg et al., 2001). Such a pattern of themes will aid the reader in bringing all the information together and help to create a hierarchy of themes, and identify higher order themes (Weinberg et al., 2001).

The researcher categorized the results; the categories were derived from the format of the interview, and how themes were linked together. Table 1 breaks down the common themes and how they relate specifically to the research questions. The researcher conducted the data analysis, and each interview with each video coordinator was audio-recorded to a laptop and stored safely on an external hard drive. A pilot study was conducted and the interviews were transcribed word for word. After the data was analyzed common themes were structured and the research questions were categorized.
Table 1: Breakdown Of Common Themes By Research Questions

<table>
<thead>
<tr>
<th>Research Question:</th>
<th>Common Theme:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Video-editing software being used</td>
<td>- All six football programs are using a video editing software</td>
</tr>
<tr>
<td></td>
<td>- Three programs use DV-SPORT, two programs use XoS, and three use Web Advantage</td>
</tr>
<tr>
<td>2) Is there a direct relationship between the type of video editing software being used and the capabilities of the video operation?</td>
<td>- Only programs using DV-SPORT were able to capture film live to a laptop</td>
</tr>
<tr>
<td></td>
<td>- Only programs using DV-SPORT were able to have film ready for coaches to watch on bus ride home after competition</td>
</tr>
<tr>
<td>3) How video software is used during practice?</td>
<td>- Five out of six participants stated that the coaching staff can view the film on the computer in its most final stage anywhere from 30 minutes to 45 minutes following practice.</td>
</tr>
<tr>
<td>4) How video software is used during competition?</td>
<td>- Only the programs using DV-SPORT were able to capture film live to a laptop during a game</td>
</tr>
<tr>
<td>5) How the coaches use the software</td>
<td>- Younger coaches were better with the video technology</td>
</tr>
<tr>
<td></td>
<td>- Coaches are receptive to learning how to access the film on the network, and make cut-ups independently</td>
</tr>
<tr>
<td>6) Job analysis &amp; educational background of video coordinator</td>
<td>- Five of the six participants are football only year around video coordinators</td>
</tr>
<tr>
<td></td>
<td>- One of the six participants had an educational background in media / video</td>
</tr>
<tr>
<td></td>
<td>- All participants agreed that a certification program may be necessary for video coordinators in the future</td>
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DV-SPORT: A Model Of Computerized Video Editing

As per the qualitative research the researcher followed the guidelines of performing a pilot study to weed out any potential problems with the line of questioning (Charmaz, 2002; Morgan, 2002). The researcher chose a present employee of a digital video editing software, DV-SPORT, who has also been a video-coordinator for a Mid American Conference school for multiple years’ prior. Along with going over the flow of the interview guide the researcher probed this employee in regards to his suggestions
for the study and possible question ideas for the study. The researcher chose this participant as a good model for the pilot study; because of his experience both as an employee with one of the most widely used video editing software’s in the country and as a video coordinator in the MAC.

Where DV-SPORT Is Being Used

It was identified that DV-SPORT is the official video editing software for three NFL teams, The Cleveland Browns, Carolina Panthers, and Pittsburgh Steelers. This is a change since McDonald (1999) which at that time stated that The Cleveland Browns utilized Avid video editing software. Half of the teams investigated in this study utilize DV-SPORT video editing software; these are just a few of the multiple programs that have purchased this software in Division I-A college football. When asked which video editing system one of the video coordinators acknowledged the following systems: “I brought in DVSPORT, XoS, LRS, DSV, all the bigger companies and we got a new system.

DV-SPORT And Instant Replay

One of the areas that DV-SPORT is separating itself from the competition is in it replay system. DV-SPORT is the official replay software used by many Bowl Championship Conferences, such as the Big Ten, Atlantic Coast Conference, the Big East, and the South Eastern Conference. When asked why these large profitable conferences were picking DV-SPORT as there software for replay the participant has this to say: “There are several systems available for replay, (DV-SPORT’s) big selling point is touch screen technology that allows the official to have every possible view at their finger tips as opposed to having to
fast forward and rewind to find the views they like or don’t like.” The participant went on to say “We digitally store each view as it comes up on television and you can reference it by a touch rather than like rewinding a tivo remote or on rewinding your vcr.” This is an area of computerized video editing technology that is completely new.

Why Is DV-SPORT One Of The Best?

The pilot study line of questioning from here moved from identifying why DV-SPORT as one of the top programs for replay to why the program is one of the top programs for game and practice video editing. When asked this question the participant stated that:

Our (DV-SPORT’s) first big step was doing live capture, being able to capture directly from your camera to your laptop, and being able to have portable game film that was probably our first big innovation as far as doing something no one else was, the ability to be able to take your film home and watch it on the bus. This is a technology that was not apparent during the time of McCormick (1997), just one of the many technology changes in sport video identified by the current study.

In fact, one of the specific suggestions provided by McCormick (1997) for future research is to analyze “How increased video compression and internet-type technologies will, most likely within the next five years, replace the current tape exchange” (McCormick, 1997, p. 431). From this question in the pilot study the researcher was able to look for a theme as to whether or not each program was able to capture film live to a
laptop. It was confirmed through interviews with the participants that only those using DV-SPORT could with a 100 percent certainty say that they can do this capture method.

The next area that was investigated with the pilot study participant was how video coordinators become proficient with the software; it was asked if there is a booklet or training manual for the software. It was found that no such booklet existed for the software, but rather tech support is critical. The participant said: “tech support is one of our big selling points as opposed to leafing through a manual you would hope that a client would call us and talk to us one on one…and we should have an answer every time they call so the main reason we don’t have a manual is that we stress live tech support” It is this aspect that allows a football program to hire someone who may have a computer background but no formal experience with computer video editing, because the software company plays such a large role in making sure the individuals running the software understand it.

The pilot study participant was asked by the participant if he had any suggestions of questions that might be relevant to add to the study. The participant noted the focus of the technology change, and to try and find out how much those changes affect the climate of a college football team. The participant commented: “You are learning on the fly because technology is changing so fast you are pretty much just trying to keep up, just getting examples of them (video coordinators) in action and asking them what people might not realize what it is they do, a lot of people don’t realize how much film there is in football especially.” It was the successful line of questioning from the pilot study that the researcher built the foundation for the rest of the study upon.
Video Editing Software Being Utilized

The fundamental question of the entire study was whether or not the video-coordinator being interviewed used computerized video editing software as a part of their job responsibilities as a football video coordinator. Since the mid-1990’s college football programs have rapidly been changing how film is watched from videotape technology to the digital era of technology, which incorporates video editing software. The results of the interview found that of the six video-coordinators that were evaluated three utilized DV-SPORT video software, two utilized XoS video software and one utilized Web Advantage software, this information is detailed in table 2.

Table 2: Percentages Of Video Software Being Used

<table>
<thead>
<tr>
<th>Video Editing Software</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>DV-SPORT</td>
<td>N=3</td>
<td>0.5000</td>
</tr>
<tr>
<td>XoS</td>
<td>N=2</td>
<td>0.3333</td>
</tr>
<tr>
<td>Web Advantage</td>
<td>N=1</td>
<td>0.1667</td>
</tr>
</tbody>
</table>

To accompany the question of which computer video-editing software was used for breakdown of game and practice film the researcher asked if any other video editing software’s were incorporated in their respective operations. It was found that all video-coordinators interviewed did not use any other software for the sole purpose of editing game and practice film. At the same time multiple programs are utilizing both Window’s Movie Maker, and XoS video software for the purpose of digital online film exchange. Along with the use of all teams using some form of digital video editing software, this is the second noticeable change in video editing since McCormick’s (1997) study.
A provided desktop computer to all cooperating programs facilitates the process of Internet film exchange through the XoS software; the desktop is used for uploading and downloading the video files. Window’s Movie Maker is used as a method for file conversion; the program has the ability to convert video files to .avi from .wmv. DV-SPORT software requires that the game film be in .avi format so that it can be edited and organized as desired. To show how new this technology is to the MAC and other conferences, this file conversion method was developed by one of the video coordinators in the MAC and suggested to the other programs.

The Generation Of Highlight Films

Typically a college football video coordinator will make a highlight film using another video editing program, or moviemaker type program separate from the main video editing software program they use to break down film. Video-coordinator’s reported the use of the following programs Final Cut Pro, Pinnacle Liquid Pro, Roxio, Adobe Premier, and Avid software for the sole purpose of making highlight tapes. Making a highlight tape is something different for a video coordinator to do, and can be an opportunity for them to show what they can do and help motivate the team. One program actually has a video-coordinator who’s background is solely in movie making and not as much in editing video for sport.

How Video Editing Software Programs Are Used During Practice

As per the flow of the interview guide the researcher evaluated many aspects of how the video coordinator incorporates digital video editing software into the model of football practice. In terms of how much of the football practice is filmed this has
remained fairly constant since McCormick (1997), in that the majority of practice is filmed especially the scrimmage periods for example, TEAM and 7 on 7 sessions. What happens once the practice is filmed has changed drastically. Five out of six video-coordinators stated that the coaching staff can view the film on the computer in its most final stage anywhere from 30 minutes to 45 minutes following practice. One participant stated

“Usually once the coaches get off the practice field and take a shower the film is ready to be viewed on the network.” When not too long ago coaches would just be able to watch practice on VHS format, now coaches come into the comfort of their offices and watch it on their laptops, and can do so in a timely manner following practice.”

Computer Programs Expedite Practice Film Breakdown

The time element is strictly contingent upon whether or not the video coordinator or his or her staff can begin the capture phase of the video editing process during practice. The sooner the film is captured to the network, and edited the sooner the coaching staff can view the film. The researcher found that all but one of the programs in the study were beginning the capture phase during practice. Five out of six of the participants stated that the typical set-up was that the tapes would be taken back to the office during practice and captured to the network this way.

One school captured on the field to a laptop, which had its advantages and disadvantages, as the cutting phase cannot begin until the laptops are taken into the office. The common theme for practice film breakdown followed the comments of this video coordinator: “We have a system where we drop tapes at
various points in practice we drop mini-DV’s at various points during practice and
those mini-DV’s are then captured onto the network.” A second video-
coordinator reported cutting its time down to as little as a few minutes to have the
film ready on the network. This programs video-coordinator described its
practice set-up as follows:

“Immediately following practice all but the final two periods the final 10-15
minutes of practice was all the way to projects, where the coaches view the film
it’s the final product where its been cut, intercut so you would have a sideline and
end zone view for anything that was filmed from both the sideline and end zone,
and labeled so a coach can easily access it on our network.”

*How Network Technologies Affect The Video Process*

Among the suggestions for further research proposed by
McCormick (1997) was to evaluate the network technologies that must
accompany video editing systems. The current study evaluated this in
detail, and found that each video coordinator followed the principal of
keeping as much film on the network as possible. A common theme was
found that all these networks are always close to full, and nothing is
deleted or backed up unless absolutely necessary.

Along with the evaluation of how much film is kept on these
massive centralized networks and for how long, the study evaluated if
each football office was set-up with a fully networked group of meeting
rooms. One video-coordinator explained their respective set-up as:
“We have 14 laptops that means every coach has his own laptop, our offices are located in the meeting rooms its all one place.” “So a meeting room will have a couple offices in the back and the coaches take there laptops to wherever they want to go and wherever they go they have a hook up into the network so if they all want to watch it out in the meeting room on the projector together they can just take there laptop and sit out there they can do it if they want to go back to there office they can do that too.”

This kind of technology was extremely rare as of the mid 1990’s, simply because of the lack of large networks that can accompany large libraries of film for long periods of time.

How Video Editing Software Programs Are Used During Competition

As was mentioned previously one of the main advantages of the video editing software systems used in the MAC, especially DV-SPORT, is the opportunity to expedite the amount of time it takes to prepare the film for the coaches to view. DV-SPORT software seems to be the best in regards to limiting the time this process takes. As the employee of DV-SPORT stated with this software you are able to capture the film directly to a laptop from both angles, which saves a lot of time. Another advantage of this is that data such as offense, defense, and kicking can be added during live capture. It was discovered through the interview process that all the MAC schools that use DV-SPORT software have developed the ability to add this type of data during live capture.

The researcher found a common theme among teams that were not using DV-SPORT software, a main common theme was the following response when asked if any
data was added during live capture: “We tried doing it and it just didn’t work out too well, the marks were all messed up and everything, XoS supposedly has the system to be able to that.” It is an obvious advantage to be able to break the film down by offense, defense and kicking during the game, this leaves just matching up the sideline and end zone plays and forming one intercut game, then exporting this to each coaches laptop. Being able to watch game film on a bus ride home is a drastic improvement from the time of McCormick (1997).

One main consistency since the mid 1990’s is the format for how a game is filmed. As per McCormick (1997), the scoreboard is filmed, then the sideline view of the play is filmed and the end zone view is intercut to accompany the sideline view. Regardless of the video editing software that is being used this flow of filming for games was the same among all video coordinators interviewed. One video coordinator described the details of filming during a game as: “I film the scoreboard between each play for about five seconds and then film the play once they break the huddle and if there is a penalty we film the official.”

How Well The Coaches Use the Video Editing Software

The next line of questioning brought the researcher to a question line that dealt with determining how independent the coaching staff was in regards to using video editing software. This is important, because a coach needs to be able to do some basic things with the software, as the video coordinator cannot tend to the needs of nearly fourteen coaches all at once. Answers to this line of questions varied as some considered it a part of their job as a video coordinator to answer all questions and not worry about whether or not the coach is learning how to do what is needed on his own. Others felt
that it would be more effective if the coach gained more of an understanding of the software.

The common themes identified in this section suggested that younger coaches were better with the video technology, but that most coaches are receptive to at least learning how to access the film on the network, and make cut-ups independently. This can be seen by the following statement from a MAC video coordinator: “I think for the most part 80 percent (of coaches) are efficient on it, a couple of the older guys that are not as efficient but are willing if you show them how to do it they are willing to retain it.” Another response in regards to how effectively the coaches use the software was: “The biggest thing I fight with that is that sometimes a coach wants everything done immediately, and they don’t take the time to realize that if they learn how to use the system that in the long run that would save them time where in the short term it takes longer to learn it but in general most of them certainly all of them can make a basic cut-up.”

In regards to other technology needs of the coaching staff, the question was raised whether or not the video-coordinator has become the information technology person for the staff. Every video-coordinator that was interviewed made the point that they indeed are responsible for general computer needs, especially in regards to the in house servers that are being used, as is seen in the following participant quote: I would say I certainly serve as the IT guy to a certain extent we do have an IT person that works solely with the athletic department. I call her quite a bit and she comes down and does a lot of stuff for computers and everything outside of our editing system. If it’s the editing system or the video network its me they don’t ever touch that I do that on
purpose just cause they don’t know the specifics of the system. So if there is a network issue with our system it’s me and our customer support through DV-SPORT.

This was an unusual case in which the athletic department had a separate IT person for the athletic teams, in most cases the video coordinator was the only person in the athletic department or football program that had the necessary IT skills. Later in the interview the researcher evaluated whether or not the video coordinators job description and training background should change because of the IT skills that are needed. This question is also raised as a suggestion for future research in McCormick (1997).

Another specific suggestion of McCormick (1997) as it pertains to future research is evaluating how the role of the video coordinator has changed as a consequence of the new technologies. During the time of McCormick (1997) the majority of universities at the Division I-A level, if they had a video-coordinator, this person served as the video-coordinator of the entire athletic department. These personnel would have an increased level responsibility to the football team, but would have to oversee the video needs of the other programs (McCormick, 1997). With the exception of one program from the MAC that was investigated all the programs (n=5) have a video-coordinator that services just football year around. This person is a full-time position that has responsibilities all year, with increased workloads during the season, both fall and spring.

The set-up of the entire video staff was the video-coordinator with anywhere from four to eight student assistants working under him or her. Two of the programs the video-coordinator had an assistant that reported directly to the video-coordinator, but did not have the title of graduate assistant or assistant video coordinator. The majority of the student assistants were interested in either coaching or video, which is consistent with the
finding of McCormick (1997). As far as the findings of why or how these people get involved with a video staff one video-coordinator stated that: “My experience has been that most individuals that I have had working for me want to be in athletics as a coach. And are using this as a way to try to move themselves forward in that goal.” A common theme was found that the main role of such assistants is to film, maintain the equipment, and to occasionally help break down film.

Experience Requirements And Educational Background of the Video Coordinator

McCormick (1997) suggested that with all the new technologies that are evolving so rapidly in college football video, that future research may want to look at whether or not the educational requirement should change. Each participant was asked about this and a common theme was extracted that showed that the video coordinators felt that it would be a good thing. No evidence was shown that these video-coordinators were actually attaining any sort of formal training in media or networking technologies. In fact, the majority of the participants interviewed had not ever taken a computer related course. Only two of the six participants had taken any sort of computer course-work and only one had an undergraduate degree in a video related subject area.

To become a video-coordinator in the MAC you must have at least a bachelor’s degree, because you are hired as fulltime staff, or graduate assistant of a university. One video-coordinator said this in regards to the requirements to becoming a video-coordinator: “I would say it is hard to have someone to be retained as a video coordinator if you are going to pay them what they can make at McDonalds, you can’t get a job at a university if you don’t have a four year degree so why not pay them for a four year degree.”
Another common theme that was identified by the researcher was how each video-coordinator got into the business. Whether the goal of the video-coordinator is to become a college football coach or to remain in video, the common way that these persons found their way into the profession was through the back door. This has remained consistent from McCormick (1997), that many do not have formal training in this highly technical profession. One participant had this to say on how he gained entry to the field:

“Showed up, when I showed up I was trying to get into coaching and they had nobody, they had one guy who was the video coordinator who at that time it was a GA position not a full time position and they had one other student helping him and they only owned three cameras and could only use two of them most days, they were more than happy to have me.” This participant went to say in regards to his background in the field: “I wouldn’t say I had an expert knowledge by any means but I would say I had a clue of the video technology but other than that all my training has just been self taught or reading that type of thing”
CHAPTER 5
DISCUSSION

The purpose of the present study was to provide an analysis of Division I-A college football video technology. Specifically, the purpose of the study was to identify the multiple technological changes that have taken place in football video technology since the mid 1990s. Along with these findings the study evaluated how the role, educational background, and workload of the Division I-A college football video coordinator has changed since McCormick (1997). As the data was brought together from the study the researcher related the present findings back to the research questions and how the findings of the present study build upon the McCormick (1997) dissertation.

Once again as per qualitative research guidelines, common themes were organized and the researcher extracted the new findings that build and add to the previous research. Since the interview process created a very large group of answers and a lengthy results section, the discussion will seek to illuminate the main progression that the profession and practice of college sport video has made since McCormick (1997). This discussion will also refer frequently back to the McCormick (1997) suggestions for future research and how this study directly answers those questions, as well as adds to the present body of research by making suggestions for more future research beyond 2007.

McCormick (1997) illustrated that on average two camera angles, with at least two cameras at each angle, were being utilized during a practice session. During the time
of McCormick (1997) it is also seen that practice is usually filmed on Tuesday, Wednesday, and Thursdays during game weeks. The use of a practice schedule and the importance of understanding the flow of a college football practice, especially by the student filmers was brought out in McCormick (1997). McCormick (1997) illustrates any sort of support staff that the video-coordinator had was mainly a group of students that would show up when practice starts and leave immediately after.

The researcher was able to identify many notable changes in how practice and game film is shot and utilized. Since McCormick (1997) digital video editing software is so prevalent that it was seen that every MAC program is analyzing all practice and game film digitally. This full dependence on computer video technology was not as prevalent and in some cases non-existent at most schools in the mid to late ninety’s (McCormick, 1997). In terms of camera angle and number of cameras used the present research indicates that college football programs are utilizing at least three sometimes as many as five camera angles during practice and games. College programs are also now filming the specialist positions such as kickers and punters from the field angle during practice, and filming game footage from the field for the purpose of generating highlight tapes for motivational purposes. All these additional filming requirements are requiring more student filmers to help out at both practice and games.

With the inception of these large networked video-editing systems, the entire concept of practice has changed. A former video coordinator from the MAC had this to say about the change in video editing process and practice: “The digital era has changed the whole complexion of camp it changed meeting times because we could get things up faster and basically altered the itinerary everyday basically knowing that they (the
coaches) could get the film that must faster.” The entire format change of how a college football team operates from day to day has changed drastically since McCormick (1997), and the level of dependence the coaches have on the film. An example of this dependence was given by one of the participants:

I think that video is such a huge part in college sports, the video coordinator is a very important part, I will give you an example, our system went down a couple days ago one of the servers actually just fried and I had to get a new one, and just everything came to a stand still because everything here revolves around the video.

Almost all aspects of game analysis have changed since McCormick (1997), with the main difference being the dependency on the video editing software for this process. No programs at the MAC level have hired full-time quality control coaches as of the present study, but the role of the offensive and defensive graduate assistants stems solely around adding quality control data to practice and game video. The present research identified that the game analysis phase begins almost instantly now, as the person filming the sideline using DV-SPORT software can label each play as it is filmed as an offensive, defensive or special teams play. This expedited methodology is a drastic improvement from the technologies spoken upon in McCormick (1997).

A drastic change can be seen in the present study as a large amount of communication between coaching staff to video coordinator to student filmers was seen. “There was little or no communication between the coaches and camera personnel. There was also little accountability if the wrong drills were recorded” (McCormick, 1997, p. 165). For example take this quote from one participant interviewed:
I have actually created a ranking system of sorts where everyone gets graded out. I have a rubric made and they get graded in three areas: one in how well they film, actually one how well they film, two how well they know the system and can operate it, and three how well there intangibles how well there work ethic is. Since we establish that that issue has gone away because based on how you perform depends on if you travel. I guess that’s the golden egg that everybody wants so if you’re not performing in all areas you are not going to score out as well and you are not going to travel.

This is a clear-cut example of how the role of the video staff is a much more serious position within the football team support staff.

As of McCormick (1997), the position of the video coordinator was at some larger universities a full-time position all the way to being a volunteer position at others. Of the six MAC programs that were surveyed, five of the programs had a full-time football only video-coordinator. One of the five programs had a position that was described as follows:

At (the university) the position is a full time position but you don’t get paid.” It is believed that this type of practice is quite rare, in fact at one Big Ten school the set-up is as follows: “They (the university) have someone who is the Director of Video Services who is a position that is moving toward an Associate Athletic Director type of title; that is a model that some of the Big Ten schools have started to develop and now you have someone overriding an entire department you probably still have a video coordinator for the big sports then you have video coordinators that encompass multiple sports you also then have the ability to have GA’s and more student workers.
One of the more relevant suggestions for future research brought about by McCormick (1997) was simply the investigation of how important a role the large networks play in the role of the video coordinator. When asked one of the participants made the statement that:

As it all becomes digital and we are starting to exchange digitally and the networks are getting bigger even though the software in many aspects is getting more user friendly now that everyone is going to a network and everyone is starting to exchange over the internet the technical know how requirement is increasing in many ways. You have to be much more computer savvy you are starting to get guys who actually have some background in networking and with all that there is more training there the more training that’s needed to do the job more adequately will increase the respect of the position.

Along with increased networks the point was raised by three of the six participants that film exchange over the Internet is becoming huge. As was stated earlier I was a video graduate assistant during the 2005 football season in the MAC, and one of my more daunting tasks was to get up early on Sunday mornings while the coaches were sleeping and travel and meet our next opponent to exchange film. In just one year’s time, this process has been completely eliminated and film is being exchanged simply by a click of a button over the information super highway.

Along with suggesting that future research be conducted on how the role of the video-coordinator has had to adapt to the digital era, researchers also suggested that research analyze how personnel would need to understand more about computers than the use of film. The present research evaluates this in detail; all six video coordinators agreed that they have assumed the role as not only the video or media technician but also
the information technology person for the staff. This brings up one question for future job analysis, and that is should the title be changing from strictly video coordinator to something that encompass more of an Information Technology (IT) background in collaboration with media.

Suggestions For Future Research

Table 3: Overview of Future Research Suggestions

<table>
<thead>
<tr>
<th>- How the development of internet film exchange will continue to evolve?</th>
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<td>- How will video editing software companies adapt to the technological advances?</td>
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<tr>
<td>- How will the profession of video coordinator continue to develop a place in the world of athletics?</td>
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<tr>
<td>- How is sport video being used in other sports at the NCAA Division I-A level?</td>
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<tr>
<td>- How is sport video being used at other levels of sport, for example professional level, lower college levels, and at the high school levels?</td>
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The field of sport science as a whole is exploding in a multitude of directions. As with any area of science, technology plays a critical role in the field of sport. Future research will most certainly be needed in the area of college football video and its personnel. Just in the past few years’ college football has leaped head first into the digital age. Not only was the MAC chosen as the population for this study because of the researchers experience within the conference, but also this conference was chosen because it is a mid-major conference, with limited budgets. Even though this conference has limited financial resources as opposed to the big conferences, we see that almost all programs are employing a football only person that handles the technology and video needs of the football staff. Along with the new hiring’s within these athletic departments

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we have first and foremost seen universities sacrifice enormous amounts of fiscal resources to sustain such programs.

The first area that could use more research in the future is how the development of Internet film exchange is progressing. This is a process that at least at the mid-major level, has begun to take full effect in just the past year. Some specific questions that can be asked are with this new wave of technology and information sharing over the Internet, what type of technical problems have arisen and how have these problems been corrected. As the researcher mentioned earlier the first obstacle was to convert the .wmv file format to .avi so that DV-SPORT could effectively import the video. This was done through idea development of one of the MAC video coordinators. Will there be more advances of this type that push the envelope of technology in the future?

The second area will be to continue to monitor the video editing companies such as DV-SPORT, Web Development, XoS and others of their kinds to see how they advance their respective programs to stay on the top of the markets. From this study it would appear that DV-SPORT has tried to improve and innovate new technologies for taking video on the road, and allowing coaches to view digital film of games on the way home from a contest. Future research should help to discover how video-editing software is decreasing the amount of time it takes to edit the film and get it to the final stage in which the coaches can view it and do game analysis.

A large part of the McCormick (1997) study was evaluating the level of professionalism of the position of video director or video-coordinator. Future research should build on the present study to evaluate how the role will continue to change. Will mid-major programs such as Akron, Bowling Green, Buffalo or Ball State be able to
create an Assistant Athletic Director position that is solely set up as a director of athletic video and technology services, such as the Big Ten model? Through the development of such positions how will the job requirements change? Since McCormick (1997) we have seen rapid change in what qualities and experience backgrounds video-coordinators are expected to have. What will the job requirements for a video coordinator be in three, five or seven years from now?

As per the suggestion of McCormick (1997) one area that this study did not focus on that could be evaluated even since 1997, is how other sports besides football use video and technology. Pretty much every sport especially at the Division I-A level is using video for game analysis and motor skill analysis. It would be of utmost importance to not just focus on how video has affected the atmosphere that is big time college football but how it has affected these other sports.

Video analysis is becoming a gigantic business; it deserves attention in sport science research such as this. It is important that universities and coaches take the time to understand what these video-coordinators do, and what these costly programs are used for. Video is being used in football through all levels competition. From the collegiate level to the high school level, football programs are beginning to digitize film, make cutups, and conduct game analysis with computers. The technology side of any field is often overlooked and taken for granted. As with any field or base of knowledge only through the process of asking questions will we really understand and justify such processes.
BIBLIOGRAPHY


APPENDIX
APPENDIX A

INTERVIEW GUIDE

- The interview schedule between the researcher and the participant (video-coordinator) will begin with some basic dialogue. Jarratt (1996) has suggested that a non-directive interview style creates a more relaxed environment for the interview, creating a positive relationship between the researcher and participant (Jarratt, 1996). Semi-structured interviews follow a more specific topic line than do non-directive interviews. The semi-structured format for qualitative interviews allow the researcher to focus on specific topic criteria (Jarratt, 1996). It is this specific topic criteria that will be the focus of this interview guide. It is anticipated that the dialogue with the participant will wander somewhat from the interview guide, but no less than the following line of questions will be addressed. The interview schedule is broken up into various parts, the researcher will make the participant aware when a new part of the interview is starting and the topic for that section of the interview.

Interview Schedule:

R: Researcher

PART I: IDENTIFICATION OF VIDEO – EDITING SOFTWARE:

R: Which video editing software does your university employ?

R: Do you as the video-coordinator use any other video-editing software’s to compliment the program that your athletic department has given you…such as a moviemaker program?

R: In other jobs or in your current position have you used or become familiar with any other computer video-editing software besides the one you use at your university?

R: What (if any) other athletic programs at your university use this video-editing software besides the football program?

R: Does your football program have a fully networked group of meeting rooms and offices?

R: If not what is your set-up for position meetings?
R: And if not how do individual coaches watch film in their offices?

**PART II: IDENTIFICATION OF LEVEL OF USE OF VIDEO-EDITING SOFTWARE DURING FOOTBALL PRACTICE:**

R: During a practice session do you personally film any part of the practice?

R: How many camera angles are utilized during a practice session?

R: Are you able to begin the capture phase of practice while the practice is going on?

R: How is filmed captured? Directly to a laptop computer / directly to a hard drive / Or to a DV-Tape that is later digitized?

R: How soon following a practice session does your coaching staff expect you to have the film ready for viewing?

R: Which parts of the practice session are filmed?

R: How much of the kicking game is filmed?

R: Do you film any specialist positions (kickers, punters) from the field?

R: How much of the filmed material from practice is digitized?

R: How many of the camera angles are added to the digitized film?

R: Once the coaching staff has viewed practice film, how much of the film is stored digitally?

R: Once the coaching staff has viewed practice film, how long is it stored digitally?

R: How is practice filmed organized in your video-editing system?

R: Is any quality control / self scout data (data other than that needed to make basic cut-ups, such as down and distance, play called etc…) added to practice film?

R: If data is added to the practice film, whom does the data input?

R: If data is added to practice film, how soon is it added?

R: Does your football program include practice film as a part of its off-season self-scout?

R: If so who does this? Offensive and Defensive GA? Quality Control Coach?
PART III: IDENTIFICATION OF LEVEL OF USE OF VIDEO-EDITING SOFTWARE DURING FOOTBALL GAME:

R: Do you follow the traditional model of one camera on the sideline shot and one on the end zone shot?

R: During a game do you capture live to a laptop at both angles?

R: If so..is any data being added to the film as it is being captured?

R: Does the sideline camera film the scoreboard before each play begins?

R: Do you personally film during the game?

R: Do you have a camera on the field during a game?

R: If so why?

PART IV: DETERMINATION OF HOW THE COACHING STAFF USES THE COMPUTER VIDEO-EDITING SOFTWARE:

R: How responsive are the coaches and how willing are they to learn how to become self-sufficient in regards to video technology usage?

R: Can you describe some situations in which an assistant coach has asked for help in regards to general use of the video software?

R: Are the assistant coaches on your staff able to create cut-ups on their own?

R: Have you had a training session with the coaches in regards to how to operate the software?

R: In regards to general technology use…not just the video system how efficient are the coaches you know with these things? (using vcr’s, general computer needs)

R: On a scale of 1-10, 10 being the highest, how high would rank the coaches of the football program in regards to being able to use the video software on there own?

R: On a scale of 1-10, 10 being the highest, how high would you rank the other coaches in the athletic department in regards to being able to use the video software on there own?
PART V: JOB ANALYSIS OF THE VIDEO COORDINATOR, AND THE ENTIRE VIDEO STAFF:

R: For how many football seasons have you been the video-coordinator?

R: Are you the video-coordinator for your entire athletic department or are you just for football?

If for the entire athletic department:

   R: Describe your role for the other sports at your university?

   R: Which sport are you mainly responsible for?

   R: Do you report to one coach more than the other (ex: football more than basketball)

   R: Say for example, the basketball team is going to the NCAA tournament and the football team is starting spring practice, which event are you expected to tend to first?

   R: Are you responsible for operating a video board in your basketball arena?

      R: Before accepting the job at your current university did you have training in such operations?

      R: IF NO: Did you have help learning this system when you came into the program?
      R: How did it make you feel to have to learn a new system such as this on your own?

R: Who in the athletic department do you report to directly?

R: Who hired you?

R: Who interviewed you?

R: Please describe your staff?

   R: Do you have an assistant video coordinator or graduate assistant, that reports directly to you and you alone?

      R: Does this assistant have a career goal of entering coaching or video operations or other, or maybe both?
R: Is one of the intended purposes of such an assistant to fill in and run the video operation if you are out of town?

R: Has this assistant ever been put in charge of the whole operation?
R: Can you give an example?
R: What was your confidence level in regards to this matter?

R: Do you have a staff of student assistants?

R: How much responsibility do you delegate to such student assistants (just filming, film breakdown…)

R: Do these student assistants assist your video operation for all sports if you are responsible for multiple sports?

R: Do you have any athletes working for you?

R: If so…how would you rate the effort of athletes working for you as compared to student assistants?

R: Do these student assistants have a desire for career advancement within the field of video operations?

R: In general can you tell me why these student assistants decided to join your video staff?

PART V: EDUCATIONAL BACKGROUND OF THE VIDEO COORDINATOR:

R: Please describe for me your highest level of education.

R: As an undergraduate or graduate student did you work in video operations at the college or university you were attending?

R: Have you taken any formal classes or attained any formal degrees in media, technology, or computer technology?

R: What specifically is your degree in?

R: Please describe for me in as much detail as you are willing to…how you became a video coordinator?

R: Do you feel that video-coordinators should have some sort of formal training?
R: Do you feel that the position of video-coordinator is gaining respect in the world of college athletics?

R: What do you think needs to change to help the video-coordinator secure more of a place in the professional world of athletics?
February 9, 2007

Craig Everhart
1080 Somers Circle NE
Hartville, Ohio 44632

Mr. Everhart:

The University of Akron's Institutional Review Board for the Protection of Human Subjects (IRB) completed a review of the protocol entitled "An In-Depth Analysis of Division I College Football Video Technology". The IRB application number assigned to this project is 20070133.

The protocol was reviewed on February 6, 2007 and qualified for exemption from continuing IRB review. The protocol represents minimal risk to subjects and matches the following federal category for exemption:

(2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: (i) Information is recorded in such a manner that subjects can be identified, directly or through identifiers linked to subjects; and (ii) any disclosure of responses outside the research could reasonably place the subjects at risk of civil or criminal liability or be damaging to subjects' financial standing, employability or reputation

Enclosed is a copy of the informed consent document, which the IRB has approved for your use in this research. In addition, your request for a waiver of documentation of informed consent, as permitted under 45 CFR 46.117(c), is also approved.

Annual continuation applications are not required for exempt projects. If you make any changes or modifications to the study's design or procedures that either increase the risk to subjects or include activities that do not fall within one of the categories exempted from the regulations, please contact the IRB first, to discuss whether or not a request for change must be submitted. Any such changes or modifications must be reviewed and approved by the IRB prior to their implementation.

Please retain this letter for your files. If the research is being conducted for a master’s thesis or doctoral dissertation, the student must file a copy of this letter with the thesis or dissertation.

Sincerely,

Sharon McWhorter
Interim Director

Cc: Alan Korns, Advisor
Rosalie Hall, IRB Chair

The University of Akron is an Equal Education and Employment Institution
Dear Video Coordinator,

I am currently a masters degree student from the University of Akron Department of Sport Science and Wellness Education investigating the profession of the video coordinator and how college football coaches at the Division I-A level use technology and specifically video to enhance coaching strategy. I am attempting to determine at what level of effectiveness college football programs use computer video editing software. This research also hopes to add to a very limited pool of information on the profession of the video coordinator.

Your decision to participate in this interview is voluntary. Also, although I would appreciate a response to each question asked by the researcher, you do not have to answer every question during the interview. Please note that the researcher, Craig Everhart, has been involved in the college football video profession as a video graduate assistant at The University of Akron, and is seeking to benefit the profession as a whole by doing this project.

As the researcher, I will conduct a semi-structured phone interview with the participating video coordinators. This interview will be audio-recorded for later analysis. Predetermined questions will be asked in a systematic and consistent order to all video coordinators. As the interviewer I hope to probe far beyond the basic structure of the interview, with a relaxed interview style. Transcripts of the research will be analyzed to determine what factors contribute to the level of effectiveness of video technology and the role of the video coordinator in present day college football.

Please notice that your responses will remain strictly confidential. Your name will not be used at any point in the write up of the results of the research. Results will be available upon written request to Craig Everhart at craigeverhart@yahoo.com. Also, if you have questions about this research, you can contact by phone at 330-354-6717.

Sincerely,

Craig J. Everhart

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