

PODCASTING MENTAL IMAGES:
TECHNOLOGICAL APPLICATION OF SPORT IMAGERY

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TECHNOLOGICAL APPLICATION OF SPORT IMAGERY

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PREVIEW

CHAPTER I

INTRODUCTION

Podcasting may provide sport psychologists, coaches, and athletes the training edge required to facilitate *mental imagery* for performance enhancement. Imagery conducted for sport performance is referred to as *sport imagery*, but can be used interchangeably with the broader term mental imagery (Taylor & Wilson, 2005). Several other terms including *mental practice*, *mental rehearsal*, and *visualization* have also been used to refer to various components of mental imagery in sport (Morris, Spittle, & Watt, 2005; Taylor & Wilson, 2005; Weinberg & Gould, 2007). Specifically, sport imagery can be defined as using all senses to re-create or create a sport experience in the mind with the goal of enhancing sport performance during training and competition (Morris, Spittle, & Watt, 2005; Vealey & Greenleaf, 2001; Weinberg & Gould, 2007). Podcasting as a technological application of sport imagery may enhance mental images through auditory or visual guidance. Accordingly, an enhanced sport imagery experience could result in further improvements in sport performance.

Podcasting is the process of creating and distributing digital media files as images, audio, or video over the internet for future download and playback on a computer or a digital media player (Holtz & Hobson, 2007; Morris & Terra, 2006). However, there is much more to podcasting than simply downloading “stuff” from the internet. In fact, *podcasts* are distinguished from other media formats in that they are simple, personal, portable, always available, and relatively inexpensive (Geoghegan & Klass, 2007; Islam, 2007). The primary distinction of

podcasts is that they are automatically downloaded via subscriptions (Geoghegan & Klass, 2007). This means that new podcasts are automatically downloaded onto a computer via the internet as they become available.

The many features of podcasting make it appealing for various applications including mainstream media, professional businesses, education, medicine, faith-based organizations, and interest groups (Holtz & Hobson, 2007; IDG Global Solutions, 2006; Morris & Terra, 2006). Islam (2007) provides the following examples of how podcasting is used for different applications: IBM uses podcasting to deliver information to employees and real-time updates to investors; General Motors has a radio-style podcast featuring design, engineering, and marketing information; Drexel University produces a podcast to aid online learners; and Pal's restaurant based in Kingsport, Tennessee uses audio and video podcasts to train all their employees.

In the case of sport imagery training, podcasting may provide athletes on-demand access to guided imagery regardless of time, place, or activity. Imagine the hypothetical basketball game-day scenario:

On the morning of the championship basketball game, Joe uses his iPod to listen to a podcast on free throw shooting concentration while clicking through various images of proper shooting technique. Joe then closes his eyes and mentally practices a few shots. He feels confident. Later in the afternoon, Joe combines mental practice with physical practice during the team's shoot-around. Several made baskets further boost his confidence. On the bus ride to the game, Joe watches downloaded clips of previous games and fast-forwards to free throw shooting situations. Using all senses, Joe imagines shooting and making each shot. In the locker room, Joe listens to a relaxation script recorded by the team's sport psychologist. Joe is now physically and mentally prepared. The game goes down to the wire and Joe's team is down by one point. As time expires, Joe is fouled and has the chance to win the game. In attempt to pressure Joe, the opposing team calls a time-out. Joe goes to the bench and grabs his iPod. He watches himself making game-

winning free throws and imagines winning this game. Joe then walks to the line and calmly swishes both shots. Joe's team wins the championship and he receives MVP honors.

This is just one illustration of how podcasting can be utilized in enhancing the sport imagery experience. Specifically, podcasting may enhance *free throw imagery* and thereby improve free throw (FT) shooting performance. Basketball players, like Joe, can use podcasting as means to improve FT shooting in practice and during competition. Improved FT performance could then contribute to achieving personal goals, team goals, winning games, and winning championships. As technology continues to advance and becomes more mobile, podcasting will become even more practical and relevant for numerous sport applications.

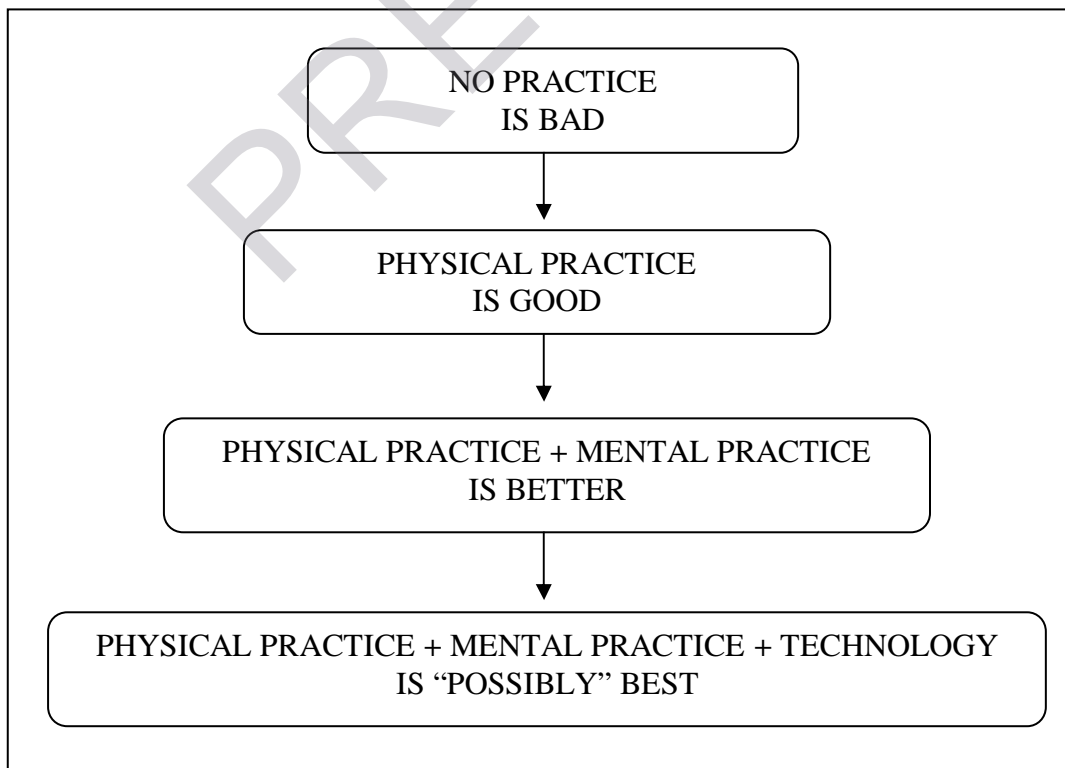
Problem

Poor FT shooting has long been a problem in the game of basketball at various levels of play including high school, college, and professional (Amberry & Reed, 1996; NCAA, 2007; Thompson, 2008). It is well established that physical practice can increase motor skill performance such as FT shooting (Laguna, 2000; Memmert, 2006; Shoenfelt, Snyder, Maue, McDowell, & Woolard, 2002; Williams, 2005; Wulf, 1999). It is also widely accepted that mental training can contribute to increases in FT shooting performance, particularly when it is combined with physical training. Taktek (2004) summarized several studies that indicate the following results: a) mental practice is superior to no practice, but can be inferior to physical practice; b) mental practice can be as effective as physical practice; and c) the combination of mental practice and physical practice can be superior to physical practice alone. However, what is not clear is whether or not technological applications (specifically podcasting) can enhance the sport imagery experience thereby enhancing sport performance. Therefore, the purpose of this study was to determine if podcasting can significantly increase FT shooting performance.

Rationale

The rationale for this study was supported by both logical and documented arguments. A diagram of logic (Figure 1) illustrates the basic rationale for conducting this study. The rationale consisted of several underlying components including: the dynamics of FT shooting (Huston & Grau, 2003; Okubo & Hubbard, 2006), the evidence that mental imagery works (Morris, Spittle, & Watt, 2005; Weinberg & Gould, 2007), the emergence of mobile technology along with the great demand for mobile devices (Holtz & Hobson, 2007; Naismith, Lonsdale, Vavaoula, & Sharples, 2004), and the phenomenal rise of podcasting as a new medium (Holtz & Hobson, 2007; Geoghegan & Klass, 2007). It is also significant to mention that since podcasting is relatively new to sport psychology research, it is likely that this study will raise many other questions that will foster future investigations.

Figure 1 Diagram of Logic



Background

Podcasting can be used for a variety of applications and is already being used in education, business, medicine, mainstream media, and entertainment (Holtz & Hobson, 2007; IDG Global Solutions, 2006; Morris & Terra, 2006). The field of sport psychology could also benefit from the use of podcasting considering that it can be instrumental in both physical and mental preparation (Berger, Pargman, & Weinberg, 2002; Moran, 2002; Taktek, 2004; Taylor & Wilson, 2005, Weinberg & Gould, 2007). For instance, coaches could use podcasts as a direct training tool for memorizing specific offensive and defensive plays, studying opponent strengths and weaknesses, and learning overall game strategy. Sport psychologists could also use podcasts to aid mental training by guiding athletes through an entire imagery script or a specific situation. In turn, athletes can use podcasts to learn new skills or improve current ones. This, of course, can be accomplished with or without supervision. Also, *podcast training* is individual-specific and can be performed at the convenience of the athlete (Geoghegan & Klass, 2007; Holtz & Hobson, 2007). The athlete can choose the type of podcast, when to listen or watch, and where to do it.

In addition, athletes could use podcasts as an alternative to physical performance, particularly during restricted playing time or during injuries. Berger, Pargman, & Weinberg (2002) stated that during the past two decades mental imagery has received a considerable amount of attention from health professionals working with ill and injured athletes. Morris, Spittle, & Watt (2005) declared that imagery can play a key role in rehabilitation as healing imagery, pain-management imagery, rehabilitation-process imagery, and performance imagery. It is evident that podcasting can be used for numerous applications and can offer an innovative strategy in facilitating sport imagery for performance enhancement during active participation and during the rehabilitation process.

Mental imagery training has been explored in various sports including basketball, baseball, golf, canoe-slalom, netball, football, darts, bowling, and many others (Brouziyne & Molinaro, 2005; Callow & Hardy, 2001; Kornspan, Overby, & Lerner, 2004; Landau, Leynes, & Libkuman, 2001; MacInyre, Moran, & Jennings, 2002; Monserrat, 2004; Paiva, 2006). Among the many sport skills, basketball FT shooting has received much attention and has been shown to benefit from mental training (Carboni, Burke, Joyner, Hardy, & Blom, 2002; Hamilton & Fremouw, 1985; Savoy & Beitel, 1996; Shambrook & Bull, 1996; Wrisberg & Anshel, 1989).

Surprisingly, only a few studies have investigated technological applications of sport imagery. Morris, Spittle, & Watt (2005) did suggest that technical techniques such as *video modeling*, *biofeedback*, and *flotation* are worthy considerations in the application of imagery in sport. Bennett (2006) recommended that podcasting can be used in athletic training to communicate with patients or athletes, distribute continuing education courses, and teach athletic training students. However, no studies have been conducted to investigate how technology (specifically podcasting) can be used to apply sport imagery for enhancing FT shooting performance. There is a clear need for more research to determine how current technology can contribute to applications of sport imagery and enhancing sport performance.

Instead, the majority of attention in podcasting has been linked to educational or training purposes. In fact, education is one area where podcasting has already received widespread acceptance as a learning medium. Educational institutions, particularly in America and Europe are using podcasts to record lectures, lessons, and other learning materials and are using podcasts to allow students to submit work and express their creativity (IDG Global Solutions, 2006). Professional businesses including IBM, The Otter Group, Herbalife, General Motors, and Capital One are also benefiting from the use of podcasts (Islam, 2007; Weinstein, 2006). These and

many other companies are using podcasts to distribute information, to train their employees, and to market new products (IDG Global Solutions, 2006; Islam, 2007; Holtz & Hobson, 2007; Morris & Terra, 2006). Sport psychology professionals need to take note on how podcasting works in the educational and corporate arenas. Specifically, sport psychologists, coaches, and athletes need to work together to determine how podcasting can be successfully incorporated for sport training and for sport competition.

Purpose

Podcasting is still a relatively new idea in sport psychology. Therefore, there are several unknowns and research is essential in filling this gap of knowledge. The goal of this study was to investigate whether podcasting can be a valid tool in facilitating sport imagery to increase FT shooting performance. This involved several objectives. Overall, I wanted to determine if podcasting can enhance the imagery experience and thereby increase FT shooting performance. I also wanted to determine whether or not listening to a podcast on an iPod would result to greater increases in FT shooting performance compared to listening to a podcast on a computer or reading from a podcast script.

There were numerous factors to consider in this study including podcast type, frequency and duration of podcasts, and location while listening to or viewing a podcast. It was also important to consider when podcasts are most effective. It should be established whether it is best to listen to or view a podcast before, during, or after shooting free throws. Another influencing factor is the nature of activity. For example, is it better to listen to or view a podcast while sitting in a quiet room or is it equally effective when performing other activities? Examining such factors will provide a better understanding on how podcasting can work in

facilitating sport imagery and enhancing sport performance. Many of these factors were considered in the design of this study.

A review of literature indicated gaps in knowledge that also contributed to the study design. Evidence is abundant that mental training is highly valued and successfully employed by elite athletes, but more research is needed to confirm that novice performers can also benefit (Liggett, 2000; Moran, 2002; Morris, Spittle, & Watt, 2005; Porter, 2003; Taktek, 2004; Taylor & Wilson, 2005; Vealey & Greenleaf, 2001; Weinberg & Gould, 2007). A study using high school subjects is appropriate and worthwhile. Also, sport imagery research has focused primarily on visual and kinesthetic imagery (Taktek, 2004). Using auditory imagery for this study can gain support for other forms of imagery.

Research Questions

Considering the research objectives and the factors involved, the following research questions were addressed in this study:

1. How does sport imagery ability relate to FT shooting performance improvement (pretest-posttest difference)?
2. Is there a significant group difference at the pretest?
3. Is there a significant group difference at each testing session (Test 1, 2, 3, 4, 5, 6)?
4. Is there a significant group difference at the posttest?
5. What is the true source of any significant group differences?

The research questions support the overall question and purpose for the study:

Does podcasting significantly increase FT performance among high school basketball players?

Significance of the Study

There is a large amount of empirical evidence that supports that mental imagery works (Liggett, 2000; Moran, 2002; Morris, Spittle, & Watt, 2005; Porter, 2003; Taktek, 2004; Taylor & Wilson, 2005; Vealey & Greenleaf, 2001; Weinberg & Gould, 2007). Anecdotal evidence is also plentiful, including several accounts from well-known athletes of various sports. For example, golfer Tiger Woods has acknowledged the importance of seeing and feeling desired shots in the mind prior to physically hitting the golf ball (Moran, 2002). Tennis great Chris Evert visualized matches based on her opponent's style of play (Weinberg & Gould, 2007). Evert was quoted that she often felt like she had already played a match even before stepping on the court (Weinberg & Gould, 2007). Hockey legend Wayne Gretzky used visualization by looking at pictures of previous champions and repeatedly envisioning himself holding the Stanley Cup (Orlick, 1998). Two-time Olympic Gold Winner Greg Louganis used imagery by visualizing his dives in slow motion (Liggett, 2000; Louganis & Marcus, 1995). Many other great athletes have been known to use some form of imagery including Muhammad Ali, Michael Jordan, Bill Russell, Andre Agassi, and Carl Lewis (Liggett, 2000; Porter, 2003).

Sport imagery is not only valued by the athletes, but also by many coaches. One coach that is probably the most recognized for using sport imagery is Hall of Fame coach Phil Jackson, who methodically employs mental concepts and techniques to the game of basketball. In Jackson's books (*Sacred Hoops: Spiritual Lessons of a Hardwood Warrior*, 1996; *More than a Game*, 2001; *The Last Season: A Team in Search of its Soul*, 2005) he described the importance of the intellectual component of playing basketball and how it contributes to personal and team success. With nine NBA (National Basketball Association) championships, Jackson's teams definitely had the mental edge over their opponents.

The collection of empirical and anecdotal evidence makes it apparent that sport imagery plays a key role in athletic performance and sport success. Research findings also indicate that sport imagery is more effective when it is combined with physical practice (Morris, Spittle, & Watt, 2005; Taktek, 2004; Weinberg & Gould, 2007). Any improvements to either mental training or physical training, or both, would certainly result in greater gains in sport performance. Therefore, it is important to determine the best methods to enhance the sport imagery experience in conjunction with physical training.

Technology can enhance the sport imagery experience through the use of technological applications and the use of technical devices (Morris, Spittle, & Watt, 2005). An innovative way to apply technology for sport imagery is through podcasting. Podcasting is a compelling technique because it combines current communication technology with the iPod, perhaps the most popular modern device to date (Mack & Ratcliffe, 2007). In January 2008 Apple reported that the number of iPods sold have reached over 140 million, making the iPod the most widely-used digital device worldwide (Benderoff, 2008; Kahney, 2005; Oswald, 2008; Vann, 2008).

Significant findings of this study will have several contributions. Overall, findings of this study will add to the body of knowledge in sport psychology. Specific contributions include the following: 1) significant results will strengthen the evidence that technology can enhance the imagery experience, 2) significant results will validate podcasting as a successful method in increasing FT shooting performance, 3) significant results will confirm that novice performers can successfully conduct sport imagery like their expert counterparts, 4) significant findings will strengthen support for auditory imagery as an effective form of sport imagery, and 5) this study will generate more questions that will foster future research.

Delimitations

This study was delimited by the following:

1. Study was conducted from January 2008 through March 2008.
2. The sample population for the study included both male and female high school basketball players from Oklahoma, but gender differences were unaccounted for.
3. Administration of testing was conducted on different days and at separate locations.

Assumptions

This study included the following assumptions:

1. Subjects performed at maximum effort during all FT testing sessions.
2. Subjects conducted mental practice at home as instructed.
3. Subjects answered all the questions on the Sport Imagery Evaluation truthfully.

Hypotheses

The following hypotheses were made in this study:

1. Sport imagery ability is related to FT shooting performance improvement.
2. No significant group difference is present at the pretest.
3. Significant group difference is present at each testing session (Test 1, 2, 3, 4, 5, 6)
4. Significant group difference is present at the posttest.
5. The true source of any significant group difference is between one of the experimental groups and the control group.

Null Hypothesis

The null hypothesis for the pretest, testing sessions (test 1-6), and posttest:

Pretest H_0 : script \neq computer \neq iPod \neq control

Test 1-6 H_0 : script = computer = iPod

Posttest H_0 : script = computer = iPod = control

* Each hypothesis was tested at $p < .05$

Definition of Terms

The following terms are operationally defined:

Biofeedback – a technique used in sport psychology to enhance sport imagery and athletic performance involving the use of various electronic devices to detect or record physiological signals (i.e. heart rate, brain activity, muscle tension, etc.).

Floatation – a technique used in sport psychology to enhance sport imagery and athletic performance involving the use of a floatation tank in which the athlete floats supine (with most of the body under water except the face, chest, and abdomen).

Free Throw Imagery – the use of sport imagery techniques to enhance free throw shooting performance during practice and competition.

Imagery script – a scripted dialogue of a sport imagery event or experience intended to be read or listened to during sport imagery training.

iPod – digital media player created by Apple, Inc. (includes all iPod models).

Podcast – refers to the media file in podcasting, usually in the form of images, audio, or video.

Podcast training – the use of podcasts for imagery training to enhance sport performance.

Podcasting – the process of creating and distributing digital media files (images, audio, or video) over the internet for future download and playback on a computer or a digital media player.

Sport Imagery – using all senses to re-create or create a sport experience in the mind with the goal of enhancing sport performance during training and competition.

Video modeling – a technique used in sport psychology to enhance sport imagery and athletic performance involving the use of video equipment to view an expert athlete performing a skill correctly or at peak performance.

Summary

Podcasting is a promising technological application of sport imagery to enhance sport performance. The purpose of this study was to determine if podcasting can significantly increase FT shooting performance among high school basketball players. Significant findings of this study will contribute to the field of sport psychology, provide supporting evidence that technology can enhance the imagery experience, recommend that podcasting is a valid method in increasing FT shooting performance, confirm that novice performers can successfully conduct sport imagery like their expert counterparts, and support auditory imagery as an effective form of sport imagery. In addition, since podcasting is relatively new to sport psychology research, it is expected that this study will produce other questions that will foster future investigations.

The following chapters include a review of literature (Chapter II), a description of methods and procedures used in the study (Chapter III), a presentation and discussion of results (Chapter IV), and a summary of significant findings, conclusions, and recommendations for future research (Chapter V). In addition, all documents and forms that were used for the study are included in the appendix section.