RELATIONSHIP AMONG THE TYPES AND USE OF SELF-TALK, FREE THROW PERCENTAGE, AND ANXIETY OF COLLEGIATE BASKETBALL PLAYERS

By

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A Thesis Presented to

The Faculty of Humboldt State University

In Partial Fulfillment of the Requirements for the Degree

Masters of Science in Kinesiology: Teaching/Coaching

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December 2013

ABSTRACT

RELATIONSHIP AMONG THE TYPES AND USE OF SELF-TALK, FREE THROW
PERCENTAGE, AND ANXIETY OF COLLEGIATE BASKETBALL PLAYERS

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Problem: The types and use of self-talk and anxiety has been researched within athletics, identifying the overall influence on sport performance; however, this is first study to evaluate the use of self-talk and anxiety levels during close games. The purpose of this study was to examine the relationships among the types and use of self-talk, free throw percentage, and anxiety of collegiate basketball players during competition and close games. Method: Collegiate basketball players (N=26) completed a survey consisting of demographic information and questions adopted from the Competitive State Anxiety Inventory-2R (CSAI-2R) and the Self-talk Use Questionnaire (STUQ). Free throw percentages were obtained by accessing archived data from the previous season. Results: The mean free throw percentage was 66.7% ($SD = 10.24$) during competitions and 60.8% ($SD = 30.27$) during close games. Mean self-talk scores revealed "medium" use of self-talk in both settings, while mean anxiety scores shifted from a "low" anxiety level in competition to a "medium" anxiety level in close games. Correlations revealed the percentage of positive self-talk used by participants was positively correlated with free throw percentage during competition ($r = .254$, $p = .210$), and negatively correlated with anxiety during competition ($r = -.304$, $p = .131$) and close games ($r = -.073$, $p =$

.722), but were not significant. The percentage of negative self-talk was negatively

correlated with free throw percentage during competition ($r = -.192$, $p = .348$) and

positively correlated with anxiety during competition ($r = .444$, $p = .023$) and close

games ($r = .182$, $p = .373$), although only one correlation was significant. Conclusion:

These findings suggest that there are benefits for collegiate basketball players using

different types of self-talk during sport performance. The relationship among these

variables have identified that the use of self-talk is related to an increase in free throw

performance and a decrease in anxiety among the participants.

ACKNOWLEDGEMENTS

I would like to thank the following individuals who supported me throughout my entire graduate studies experience. I would like to thank my mother, Molly Campbell, for pushing me to my limits, knowing I am capable of overcoming anything. Your persistence has helped me stay focused on my dreams. I would like to thank my father, Robert Bobic, for always giving me great advice and teaching me that you have to fight for what you want to accomplish; nothing comes easy. Christin Gowan, I cannot thank you enough for your perseverance in motivating me through this process. You always saw the positive in every scenario and constantly reminded me that there is a light at the end of the tunnel. Your willingness to put people before yourself is the best characteristic someone can have and I am extremely grateful to have you in my life. You are the epitome of a "giver" and I appreciate that quality you convey. To my thesis chair, Sheila Alicea, thank you for your guidance. I appreciate the countless hours you invested in mentoring me and providing me with the necessary tools to accomplish my goals. To my committee members, Rock Braithwaite and Tina Manos, I appreciate your patience and your direction throughout the thesis writing process. You are all extraordinary at what you do, and you do an exceptional job making great individuals out of everyone that has had the opportunity to work with you. I thank you for your dedication to the field of Kinesiology and making individuals identify their true strengths and abilities.

"Those who have the ability to be grateful are the ones who have the ability to achieve greatness." ― *Steve Maraboli*

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CHAPTER ONE

Introduction

Self-talk is a cognitive behavioral technique based on the principle that what people say to themselves affects the way they behave (Ellis, 1976). Although self-talk strategies have been used to regulate and change existing thought patterns among individuals for many years, within the past few decades these strategies have recently been introduced to the athletic population. The use of self-talk among athletes helps control and organize the athletes' thoughts in order to increase sport performance (Hatzigeordiadis, Zourbanos, Galanis, & Theodorkis, 2011). Johnson, Hrycaiko, Johnson, and Hallas (2004) suggested that the core of self-talk is that focusing on the desired thought leads to the desired behavior. Having positive thoughts about completing a task can potentially help athletes be more successful at the task at hand.

However, not every athlete has the ability to focus on positive thoughts, especially in close game situations, when the point spread between the teams is within five points with less than five minutes to go in the game. In many cases, athletes face an increase in cognitive and/or somatic anxiety, which may create a debilitating effect known as choking. Hardy, Jones, and Gould (1996) suggested that choking occurs when an athlete or an entire team fails to perform successfully in a key situation, therefore, causing them to lose the game the team was initially favored to win. Anxiety creates a sense of "fear of failure" in the mind of the athlete who is faced with a pressure situation in which the game is in his or her hands (Markman, Maddox, & Worthy, 2006).

Choking in Sports

Athletes often encounter pressure situations such as a game-winning free throw in an important game; however, if an athlete fails to prepare oneself for these situations, it is common to see what is known as choking (Markman, Maddox, & Worthy, 2006). Underperforming on a task relative to an individual's typical ability because of an acute stressor occurs often in a close game situation (Worthy, Markman, & Maddox, 2009). The choking model (Anshel, 2003) explains how choking can affect sport performance. Conditions that lead to choking include the importance of the game or competition (e.g., championship game), critical plays in a competition, and evaluation by others such as coaches, peers, and parents. Athletes then experience attentional and physical changes due to these conditions. Attentional changes include narrowing of attention (e.g., too focused on specific task) or distractions (e.g., crowd noise). Physical changes include increased heart rate, muscle tension, and disruption in muscular coordination (Anshel, 2003). These combined factors increase the probability of performance impairment in those conditions. The physical and attentional changes in the choking model closely resemble symptoms of anxiety, which play a significant role in sports performance (Zinnser et al., 2006).

Anxiety and Athletic Performance

Anxiety is a psychological state characterized by cognitive, somatic, emotional, and behavioral components (Gooding & Gardner, 2009). There are many different types of anxiety including trait anxiety, state anxiety, cognitive anxiety, and somatic anxiety. Trait anxiety is the way someone responds to state anxiety and is relatively stable to

one's personality (Gooding & Gardner, 2009). Athletes who are trait anxious may experience anxiety throughout an entire game or competition. On the other hand, state anxiety is a temporary emotional condition characterized by fear and tension about a particular situation or activity (Martens, Vealey, & Burton, 1990). State anxiety is evaluated more frequently than trait anxiety since a specific event, such as shooting a game-winning free throw, can increase anxiety levels, which in turn, may lead to a negative outcome.

Cognitive and somatic anxiety are two types of anxiety that individuals may experience when competing. Cognitive anxiety is anxiety that is perceived by the individual in terms of how the individual feels about a situation (Smith, Smoll, & Schutz, 1990). This type of anxiety is based on the thought process of an individual (e.g., the worry or fear he or she may encounter). On the other hand, somatic anxiety is defined as one's perception of the psychological affective elements of the anxiety experience and is indicated by autonomic arousal and unpleasant feelings (Vickers & Williams, 2007). Furthermore, somatic anxiety refers to the perception of one's physiological arousal symptoms (e.g., increased heart rate, shortness of breath, stomach aches, nausea; Vickers & Williams, 2007). These mental thoughts and physical effects may hinder an athlete's performance.

These components of anxiety combine to create stress, fear, and worry, which can either improve or impair performance, depending on the individual (Gooding & Gardner, 2009). Athletes have the ability to regulate their anxiety and turn it from debilitative to facilitative; however, in many cases, they are unaware of how to make this change, which

hinders performance as a whole. Singer (2002) suggested that the ability to self-regulate one's anxiety level during competition may be as important as becoming skilled in the sport itself. If anxiety is not regulated and used advantageously, it will inhibit one's ability to perform a task successfully (Singer, 2002).

Athletes experience different levels of anxiety during different periods of competition but anxiety typically increases dramatically when the game is close and there is limited time remaining in the competition (Gooding & Gardner, 2009). Even elite and professional basketball players encounter the problem of missing free throws in high anxiety, close game situations. In order to use anxiety to one's advantage, the optimal level of anxiety of each individual athlete must be identified.

The Individualized Zones of Optimal Functioning (IZOF)

Reaching an optimal level of anxiety in order to achieve increased performance should be every athlete's goal. Hanin (2007) focused on the relationship between individualized optimal anxiety and performance. He explained how each person is different, and athletes should have the ability to identify their own optimal level of anxiety in order to be successful in tasks that need to be accomplished. For instance, one athlete might have the ability to perform better with a higher anxiety level, whereas other athletes can only perform successfully with little to no anxiety at all (Hanin, 2007). Since each individual is different, anxiety can pose as facilitative in some athletes, whereas a majority of athletes find anxiety to be debilitative. Therefore, if an individual's anxiety has increased above an optimal level, anxiety-reducing techniques can be used to bring anxiety back down to its optimal level in order to perform at a peak level.

Cognitive Training Techniques

A number of researchers have investigated the effects of cognitive training techniques for anxiety reduction across different sports (Church, 2009; Haddad & Tremayne, 2009; Hatzigeorgiadis, Zourbanos, Mpoumpaki, & Theodorakis, 2009). Cognitive training techniques include imagery, focus breath, and self-talk. These techniques can increase confidence and help individuals see themselves completing the task successfully, especially when performing under stressful situations (Gooding & Gardner, 2009). Instead of focusing on avoiding failure, completing structured cognitive training can help individuals set their minds on thinking positively in order to accomplish a task successfully, ultimately having a positive effect on overall sport performance. Zinnser et al. (2006) suggested that self-talk can serve to regulate effort and enhance self-confidence in sports while Hardy, Jones, and Gould (1996) added that self-talk can also have an effect on controlling anxiety and generating appropriate sport-specific actions.

Types of Self-talk

Self-talk is the ongoing conversation individuals have with themselves, which influences how they feel and behave (Hatzigeordiadis et al., 2009). There are many different types of self-talk including positive self-talk (typically defined as instructional or motivational self-talk), negative self-talk, and neutral self-talk. Positive self-talk covers a broad spectrum of internal thoughts, but in general helps an individual focus on positive statements of a desired outcome or goal. More specifically, positive instructional self-talk focuses on providing the athlete with instructions in regards to technique and form, whereas positive motivational self-talk aims to "psych up," maximize effort, build

confidence, and create a positive mood within the athlete (Hatzigeordiadis, Zourbanos, Galanis, & Theodorkis, 2011). Neutral self-talk may also help athletes complete a desired goal by taking their mind off of the intensity of a situation. Neutral self-talk is most commonly used among endurance athletes in order to take their minds off of the rigorous event they are participating in, such as a marathon. Neutral self-talk is somewhat uncommon among athletes in team or individual sports since it is important for athletes to keep their mind on relevant cues during the game (Gammage, Hardy, & Hall, 2001).

While positive instructional, positive motivational, and neutral self-talk assist individuals in performing successfully, negative self-talk often has a hindering effect on performance in a task. Negative self-talk is the thought of having doubt in oneself, which can create a debilitating feeling when attempting to accomplish a task (Gooding & Gardner, 2009). Recently, attention has been given to this topic within a sport context.

The Significance of Self-Talk During Sport Performance

Research in this area has progressively moved forward in terms of identifying the effectiveness of self-talk on sport performance (Hardy, 2006). Self-talk may influence the performance of athletes in different types of sports, skills, and settings. Self-talk interventions have been conducted in sports with closed skills such as tennis serves, dart throws, golf putts, and free throw shots in order to identify the effects of self-talk on sport performance.

Self-talk has been used by athletes during sport competitions in order to increase performance. For instance, positive instructional self-talk can be used by basketball players when shooting free throws. One may use this type of self-talk by telling

him/herself "extend the elbow and follow through." This instructional self-talk helps the

athlete focus on the importance of the mechanics of shooting a free-throw rather than

focusing on irrelevant cues that may distract him/her from being successful. Likewise,

basketball players who use positive motivational self-talk to build their self-confidence

when shooting free throws in a close game situation may increase their likelihood of

making the free throw. In this situation, the athlete may use a positive motivational

phrase such as "I can do it" (Hatzigeordiadis et al., 2011). Some athletes prefer using

neutral self-talk because it helps them disassociate from their thoughts about the task at

hand, essentially allowing muscle memory to run its course. For example, a basketball

player may sing a song in his or her head to avoid the negative thoughts of missing a free

throw (e.g., "I can't make the shot"). It is important for athletes to learn how to alter their

negative thought processes into more positive thought processes in order to increase

performance. Generally, self-talk can have facilitating or debilitating effects on an

individual's success in sports. If positive instructional, motivational, and neutral self-talk

is used correctly, it can substantially increase sport performance.

Researchers have concluded that positive motivational and instructional self-talk

have increased performance on a number of tasks in a variety of sports (Boroujeni &

Shahbazi, 2011). Multiple studies have been conducted in order to identify the effects of

positive instructional and motivational self-talk on sport performance (Boroujeni &

Shahbazi, 2011; Hatzigeorgiadis, Zourbanos, Galanis, & Theodorkis, 2011; Mallett &

Hanrahan,1997; Perkos, Theodorakis, & Chroni, 2002; Van Raalte et al., 1995). These

studies identified the use of the two types of self-talk and the potential influence it had on

motor skill improvement among novice athletes, predominantly improvements during closed-skilled tasks. For example, Van Raalte et al. (1995) studied the effects of self-talk on the task of dart throwing in which participants used positive motivational self-talk cues (e.g.,"I can do it"). Van Raalte et al. (1995) found the participants who used motivational self-talk threw the darts significantly more accurately than the control group, showing that self-talk had a positive effect on performance. Not only has self-talk been identified to improve sport performance, it has also played a role on the reduction of anxiety during sport performance.

Positive instructional and motivational self-talk have been identified to decrease anxiety levels during sport performance (Hatzigeorgiadis et al., 2009). Hardy et al. (1996) identified the importance of self-talk on controlling somatic and cognitive anxiety during sport performance. Furthermore, results from multiple studies have shown the effects of self-talk on reducing competitive anxiety, which is known as anxiety that is induced by a competitive setting (Hatzigeorgiadis et al., 2009; Zinner et al., 2006). Instructional and motivational self-talk have been shown to have effects on cognitive anxiety (Hardy, 2006; Hatzigeorgiadis et al., 2009; Hatzigeorgiadis et al., 2011); however, further research is required to represent the effects of instructional and motivational self-talk on the reduction of somatic anxiety.

The use of self-talk as a cognitive training technique has been used within many sports environments such as practice or game-like scenarios. Hatzigeorgiadis et al. (2009) assessed the use of self-talk among tennis players during the closed skill of serving and found tasks improved substantially. However, since this study examined tennis players in

a practice scenario, measures of anxiety were most likely lower than the anxiety level if the athlete was serving for the game winning point of the match. There has been limited research conducted in competition settings and no research has been completed regarding self-talk or anxiety during close games. Researching these variables during competition and close games can provide a more realistic findings for athletes and coaches in terms of relating these variables to live basketball games.

Other researchers have conducted studies with non-student-athletes from a university rather than collegiate athletes. For example, Boroujeni and Shahbazi (2011) used non-student-athletes from a university rather than collegiate basketball players to complete their experiment involving the influence of self-talk on the tasks of passing and shooting. Obtaining collegiate athletes as subjects for an experiment can potentially yield different results compared to using novice subjects since novices have greater room for improvement (Haddad, & Tremayne, 2009). Including collegiate athletes in study samples will potentially provide more practical and generalizable results about the effects of self-talk on performance during competitive competitions especially in closed skill tasks, to possibly be used by coaches and players.

Importance of Free Throws

Trained basketball players tend to be exceptional free throw shooters during practice, since shooting free throws is a closed skill. Jenkins (1977) described the closed skill of shooting free throws as having a stable environment, in which the player prepares for the shot with a routine, and he or she is unguarded. Therefore, basketball players are expected to make a higher percentage of free throws more than any other shot. However,

even though free throws are made consistently in practice, there is a substantially lower

success rate in competition. Kozar, Vaughn, Whitfield, Lord, and Dye (1994) showed

that overall free throw shooting percentage in practice was about 75%, whereas for

games, the percentage dropped to 69%. Since the mid-1960s, men's collegiate basketball

players have made approximately 69% of free throws during competition (Branch, 2009).

In 2009, the average was 68.8%. Throughout these years, the average free throw

percentage has reached a low of 67.1% but has never surpassed 70% (Branch, 2009).

With these statistics in mind, games can be won or lost at the free throw line. Free

throws make up approximately 20% of the points a team scores during a game (Kozar et

al., 1994). Many coaches believe it is the deciding factor in winning or losing a game,

especially in close games (Kozar et al., 1994). Ryan and Holt (1989) reported that the

team who obtains the higher free throw shooting percentage wins 80% of the time.

Within the last 5 minutes of a close game, free throws account for approximately 48% of

the scoring and within the last minute of a close game, free throws account for

approximately 69% of the points (Jenkins, 1977).

Given the importance of free throws to the game of basketball, one would expect

a steady increase in free throw percentage as individuals master the game and become

experts at playing. However, over the last 50 years, average free throw percentages have

not fluctuated substantially. Researchers have yet to explain the reason for the significant

difference between practice and game free throw percentage. Hardy et al. (1996)

suggested that one possible contribution to this free throw percentage in which athletes

are missing over one third of their free throws on average is the anxiety they may encounter during competition.

Purpose/Hypotheses

The purpose of this study was to examine the relationship among the types and use of self-talk, free throw percentage, and anxiety of collegiate basketball players. There were multiple hypotheses for this study: (a) the percentage of positive self-talk used will positively correlate with free throw percentage during competition; (b) the percentage of negative self-talk used will negatively correlate with free throw percentage during competition; (c) the percentage of positive self-talk used will negatively correlate with anxiety during competition and close games; and (d) the percentage of negative self-talk used will positively correlate with anxiety during competition and close games.

Key Terms

Self-talk: The act or practice of talking to oneself, either aloud or silently and mentally (Hardy, Gammage & Hall, 2001).

Anxiety: A negative emotional state in which feelings of nervousness, worry, and apprehension are associated with activation or arousal of the body. (Weinburg & Gould, 2007).

Close game: A basketball game that is within 5 points with less than 5 minutes remaining in the game (Jenkins, 1977).

CHAPTER TWO

METHODOLOGY

Participants

Participants included 54 (53 females, 1 male) collegiate basketball players between 18 and 25 years of age. To qualify for inclusion in this research study, participants must have attempted 30 free throws throughout the entire 2012-2013 season. Participants who shot less than 30 free throws can affect the results substantially because there is less room for error or more room for improvement (e.g., an overall 68% free throw shooter makes two out of two free throws for the season does not necessarily represent a 32% increase in free throw shooting). Participants must have played collegiate basketball at a NCAA Division I, II, or III school during the 2012-2013 season so free throw percentage data for these participants could be obtained (current Freshmen and Junior College transfers were excluded). Of the 54 athletes who attempted for inclusion in the study, 26 participants (26 females, 0 males) qualified. Of the 28 who did not qualify, 8 athletes failed to shoot 30 free throws throughout the entire 2012-2013 season, 9 athletes were freshman, and 11 surveys were incomplete.

Instruments

The survey included questions regarding positive instructional and motivational self-talk, negative self-talk, anxiety, and close game situations. The self-talk portion of the survey was obtained from the Self-Talk Use Questionnaire (STUQ; Hardy, Hall, & Hardy, 2004; 2005). This self-report questionnaire includes 59-items which assess the athletes' use of sport-related self-talk. Hardy, Hall, and Hardy (2005) identified that each

of the items of the survey is a single item measure of a particular aspect of self-talk,

explaining there are no true subscales within the STUQ. Therefore, for the current study,

only the questions regarding why individuals say internal thoughts to themselves in

competition and what they say were used (shown on page 4-6 in Appendix A). The

section of the survey consisting of why individuals say internal thoughts to themselves in

practice situations was modified to close games to fit this study. The participants

responded to these questions using a 9-point scale (1 = never, 9 = all the time). Examples

of questions obtained from the STUQ are, "In competition, how often do you say things

to yourself.... to refine a skill?... to help mentally prepare yourself?...to increase or

maintain your motivation?" In addition, the participants answered a set of questions

pertaining to what they say to themselves (i.e., positive, negative, and neutral self-talk).

This portion of the STUQ survey consisted of a percentage of positive, negative and

neutral self-talk used, when combined, would total to 100%. Since Hardy, Hall, and

Hardy (2005) identified that each of the items of the survey is a single item measure of a

particular aspect of self-talk, common indications of internal consistency or factorial

validity are not appropriate. However, the items of the STUQ do sample the full domain

of self-talk, which implies the instrument possesses content validity (Hardy, Hall, &

Hardy, 2005). The STUQ is reliable (.94) and valid (.64; Hardy & Hall, 2005).

     The anxiety portion of the survey was adopted from the Competitive State

Anxiety Inventory-2R (CSAI-2R; Cox, Martens, & Russell, 2003) as shown on page 7-8

in Appendix A. The CSAI-2R is a 27-item measure with three subscales, measuring

cognitive anxiety, somatic anxiety, and self-confidence (Craft, Magyar, Becker, & Feltz,

2003). For the current study, the self-confidence subscale was eliminated and only the cognitive and somatic anxiety subscales were used, a total of 18 items from the original survey. Examples of the cognitive anxiety items include, "I am concerned about this competition," and "I am concerned about losing" (Craft et al., 2003). Somatic anxiety statements include, "I feel nervous" or " I feel tense in my stomach."

Minor changes were made to make the survey fit the criteria for the current study. The CSAI-2R is typically completed by athletes prior to practice and competition. The participants were asked to answer the questions based on how they feel the moment they are completing the survey. However, for the current study, the participants were asked to recall how they felt when shooting free throws during competitions and close games six and a half months after the completion of the 2012-2013 season, recalling the use of self-talk and anxiety levels retrospectively. Of the 18 questions in the survey, three were adjusted to fit the criteria for the current study. "I am concerned about this competition" was changed to "I am concerned about the free throw"; "I am concerned I may not do as well in this competition as I could" was changed to "I am concerned I may not do well" ("when shooting free throws" was indicated at the top of the survey); and "I am concerned about losing" was changed to "I am concerned about missing." Responses were given on a four-point Likert scale from 1 (not at all) to 4 (very much so). The scores from the subscales result in a score to represent sport-specific cognitive and somatic state anxiety, ranging from 9 to 36 for each subscale, 9 indicating low anxiety and 36 indicating high anxiety. The CSAI-2R is an accurate measure used to assess the levels of anxiety each athlete encounters during sport performance, proven to be reliable (.74 to

.90) and valid (.85) in measuring these components among many athletes during

performance in a variety of previous studies (Craft et al., 2003; Hatzigeorgiadis et al.,

2009).

Procedures

IRB approval from Humboldt State University was obtained. In addition, IRB

approval was needed from the schools in which each potential participant attended in

order to gain permission to contact their coaches who would be forwarding the

recruitment e-mail; therefore, 38 college and university IRB offices were contacted by e-

mail and/or phone call. The approval process was inconsistent from school to school. A

number of schools provided direct approval by reviewing the Humboldt State University

IRB application while other schools required completion and approval of their IRB

application. A few schools required a sponsor from their school to represent the research

project. One school required an off-campus researcher fee while others did not allow

outside researchers use their students altogether. Of the 38 IRB offices contacted, IRB

approval from 9 schools was obtained.

Upon approval, an e-mail (text shown in Appendix B), describing the survey was

sent out to the basketball coaches. The coaches were advised to encourage their athletes

to participate in this survey and were provided information about the survey to copy/paste

or forward to their athletes. Upon receiving the e-mail, each athlete had the opportunity to

voluntarily participate in the study if he or she was interested. The volunteer participants

followed a website link, which directed them to the corresponding survey on

surveymonkey.com. Unfortunately, limited responses were obtained by using this method.

Facing the challenges of obtaining IRB approval from different colleges and universities, two additional methods (i.e., direct e-mail contact to athletes and Facebook contacts) were implemented after approval by the Humboldt State University in order to increase the number of participants being contacted. Year in school and number of free throws shot during the 2012-2013 season of potential participants were evaluated in order to identify the student-athletes who qualified for inclusion in this study. Once identified, the student directory was used to obtain student e-mail addresses for direct contact. Only current student information was provided; therefore, students who were seniors during the 2012-2013 school year were not contacted since no contact information was provided, eliminating a large population of possible participants. Facebook was also used to contact student-athletes directly; a post was written on the Facebook "wall" of 23 team's Facebook pages and a message was sent to encourage the coaches for athlete participation. The same e-mail message, as seen in Appendix B, was used to contact the students through e-mail and Facebook. However, when contacting the students directly, the section addressed to the coaches was eliminated.

Prior to beginning the survey, the participants were directed to surveymonkey.com and were required to electronically sign the consent form (pages 1-2 of Appendix A). The survey (pages 3-8 of Appendix A) was comprised of demographic information, questions adopted from the STUQ (Hardy, Hall, & Hardy, 2004; 2005) and the CSAI-2R (Cox, Martens, & Russell, 2003). The answers provided were kept

confidential and only the research team had access to the results. The survey took

approximately 15 minutes to complete. Upon completion of the survey, the participants

had the opportunity to enter into a drawing for a chance to win a $25 Nike gift card by

responding to the question on the final page of the survey and providing their e-mail

address. The winner was chosen randomly using a random number generator. The

participants were only contacted in regards to winning the drawing or if they were

interested in obtaining a summary of the results.

Upon completion of the survey data collection, the primary researcher calculated

the STUQ and CSAI-2R scores for each participant. The spreadsheet was then given to

an assistant researcher and free throw statistics were obtained by reviewing archived data

from the corresponding college or university athletic website. The participants' overall

free throw percentages during the entire 2012-2013 season, along with the free throws

attempted and free throws made during only close games were obtained and entered into

the spreadsheet for each participant. The assistant researcher then assigned each

participant a random number in a spreadsheet. This blind review process helped ensure

accuracy and eliminate bias. Once the participants were randomly assigned numbers and

their free throw statistics were entered into SPSS, the primary researcher began the data

analysis portion of the study.

Data Analysis

At the conclusion of the survey collection period, the data from the CSAI-2R

survey, STUQ survey, and free throw statistics were entered into SPSS, analyzed, and

checked for accuracy. An overall use of self-talk score, overall anxiety score, and free

throw percentage were obtained for both competition and close games for all participants. The percentages of types of self-talk used (positive, negative, and neutral self-talk) were obtained for competition. Descriptive statistics were obtained for all variables, which included the mean, standard deviation, and range. A Pearson product-moment correlation was used to identify the relationship between the two variables in hypotheses a through d (i.e., the use of self-talk, free throw percentage, and anxiety).

CHAPTER THREE

Results

The descriptive statistics for all variables are shown in Table 1. The self-talk scores during competition ranged from 12 to 100 with a mean of 68.46 (SD = 22.90) and self-talk scores during close games ranged from 24 to 108 with a mean of 69.73 (SD = 25.92). Both scores for each situation are considered "medium" use of self-talk (Hardy, Hall, & Hardy, 2004; 2005). The mean scores for self-talk use were similar during competition and close games, identifying there was little difference in self-talk used in both scenarios. Of the self-talk used by the participants, the majority was positive in nature (M = 54.04%, SD = 20.35); however, some participants did indicate use of negative self-talk (M = 23.65% (SD = 19.00), and neutral self-talk (M = 21.92%, SD = 17.89) as well.

Table 1 also represents the mean free throw percentages during competition and close games. Of the 26 subjects in this study, 19 shot at least one free throw during a close game. Therefore, only the 19 participants who shot free throws in both scenarios were included when analyzing the differences in free throw percentages between competitions and close games. The mean free throw percentage for the 19 subjects was 66.7% (SD = 10.24) during competitions, while the mean free throw percentage dropped to 60.8% (SD = 30.27) during close games.

Anxiety scores during competition ranged from 20 to 61 with a mean of 35.5 (SD = 11.95), which is considered a "low" anxiety level (Cox, Martens, & Russell, 2003). On the other hand, the anxiety scores during close games ranged from 23 to 63 with a mean

of 41.23 (*SD* = 12.86), which is considered a "medium" anxiety level. This increase of

mean anxiety level scores from competition to close games identifies that on average,

individuals encountered more anxiety when shooting free throws during close games

compared to shooting free throws throughout the rest of the competition.

Table 2 represents the Pearson product-moment correlations between all

variables. The percentage of positive self-talk used by participants was positively

correlated with free throw percentage during competition (*r* = .254, *p* = .210), but was not

significant. The percentage of negative self-talk used negatively correlated with free

throw percentage during competition, however, again was not significant (*r* = -.192, *p* =

.348).

The percentage of positive self-talk used was negatively correlated with anxiety

during competition (*r* = -.304, *p* = .131) and close games (*r* = -.073, *p* = .722), but was

not significant. The percentage of negative self-talk used showed a significant positive

correlation with anxiety during competition (*r* = .444, *p* =.023) but failed to show the

same significance during close games (*r* = .182, *p* = .373). Further exploratory data

analyses separating somatic and cognitive anxiety into individual subscales did not reveal

any significant differences between positive and negative self-talk and the types of

anxiety experienced by the participants.

Table 1: Descriptive Statistics for All Variables

		Competition				Close Games		
	N	Range	M	SD	N	Range	M	SD
Self-Talk Score	26	12-100	68.46	22.90	26	24-108	69.73	25.92
Positive ST %	26	25-90	54.04	20.35			____	____
Negative ST %	26	0-70	23.65	19.00			____	____
Neutral ST %	26	0-60	21.92	17.89			____	____
FT %	19	46.9-93.5	66.7	10.24	19	0-100	60.8	30.27
Anxiety Score	26	20-61	35.50	11.95	26	23-63	41.23	12.86

Table 2: Correlations Among All Variables

		Competition FT%	Close Game FT%	Positive ST%	Negative ST%	Competition Self-talk Score	Close Game Self-talk Score	Competition Anxiety Score
Close Game FT%	Pearson Correlation	.367						
	Sig. (2-tailed)	.122						
	N	19						
Positive ST %	Pearson Correlation	.254	.000					
	Sig. (2-tailed)	.210	1.000					
	N	26	19					
Negative ST%	Pearson Correlation	-.192	-.133	-.606**				
	Sig. (2-tailed)	.348	.586	.001				
	N	26	19	26				
Competition Self-talk Score	Pearson Correlation	-.099	-.142	-.044	-.103			
	Sig. (2-tailed)	.630	.562	.829	.617			
	N	26	19	26	26			
Close Game Self-talk Score	Pearson Correlation	-.090	-.165	.156	-.104	.810**		
	Sig. (2-tailed)	.663	.499	.446	.612	.000		
	N	26	19	26	26	26		
Competition Anxiety Score	Pearson Correlation	-.413*	-.052	-304	.444*	.360	.317	
	Sig. (2-tailed)	.036	.832	.131	.023	.071	.114	
	N	26	19	26	26	26	26	
Close Game Anxiety Score	Pearson Correlation	-.233	-.065	-.073	.182	.356	.526**	.541**
	Sig. (2-tailed)	.252	.791	.722	.373	.074	.006	.004
	N	26	19	26	26	26	26	26

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

CHAPTER FOUR

Discussion and Conclusion

  The current study examined the relationship among the types and use of self-talk, free throw percentage, and anxiety of collegiate basketball players. Although, due to the small sample size, results cannot be generalized to a larger athletic population, results from this exploratory study are a beneficial starting point for research examining the use of self-talk and levels of anxiety while shooting free throws during competition and close games. Findings from this study both support and refute previous research, and more research directly related to collegiate basketball players and free throw shooting specifically needs to be conducted.

  Descriptive statistics identified the use of self-talk scores during competition and close games as similar in both scenarios. The use of self-talk was expected to increase during close games compared to during an entire competition. Hardy, Hall, and Hardy (2004) identified that athletes' use of self-talk gradually increased from the off-season, to preseason practice, to before and during competition. According to Hardy, Hall, and Hardy (2004; 2005), the use of self-talk was used most during competition. Therefore, it was expected that with the weight of the situation at hand, the internal conversation should increase substantially. For example, during a close game, one missed free throw can be the difference between winning and losing a game. This kind of pressure may elicit an increase in self-talk, in which athletes discuss every scenario in their minds that can potentially occur when shooting free throws during a close game. The similarities in

self-talk use during competition and close games (with only a slight increase in self-talk used during close games) in the current findings can be due to the retrospective nature of the data collection for self-talk use, in which athletes were asked to recall the use of self-talk for the previous season.

The percentage of positive self-talk used by participants was reported much higher than the percentage of negative and neutral self-talk used. These findings are consistent with previous research completed by Rotella et al. (1980), in which they identified that a majority of elite skiers had positive thoughts when competing (M = 66.0%). It seems as though most athletes self-report mainly using positive self-talk throughout competitions, however, circumstances such as high stressful situations (e.g., close games) are typically dominated by negative self-talk (Hardy, Gammage, & Hall, 2001). Negative self-talk overpowers the thought process under stressful conditions and individuals may begin to doubt their ability to perform. Although not collected in this study, identifying how much of the 23.65% negative self-talk and 21.92% neutral self-talk reported was actually used during close games could potentially explain the decrease in free throw percentage from 66.7% during competition to 60.8% during close games. This decrease could be due to the type of self-talk being used during close games, which would be consistent with the research completed by Hardy, Gammage, and Hall (2001).

Descriptive statistics revealed the mean free throw percentage during competitions for the participants was higher than the mean free throw percentage for free throws shot only during close games. This information supports previous research, identifying that there are factors in addition to self-talk that influences sport performance,

especially in high stressful situations such as close games (Hatzigeorgiadis, & Biddle, 2008; Markman, Maddox, & Worthy, 2006; Van Raalte, 1995). High stressful situations limit the ability to focus on the task at hand, ultimately having a negative effect on sport performance. Shooting a free throw during a critical play demands high attentional focus and may also create physical changes to the body such as increased muscle tension or heart rate. Both of these factors can create performance impairment that may be the cause of lower free throw percentage during close games compared to competition. Having the ability to recognize what factors are causing a decrease in performance can be beneficial for the athlete. Once the factors are targeted, the negative factors can be minimized in order to increase sport performance.

There were multiple hypotheses for this study. The first hypothesis predicted the percentage of positive self-talk used would positively correlate with free throw percentage during competition. This hypothesis was supported by the results found in this study (although not significant), which is consistent with the findings of multiple researchers who have identified the relationship between positive self-talk and increased sport performance (Boroujeni & Shahbazi, 2011; Hatzigeorgiadis et al., 2011; Mallett & Hanrahan,1997; Perkos, Theodorakis, & Chroni, 2002; Theodorakis et al., 2001). Furthermore, Hatzigeorgiadis, Theodorakis, and Zourbanos (2004) identified similar results among athletes competing in water polo tasks. The use of self-talk facilitated performance by reducing interfering thoughts, ultimately increasing sport performance by enhancing concentration to the specific task (Hatzigeorgiadis, Theodorakis, & Zourbanos, 2004).

Contrary to previous research, recent research by Beilock (2010) described the use of "overthinking" as having a negative effect on performance among highly skilled, professional athletes. In other words, dwelling on a task too much (excessive self-talk) overrides the well-trained muscles, known as muscle memory (Beilock, 2010). Lee, Blumenfeld, and D'Esposito (2013) termed this concept "paralysis by analysis." This concept was tested by using transcranial magnetic stimulation. The "take charge" part of the brain, known as executive functioning, was evaluated to see how it affected the part of the cortex responsible for muscle memory. Lee, Blumenfeld, and D'Esposito (2013) found that if the executive region was activated, the activity in the muscle memory area decreased and when the executive region was limited, the muscle memory region became more active. These results suggest that overthinking may indeed have a negative impact on the ability to repeat a mastered task. Underperforming a mastered task (given the conditions leading to choking outlined in chapter one) is known as choking. Relating this concept to the current study potentially describes why the use of positive self-talk did not significantly correlate with increased performance. Beilock (2010) suggested that in order to increase performance, distractions such as singing a song during high stressful situations should be used. This use of neutral self-talk allows the brain to use muscle memory, instead of thinking intensely about being successful (Beilock, 2010; Dye, 2013).

The second hypothesis was the percentage of negative self-talk used would negatively correlate with free throw percentage during competition. The hypothesis was supported; however, it was not significant. Previous research completed by Van Raalte et al. (1995) also identified that the use of negative self-talk decreased sport performance

among dart players. Similarly, Dagrou, Gauvin, and Halliwell, (1992) completed a study using college students attempting the task of throwing darts. The students were asked to repeat negative verbalizations in between each trial, which negatively affected performance. These results conclude that negative self-talk should be limited or avoided completely in order to increase sport performance. Contrary to most research, Highlen and Bennett (1983) found that negative self-talk might actually be associated with improved sport performance. Highlen and Bennett (1983) studied the use of positive and negative self-talk among elite divers and wrestlers, identifying the use of negative self-talk among wrestlers actually facilitated sport performance. Though most research, including the research completed by Van Raalte (1995) and Dagrou, Gauvin, and Halliwell, (1992) provide sufficient evidence that negative self-talk decreases sport performance, not all research provides the same evidence, as seen by Highlen and Bennett (1983). Therefore, different types of self-talk used by individuals can yield different results. Individual differences of the types of self-talk used may explain the lack of significance in the current study regarding the use of negative self-talk and decreased free throw performance.

The third hypothesis, that the percentage of positive self-talk used would negatively correlate with anxiety during competition and close games, was supported in this study; however, it was not significant. Consistent with the current study, Hatzigeorgiadis et al. (2009) found the use of positive self-talk among competitive tennis players in a practice setting resulted in a reduction of cognitive anxiety, ultimately limiting attentional changes such as distractions or narrowing of attention and showed a

positive effect on task performance. Furthermore, Hatzigeorgiadis, Zourbanos, and Theodorakis, (2007) also identified similar results among swimming students completing water polo tasks. The use of self-talk resulted in reductions of cognitive anxiety, which also increased performance (Hatzigeorgiadis, Zourbanos, & Theodorakis, 2007). Contrary to previous results, Weinberg and Genuchi (1980) completed research among intercollegiate golfers, identifying the difference in state anxiety during practice and competition. State anxiety during day 1 and 2 of competition was much higher than the anxiety displayed during the practice round (Weinberg & Genuchi, 1980). These results suggest that anxiety experienced during competition is different than anxiety levels during practice, which can explain the lack of significance and small correlations between positive self-talk used and anxiety. In the current study, the negative correlation between positive self-talk and anxiety found in the current study was weak during competition and extremely weak during close games. The lack of significance and weak correlations during competition or close games can be due to the situational state anxiety an athlete experiences throughout competitions and close games, and the lack of practicality to measure that anxiety in real time. The researchers mentioned above studied self-talk and performance in practice situations and have failed to examine participants in competition settings or the research was done in a sport in which the nature of the sport is not as fast-paced as basketball.

The last hypothesis was that the percentage of negative self-talk used would positively correlate with anxiety during competition and close games. The results supported this hypothesis and were significant during competition, showing a moderate

correlation, however, did not show significance during close games. The significance

during competition could be due to the fact that athletes are more familiar with shooting

free throws throughout an entire competition, in which they are capable of recalling their

anxiety levels. However, the results during close games were not significant most likely

due to the athletes lacking the experience of shooting free throws in close games, which

makes it difficult to recall their anxiety during this time. Research conducted by

Hatzigeorgiadis and Biddle (2008) identified the relationship between cognitive anxiety

intensity (attentional aspects of anxiety) and negative self-talk. On the other hand, pre-

competition somatic anxiety (physical changes such as muscle tension) intensity and

negative self-talk represented a weaker correlation compared to cognitive anxiety, and

did not show significance. For both the current study and previous studies, the anxiety

survey was given prior to competition (pre-competition), which is considered the closest

comparison possible since it is impractical to give the survey immediately before a free

throw shot during a game. Overall, pre-competition anxiety intensity as a whole

moderately correlated with negative self-talk (Hatzigeorgiadis & Biddle, 2008).

Similarly, Flett and Hewitt (2005) identified that the concern of making mistakes was

associated with negative outcomes, which ultimately involved an increase in anxiety

among varsity athletes across many different sports. Experiencing anxiety symptoms

generates thoughts of fear and failure (i.e., negative self-talk); therefore, we can conclude

that there is a relationship between anxiety and negative self-talk although the differences

in anxiety and self-talk in practice, competition, and close game situations are unclear.

There were various limitations to this study. A small sample size was a large limitation, which limited the ability to run more complicated data analyses. The small sample size also lacked statistical power, which can produce unreliable results. After computing achieved power using a G*Power post hoc analysis, the power of the current sample size was 32%. For 95% statistical power, 138 participants were needed. A potential reason for the lack of participation in this study was due to the limited number of athletes invited to participate in the survey because of the IRB approval process. The process of obtaining IRB approval limited the original intent to contact 40-50 basketball programs and coaches. In addition, once IRB approval was obtained, invitations to the coaches/athletes did not guarantee the participation of athletes. Therefore, contacting the coaches after IRB approval from Humboldt State University but prior to completing IRB requirements for the institution of the coach to determine their interest would be the best method to obtaining the most participants. Identifying the interested coaches would assist in time management by only completing the IRB approval forms for those who were actually interested in participating in the study. Future researchers should obtain approval from corresponding schools well in advance and contact coaches multiple times before, during and after the season, in order to increase participation.

Another limitation was collapsing the subscales for use of self-talk and anxiety. These scores were analyzed as overall scores instead of breaking them down into their subscales (i.e. different types of self-talk and cognitive and somatic anxiety subscales). Future research should focus on analyzing these variables into their specific subscales

which can potentially help identify which component of self-talk or anxiety is related to the variations in sport performance.

The current study also examined the linear relationship among self-talk, free throw percentage, and anxiety, however, these variables may have a non-linear relationship. For example, Hanin (2007) focused on the relationship between individualized optimal anxiety levels and sport performance. He explained that each individual is different and while anxiety can pose as facilitative in some athletes, other athletes who experience high levels of anxiety find it very debilitating to sport performance. The same can be said for the use of self-talk. Each individual is different in terms of which type of self-talk best suits his/her individual needs. Some athletes can perform well when using negative self-talk, while other athletes should use more neutral self-talk to avoid too much attentional focus on the task at hand. Therefore, future research should focus on the non-linear relationship between these variables.

In addition, future research should evaluate the concept of "paralysis by analysis," identifying if thinking too much reduces sport performance, especially during close games. Having the ability to analyze this concept during close games can help identify how self-talk influences sport performance during critical situations in a game. Although this concept may be difficult to analyze in real time, it would be beneficial to discover if the use of neutral self-talk is the most useful form of self-talk in improving sport performance during competition and especially during close games.

Future researchers should also include a question in the survey regarding the percentage of positive, negative, and neutral self-talk used not only for competition, but

also pertaining to close games. Having this data will help identify which type of self-talk is being used most among the participants during close games, which may potentially explain the decrease in free throw performance when comparing competition and close games percentages.

In addition, due to the limited time frame to complete this study, the participants from the 2012-2013 season were asked to recall information by completing the survey six and a half months after the completion of the season. This retrospective response could have caused a lack of accurate information recall, and may explain why the use of self-talk was similar in both competition and close games, when it was expected to increase during close games. Future researchers should obtain participants and free throw data from the current season. Not only will this limit the potential risk of obtaining inaccurate self-report data, it will also expand the inclusion criteria, allowing the current freshman, seniors and transfer students to have the opportunity to participate, ultimately increasing the overall number of participants in the study.

Furthermore, future researchers should attempt to implement an extensive self-talk intervention with collegiate basketball players (one team as the experimental group and one team as the control group). The self-talk intervention may help identify the differences between the two groups, while also identifying the effects of self-talk on free throw performance and anxiety throughout an entire season. Unfortunately, it may be difficult to find a program interested in investing an extensive amount of time into the self-talk intervention for an entire season. Coaches may not want to participate since the intervention will take away from their original practice plan. Other coaches may be

opposed to implementing such an intervention, believing it would create potential risk factors such as negatively effecting performance. Even though obtaining a program interested in the self-talk intervention could be difficult to find, the results of the study and practical implications derived from the study would be extremely beneficial for future researchers, coaches, and players.

The use of positive self-talk has been proven to help increase athletic performance. Therefore, it would be extremely beneficial for basketball players to use more positive self-talk while preparing to shoot free throws during competition and close games. Positive self-talk may not only increase performance, but it may also reduce anxiety. Research also supports the use of neutral self-talk which helps take the individual's mind off of stressful situations such as close games (Beilock, 2010; Lee, Blumenfeld, & D'Esposito, 2013). The use of negative self-talk has been shown to have a negative effect on sport performance; therefore, it is important to avoid negative self-talk at all costs. Athletes should learn how to use positive and neutral self-talk effectively as well as learn how to reframe negative self-talk in order to increase overall sport performance. Coaches should use the research to their advantage by encouraging these changes as well as a general positive state of mind of their athletes.

The findings from the present study have shown the relationship among the use of self-talk, free throw performance, and anxiety, and is the first to study the relationship among these variables during close games. Though the results are not generalizable to the overall population, this is a beneficial starting point for future research in developing a more in-depth analysis related to the variables of interest. The findings suggest that there

are benefits for collegiate basketball players using positive self-talk during sport

performance. The relationship among these variables have identified that the use of self-

talk is related to an increase in free throw performance and a decrease in anxiety among

the participants. The use of positive self-talk can mean the difference of winning or

losing the game at the free throw line.

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Appendix A: Consent Form/Survey

Factors That Influence Free Throw Performance

Informed Consent

PROJECT DESCRIPTION:
• Conducting research to identify the factors that influence free throw performance among NCAA Division I, II, and III basketball players shooting free throws during competition and close game situations (game is within 5 points, with less than 5 minutes to go).

WHO MAY TAKE PART IN THE STUDY?
• Be 18 years of age or older;
• Played collegiate basketball at NCAA Division I, II, or III during the 2012-2013 season so free throw percentage data can be obtained (Current Freshmen and Junior College transfers DO NOT complete the survey).
• Attempted at least 30 free throws throughout the entire 2012-2013 season.

HOW MUCH TIME MUST SUBJECTS VOLUNTEER?
• You will be expected to complete this online survey (available through surveymonkey.com), which will take no longer than 15 minutes to complete.

PROCEDURE:
• You will provide your demographic information, and then answer questions based on how you physically and mentally feel when shooting free throws. The answers you provide in this survey should be answered truthfully and to your best ability.

BENEFITS:
• You will not directly benefit from this study; however, information gathered from these questionnaires may contribute to the self-evaluation of the factors that influence free throw performance. Those who obtain a summary of the results from this study may also benefit since you will learn more about the factors that influence free throw performance.

POSSIBLE RISKS AND DISCOMFORTS:
• You could experience psychological or emotional discomfort from the questionnaire, however the risk is minimal. All instruments have been validated and used with many adults without experiencing any of the potential risks.

RISK MANAGEMENT:
• You are ensured that there are no right or wrong answers to alleviate any perceived pressure or comparison. In addition, all questionnaires will remain confidential and no individual results will be announced or posted.

MAINTAINING CONFIDENTIALITY OF YOUR INFORMATION:
• We will maintain your confidentiality to the fullest extent of the law.
• We will store all electronic information on a networked server accessible only by password protected computers by authorized individuals.
• We will only present information as group data.
• We will maintain all information for 3 years. After 3 years, all information will be destroyed by deleting all electronic files.

COMPENSATION:
• You will have the opportunity to enter into a drawing for a chance to win a $25 Nike gift card. One gift card will be given out to a randomly selected winner.

Factors That Influence Free Throw Performance

QUESTIONS:

• If you have any questions about the study, please ask the following investigators.

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707-826-3841

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I understand that the investigator will answer any questions I may have concerning the investigation or the procedures at any time. I also understand that my participation in any study is entirely voluntary and that I may decline to enter this study or may withdraw from it at any time without jeopardy. I understand that the investigator may terminate my participation in the study at any time.

If you have any concerns regarding this project, or any dissatisfaction with any part of this study, you may contact the IRB Chair, Dr. Ethan Gahtan, at eg51@humboldt.edu or (707) 826-4545.

If you have questions regarding your rights as a participant, you may report them to the IRB Institutional Official at Humboldt State University, Dr. Rhea Williamson, at Rhea.Williamson@humboldt.edu or (707) 826-5169.

Please print this informed consent form now and retain it for your future reference. If you agree to voluntarily participate in this research as described, please respond to the questions below to begin the online survey. Thank you for your participation in this research.

*1. I have read and understand the information provided

◯ Yes

*2. I understand that I may withdraw from this study at any time

◯ Yes

Factors That Influence Free Throw Performance

Demographic Information

*3. First/Last Name

[   ]

*4. Age

○ 18

○ 19

○ 20

○ 21

○ 22

○ 23

○ 24

○ 25+

*5. What is your gender?

○ Female

○ Male

*6. College/University (written out/no abbreviations)

[   ]

*7. Year in school

○ Sophomore

○ Junior

○ Senior

○ Grad student

Factors That Influence Free Throw Performance

Self-talk is the ongoing conversation individuals have with themselves, which influence how they feel and behave (Hatzigeordiadis et al., 2009).

*8. The following section asks you questions about why you say things to yourself. For each question, please select a number from 1 to 9 in the place provided.

Never.......Rarely........Sometimes........Often.........All the time
1_____2____3_____4_____5_____6____7____8_____9

In competition, how often do you say things to yourself...

to refine an already learned skill?	
to refine a strategy/play/plan/routine?	
to psych yourself up?	
to relax?	
to control your nerves?	
to regain or keep focus?	
to boost your self-confidence?	
to help mentally prepare yourself?	
to cope in tough situations?	
to increase or maintain your motivation?	
to control how much effort you exert?	
to remind yourself of your goals?	

Factors That Influence Free Throw Performance

*9. In close games (game is within 5 points, with 5 minutes or less remaining), how often do you say things to yourself...

to refine an already learned skill?	
to refine a strategy/play/plan/routine?	
to psych yourself up?	
to relax?	
to control your nerves?	
to regain or keep focus?	
to boost your self-confidence?	
to help mentally prepare yourself?	
to cope in tough situations?	
to increase or maintain your motivation?	
to control how much effort you exert?	
to remind yourself of your goals?	

Factors That Influence Free Throw Performance

The following section asks you questions about what you say to yourself. For each question, please place a percentage in the place provided.

✱10. When shooting free throws during competition, rate yourself on the percentage of each type of self-talk you use: Positive self-talk (ex. "I am going to make this shot"), Negative self-talk (ex. "Don't miss this shot") Neutral self-talk (ex. singing favorite song). Percentage given should total to 100%. Example: 25% of the time you use negative self-talk, 50% of the time you use positive self-talk, and 25% of the time you neutral self-talk.

-In your opinion, generally what percentage of your self-talk is positive in nature?

-In your opinion, generally what percentage of your self-talk is negative in nature?

-In your opinion, generally what percentage of your self-talk is neutral in nature?

Factors That Influence Free Throw Performance

Please answer the following questions based on how you feel during competitions.

*11. When shooting free throws during competitions...

	Not at All	Somewhat	Moderately So	Very Much So
I am concerned about the free throw	○	○	○	○
I feel nervous	○	○	○	○
I have self-doubt	○	○	○	○
I feel jittery	○	○	○	○
I am concerned I may not do well	○	○	○	○
My body feels tense	○	○	○	○
I am concerned about missing	○	○	○	○
I feel tense in my stomach	○	○	○	○
I am concerned about choking under pressure	○	○	○	○
My body feels relaxed	○	○	○	○
I am concerned about performing poorly	○	○	○	○
My heart is racing	○	○	○	○
I am worried about reaching my goal	○	○	○	○
I feel my stomach shrinking	○	○	○	○
I am concerned others will be disappointed with my performance	○	○	○	○
My hands are clammy	○	○	○	○
I am concerned because I won't be able to concentrate	○	○	○	○
My body feels tight	○	○	○	○

Factors That Influence Free Throw Performance

You will answer the same set of questions, however, now you will answer them based on how you feel during close games.

*12. When shooting free throws during close games (game is within 5 points, with 5 minutes or less remaining)...

	Not At All	Somewhat	Moderately So	Very Much So
I am concerned about the free throw	○	○	○	○
I feel nervous	○	○	○	○
I have self-doubt	○	○	○	○
I feel jittery	○	○	○	○
I am concerned I may not do well	○	○	○	○
My body feels tense	○	○	○	○
I am concerned about missing	○	○	○	○
I feel tense in my stomach	○	○	○	○
I am concerned about choking under pressure	○	○	○	○
My body feels relaxed	○	○	○	○
I am concerned about performing poorly	○	○	○	○
My heart is racing	○	○	○	○
I am worried about reaching my goal	○	○	○	○
I feel my stomach shrinking	○	○	○	○
I am concerned others will be disappointed with my performance	○	○	○	○
My hands are clammy	○	○	○	○
I am concerned because I won't be able to concentrate	○	○	○	○
My body feels tight	○	○	○	○

Factors That Influence Free Throw Performance

Thank you for completing the survey

13. If you are interested in a chance to win a $25 Nike gift card and/or obtaining the overall group results at the conclusion of this study, please provide your email address below

☐ Chance to win $25 Nike gift card

☐ Results of study

Email Address

Appendix B

Email to Coaches for Recruitment

Dear Coach _____,
My name is Andrea Bobic and I am a graduate student at Humboldt State University. I am conducting my thesis research on the factors that influence free throw performance among NCAA Division I, II, and III basketball players. This survey will take approximately 15 minutes to complete. To obtain the most accurate results for this study, I will need a large sample size, so I would appreciate your support in encouraging your athletes that played in the 2012-2013 season, including the seniors, to complete the survey at their earliest convenience. If you have any questions regarding this survey, or if you are interested in receiving a summary of results upon completion of the data analysis, please contact me by email at ab122@humboldt.edu. Your help is greatly appreciated. If you know of other coaches/programs that would be interested in taking part in this data collection, please feel free to forward this information on to them. Please forward or copy/paste the following message to your athletes.

Thank you,
Andrea Bobic

My name is Andrea Bobic and I am a graduate student at Humboldt State University. I am conducting my thesis research on the factors that influence free throw performance among NCAA Division I, II, and III basketball players. This survey will take approximately 15 minutes to complete. The information you provide will be kept confidential and only the primary researcher, assistant researcher, and thesis committee members will have access to the results. By completing the survey, you will have the opportunity to enter into a drawing for a chance to win a $25 Nike gift card. You will only be contacted in regards to winning the drawing or if you are interested in obtaining a summary of the results from this research.

To qualify for inclusion in this research study, participants must
-Be 18 years of age or older;
-Played collegiate basketball at NCAA Division I, II, or III during the 2012-2013 season so free throw percentage data for these participants can be obtained *(Current Freshmen and Junior College transfers* **DO NOT** *complete the survey)*; and
-Have attempted at least 30 free throws throughout the entire 2012-2013 season.

Please follow this link to complete the survey by October 17th, 2013.
https://www.surveymonkey.com/s/bobic_factors_influencing_FT

Thank you,
Andrea Bobic