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Monetary Incentives and Adolescent Males' Athletic Performance

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This is to certify that the doctoral dissertation by

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Walden University
2018

Abstract

The Relationship between Monetary Incentives and Athletic Performance among Adolescent Males

by

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MA, Walden University, 2012

BS, Amridge University, 2010

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

A dearth of research exists on the relationship between monetary incentives and adolescent athletic performance, particularly regarding the potential influence of intrinsic motivation and physical self-efficacy. The purpose of this quasi-experimental investigation was to explore the relationship between three levels of monetary incentives ($0, $3, and $10) and the athletic performance of adolescent male soccer players. In addition, the researcher investigated whether perceived physical self-efficacy or intrinsic motivation moderated the relationship between athletic performance and monetary incentives. The framework for the study was comprised of expectancy theory, the theory of planned behavior, and self-determination theory. The research questions were designed to assess the relationships between monetary incentives and athletic performance, as well as the potential influence of intrinsic motivation and physical self-efficacy. Study participants included a convenience sample of 16 adolescent male soccer players between the ages of 11 and 13, who play on a youth soccer league in the Midwestern United States. The independent variable was level of monetary incentive and the dependent variable was athletic performance (time on the 50-yard dash). Intrinsic motivation was assessed using the Sport Motivation Scale. Perceived physical self-efficacy was assessed via participants' scores on the Physical Self-Efficacy Scale for Children. Analysis revealed that players' athletic performance increased as monetary incentives increased. In addition, intrinsic motivation and perceived physical self-efficacy had no statistically significant interaction effect on the relationship between athletic performance and monetary incentives. In order to use monetary incentives effectively, it is essential to understand the effects of moderators on the relationship between incentives and performance. Findings shed light on the usefulness of monetary incentives among adolescents.

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Dedication

This dissertation and all of my academic achievements are dedicated to my amazing wife and best friend, Fallon, whose example will forever inspire my human experience. Her sacrificial care for me and our children made it possible for me to complete this work. I also dedicate this work to our three children, Alden, Adilyn, and Amryn, who are indeed treasures from the Lord.

For the ancestors who paved the path before me, and upon whose shoulders I stand. This is also dedicated to my family and my many friends who supported me on this journey.

Thank you.

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Above all, to the Great Almighty, the author of knowledge and wisdom, for His countless love.

I thank you.

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Chapter 1: Introduction to the Study

Introduction

Research on the effectiveness of monetary incentives as tools to motivate performance has produced mixed results. Some researchers have found that monetary incentives are effective motivators (Atkinson et al., 2009; Frick, 2011; Kingdon & Teal, 2007; Landry et al., 2015; Martin et al., 2011), while others reported that monetary incentives had adverse effects on performance (Agrawal, 2012; Ariely et al., 2009; Mobbs et al., 2009). The reason for these conflicting findings is likely twofold. First, research on the relationship between monetary incentives and performance takes place in a variety of contexts, such as academic performance in school (Levitt, List, Neckerman, & Sadoff, 2016), participation in after school programs (Arbetron, Sheldon, & Herrera,, 2005; Galvin, 2015; What Works Clearinghouse, 2006), and experimental settings to assess motor function and athletic performance (Droe, 2013; Hulleman et al., 2007; Kurniawan et al., 2009; Walchli et al., 2015).

Additionally, most researchers fail to assess for factors that may moderate the relationship between monetary incentives and performance. For example, research indicates that the relationship between performance and monetary incentives may be moderated by perceived self-efficacy and intrinsic motivation (Agrawal, 2012; Belle & Cantarelli, 2015; Droe, 2013; Frey & Oberholzer-Gee, 1997; Kvaløy et al., 2016; Walchli et al.,2015; Wright et al., 2016). However, without directly assessing for these factors, findings from previous studies may oversimplify the seemingly dynamic relationship between incentives and performance. Accordingly, the goal of this study was to explore the relationships between monetary incentives, performance, intrinsic motivation, and perceived physical self-efficacy. The specific was athletic performance among adolescent male soccer players. This approach was novel because much of

the research on incentives and performance focuses on adult behaviors in professional contexts (Agrawal, 2012; Belle & Cantarelli, 2015; Lah & Perry, 2008; Liang & Akiba , 2015; Perry, Engbers, & Jun, 2009).

The aim of this chapter is to introduce and contextualize the current study. It begins with a discussion of the background of the problem, followed by the problem and purpose statements. Next, the research questions and theoretical framework are presented. A brief overview of the study's method is followed by key terms, assumptions, scope, limitations, and significance.

Background

Although significant research exists regarding the relationship between athletic performance and monetary incentives, findings are conflicting. For example, some researchers have reported positive relationships between monetary incentives and performance (Atkinson et al., 2009; Frick, 2011; Kingdon & Teal, 2007; Landry et al., 2015; Martin et al., 2011), while others reported negative relationships (Agrawal, 2012; Ariely et al., 2009; Mobbs et al., 2009) or no relationships at all (Bell & Cantarelli, 2015; Hulleman et al., 2007; Liang & Akiba, 2015). A review of the research on monetary incentives and athletic performance indicated the relationship between performance and incentives may be moderated by perceived self-efficacy and intrinsic motivation (Agrawal, 2012; Belle & Cantarelli, 2015; Droe, 2013; Frey & Oberholzer-Gee, 1997; Kvaløy et al., 2016; Walchli et al.,2015; Wright et al., 2016); however, an extensive search through existing research on monetary incentives and performance produced no studies in which these two possible moderators were simultaneously assessed for.

Some researchers have found that monetary incentives can be useful tools for motivating adolescents and teens in a variety of contexts. For example, Galvin (2015) found that monetary incentives were useful for motivating at-risk youth to participate in a mentoring program.

According to the *What Works Clearinghouse* (2006), monetary incentives were effective for encouraging academic success among teen parents. Arbetron, Sheldon, and Herrera's (2005) metaanalysis of effective strategies to recruit and retain youth participants into afterschool clubs indicated that financial incentives could increase program participation. In another study, Levitt, List, Neckermann, and Sadoff (2016) found that financial rewards improved academic performance among adolescents.

While many researchers reported performance and behavioral benefits of monetary incentives, others found that monetary incentives may not be strong motivators for adolescents. For example, Massie, Smith, and Tolfrey (2015) reported that monetary incentives were not effective for motivating adolescent girls to adhere to exercise training programs. Springer, Rosenquist, and Swain (2015) found that the effects of monetary incentives on adolescent participation in supplemental educational services was negligible. A dearth of research exists on the relationship between monetary incentives and adolescent athletic performance, and the researcher could find no such studies in which intrinsic motivation and self-efficacy were also assessed for.

Problem Statement

The problem with previous research on the use of monetary incentives as a motivational tools is that the mechanism of the relationships between monetary incentives and behaviors/performance is poorly understood. Mixed findings on the relationship between monetary incentives and performance suggest that unaccounted for moderators, such as intrinsic motivation and self-efficacy, may be at work. In order to use monetary incentives effectively, it is essential to understand the effects of moderators on the relationship between incentives and

performance. Findings from this study shed light on the usefulness of monetary incentives among adolescents.

Purpose of the Study

The purpose of this quasi-experimental investigation was to explore the relationship between three levels of monetary incentives (no incentive, small incentive, and large incentive) and the athletic performance of adolescent male soccer players. In addition, the researcher investigated whether perceived physical self-efficacy or intrinsic motivation moderated the relationship between athletic performance and monetary incentives.

Research Questions

This study was guided by the following questions.

RQ1. Does a relationship exist between athletic performance and varying levels of monetary incentives among a sample of adolescent male athletes?

RQ2. Does intrinsic motivation moderate the relationship between athletic performance and monetary incentives among a sample of adolescent male athletes?

RQ3. Does perceived physical self-efficacy moderate the relationship between athletic performance and monetary incentives among a sample of adolescent male athletes?

Theoretical Framework

The framework for this study was comprised of the following three theories: expectancy theory (Vroom, 1964), the theory of planned behavior (Ajzen, 1991), and self-determination theory (Deci & Ryan, 1985). Together, these theories provide a useful framework for exploring human behaviors, cognitions, and motivations.

Expectancy theory. Vroom's (1964) expectancy theory is based on the belief that individuals' behaviors are dictated by conscious choices designed to minimize pain and

maximize pleasure. The theory helps explain why individuals engage in behaviors they perceive will lead to rewards or pleasure. Vroom postulated that people work harder to achieve goals when the outcomes include pleasure or rewards, but only if they are confident they can achieve the desired outcome. If they feel less confident in their abilities to achieve goals, individuals will put less effort into achieving them. Consequently, self-efficacy (Bandura, 1977) is central to expectancy theory; the effort that individuals put into achieving outcomes is based on their self-efficacy beliefs regarding the likelihood of success (Hoy & Miskel, 2012). In this way, expectancy theory aligns well with an investigation of the relationship between monetary rewards (pleasure) and performance.

Theory of planned behavior. The second theory selected for the framework was the theory of planned behavior (Ajzen, 1991), which links people's beliefs with their behaviors. According to Ajzen (1991), three antecedents affect individuals' behaviors, including their attitudes toward the behavior, subjective norms, and their perceived control over behaviors. Ajzen theorized that these antecedents account for a significant amount of the variation in human behavior. The greater an individual's intention to behave in certain ways is, the better his or her performance of those behaviors.

An individuals' intention to perform behaviors is influenced by his or her level of perceived control over those behaviors. Accordingly, Bandura's (1977) theory of self-efficacy is also central to the theory of planned behavior because self-efficacy influences perceived behavioral control. Thus, perceived behavioral control and behavioral intentions combine to predict behavioral achievement, or performance (Ajzen, 1991). In the context of the current study, the theory of planned behavior helped explain how perceived physical self-efficacy may influence athletic performance, via perceived behavioral control.

Self-determination theory. The final theory selected for the study's theoretical framework was Deci and Ryan's (1985) self-determination theory (SDT). SDT is a framework for understanding human motivation that integrates intrinsic motivation, extrinsic motivation, and amotivation. Intrinsic motivators are those which inspire individuals to engage in activities for personal pleasure and satisfaction, whereas extrinsic motivators are external incentives that inspire people to behave in certain ways (Gillet, Vallerand, & Paty, 2013). Of the three types of motivation described by Deci and Ryan, the current research focused on the role of intrinsic motivation. Using Pelletier et al.'s (1995) Sport Motivation Scale, the researcher assessed participants' intrinsic motivation to explore how this form of motivation influenced the relationship between monetary incentives and athletic performance.

The three theories selected for this study's framework provided a valuable lens for exploring the influence of self-efficacy and intrinsic motivation on the relationship between monetary incentives and athletic performance. Specifically, the researcher employed expectancy theory (Vroom, 1964) and the theory of planned behavior (Ajzen, 1991) to explore any influence of perceived physical self-efficacy on performance and rewards. Self-determination theory (Deci & Ryan, 1985) was useful for exploring the influence of intrinsic motivation on performance and incentives.

Nature of the Study

The nature of this study was quantitative, following a quasi-experimental design. Quantitative research is useful for predicting, explaining, confirming, or testing theories (Cooper & Schindler, 2003). In addition, quantitative studies allow researchers to examine statistically significant relationships between predetermined variables (Swanson & Holton, 2005). Because the goal of this research was to explore the relationships between independent variables (various

levels of monetary incentives) and a dependent variable (athletic performance), as well as the potential modifying effects of perceived physical self-efficacy and intrinsic motivation, a quantitative methodology was required. The researcher considered qualitative methods, which follow an inductive process for exploring themes and categories related to study phenomena (Creswell, 2009). Although qualitative research provides rich data, it does not allow for the statistical testing of relationships between variables. Thus, the researcher traded richness of data for a degree of statistical certainty.

The researcher selected a quasi-experimental design because randomization was not possible. This study did not involve a control group because all participants received the study treatment, which included three levels of monetary incentives ($0 incentive, $3 incentive, and $10 incentive) before each of the three athletic assessments. The specific quasi-experimental design selected was a one-group pre-test post-test design in which three different treatments (no incentive, $3 incentive, and $10 incentive) were implemented.

Study participants were drawn from the population of adolescent male soccer players between the ages of 11 and 13, who play on two teams for a youth soccer league in the Midwestern United States. Between the two teams, there are a total of 32 athletes (16 per team). The average skill level of players on these teams is highly competitive, as they compete in the top division of the state's top league. The teams are invited to play in tournaments sponsored by large corporations. To make the team, players are required to try out, and even after making the team, players can be dropped if their performance falls below the level required to compete at the state level. The teams' playing season lasts from the fall to the spring.

The researcher employed a convenience sampling technique to gather participants for the study. To be eligible for the study, prospective participants must: (a) be current players on one

of the two selected youth soccer teams, (b) have been on the team since the beginning of the current season, (c) be male, and (d) be between the ages of 11 and 13. The selected sample size was 16 players, or 50% of the population.

The independent variable for the study was level of monetary incentive ($0, $3, and $10), and the dependent variable was athletic performance (time on the 50-yard dash). The researcher also assessed for possible moderation from intrinsic motivation and perceived physical self-efficacy. Athletic performance was assessed via participants' times on the 50-yard dash. Intrinsic motivation was assessed using the Sport Motivation Scale (SMS, Pelletier et al., 1995, see Appendix A). Perceived physical self-efficacy was assessed via participants' scores on the Physical Self-Efficacy Scale for Children (PSESC; Colella et al., 2008, see Appendix B).

Definitions

Key terms for this research are conceptually defined, as follows.

Extrinsic motivation. Extrinsic behaviors are those "performed as a means to an end and not for their own sake" (Gillet, Vallerand, & Paty, 2013, p. 1200).

Intrinsic motivation. Intrinsic motivation describes "engaging in an activity for the pleasure and satisfaction derived from it" (Gillet, Vallerand, & Paty, 2013, p. 1200).

Monetary incentive. Monetary incentives are financial rewards offered as tools to encourage people to perform or behave in certain ways (Voh, Mead, & Goode, 2008).

Physical self-efficacy. Physical self-efficacy describes individuals' beliefs about their capabilities "to successfully engage in physical activities with some frequency, duration, and intensity" (Colella et al., 2008, p. 842).

Self-efficacy. Self-efficacy describes individuals' beliefs in their abilities to successfully take action in situations (Bandura, 1977).

Assumptions

There were assumptions inherent to this research. First, the researcher assumed that all participants possessed the physical ability to perform the athletic test (50-yard dash). Because the sample was drawn from two competitive youth soccer teams, the researcher assumed that all participants were fit enough to run 50 yards. To ensure this assumption was correct, the researcher did not include participants who were injured or did not possess the physical strength and stamina to participate in routine soccer practices. To receive clearance to play on the youth soccer league, all players from the two teams received medical approval through a physical evaluation. The researcher also assumed that all participants possessed the cognitive ability to answer questions on the research survey. Both instruments used in the research survey, the SMS (Pelletier et al., 1995) and the PSESC (Colella et al., 2008), were age-appropriate and have been tested among adolescent populations (Becker, Martian, Primrose, & Wingen, 2012; Carissimi et al., 2016; Colella et al., 2008, 2009, 2011; Moreno et al., 2009; Garcia-Mas et al., 2010; Jõesaar, Hein, & Hagger, 2012; Pelletier et al., 1995; Paloma, Rio, & D'Anna, 2013; Zahariadis, Tsorbatzoudis, & Grouios, 2005).

Scope and Delimitations

This study was subject to delimitating factors regarding the researcher's methodological decisions. The first delimitation was the study's design. While the researcher could have selected from a variety of quasi-experimental designs, such as time-series designs and comparison group studies, he determined that a one-group pre-test post-test design was most aligned with the goal of the investigation. Another delimitation was the theories selected for the theoretical framework. The researcher reviewed a number of theories related to motivation and self-efficacy, such as Maslow's (1943) hierarchy of needs, Herzberg, Mausnek, and

Snyderman's (1959) two-factor theory of motivation, and Adam's (1963) equity theory. However, the researcher ultimately selected expectancy theory (Vroom, 1964), the theory of planned behavior (Ajzen, 1991), and self-determination theory (Deci & Ryan, 1985) as most relevant for an investigation of the relationships between monetary incentives, athletic performance, self-efficacy, and intrinsic motivation. Because the study's theoretical framework influenced how results were interpreted, the framework was a delimitation.

Two final delimitations related to the assessments selected for this study, including the athletic test and the survey instruments. The researcher could have selected a variety of different athletic tests to assess performance, such as the mile run or vertical jump tests (Lockie et al., 2015). However, he selected the 50-yard dash because this is a common sprint distance already used in drills during soccer practice. In addition, previous researchers have employed the 50-yard dash to assess the athletic performance of children and adolescents (Ball, Massey, Misner, McKeown, & Lohman, 1992; Gross & Johnson, 1984; Slaughter, Lohman, & Miser, 1980).

The assessments of self-efficacy and intrinsic motivation also represented delimiting factors. The researcher reviewed other possible instruments for this study, including the Intrinsic Motivation Inventory (McCauley, Duncan, & Tammen, 1989) and the Self-Efficacy Scale (Sherer et al., 1982). However, he selected the PSESC (Colella et al., 2008) and the SMS (Pelletier et al., 1995) for their appropriateness with an adolescent sample.

Limitations

There were limitations to this study. First, all participants were located in the same community and played for the same soccer league. In addition, the demographic variation of participants was limited to male athletes between the ages of 11 and 13. This research was also limited to three assessments of athletic performance, following three levels of monetary

incentive ($0, $3, and $10). Another limitation is possible differences that existed among participants' perceptions of the value of the financial incentives. Although all participants were from the same middle class community in the same town, it was not possible to account for possible differences in perceptions of financial incentives. Finally, although passing a physical examination was a prerequisite to playing on the soccer teams selected for this study, the researcher did not know if any athletes possessed slight developmental or cognitive delays that may have influenced their perceptions of the rewards or their physical abilities. Based on the researcher's observation, no team members possessed any obvious developmental or cognitive delays.

Significance

In order to use monetary incentives effectively, it is essential to understand the effects of moderators on the relationship between incentives and performance. Findings from this study shed light on the usefulness of monetary incentives among adolescents. Although this investigation focused on the relationship between monetary incentives and performance within the context of athletics, findings may be used to guide similar investigations in other contexts, such as academic performance. The use of incentives can be a powerful tool for motivating adolescents to behave and perform in positive and healthy ways.

Summary

This chapter included an introduction to this quasi-experimental investigation on the relationships between monetary incentives, athletic performance, intrinsic motivation, and perceived physical self-efficacy. The researcher presented the study purpose, problem, research questions, and a brief overview of the methodology. In the following chapter, further

contextualization of the investigation is provided via and analysis and synthesis of existing, relevant research.

Chapter 2: Literature Review

Introduction

The business of sports has undergone tremendous changes in the past few decades. According to Walsh and Giulianotti (2006), "there has always been money in sport, but in recent decades' commodification has transformed elite sport" (p. i). Through most of recorded history, people who engaged in athletic competitions were not provided with financial incentives or rewards (Chatzisarantis & Hagger, 2007). As Cashmore (2010) argued, athletes' primary motivation for competing was the pure sake of winning. However, in a relatively short period, the landscape of sports has changed. Today's athletes are often incentivized with financial rewards (Carlstedt, 2013).

Research on the use of monetary incentives to improve performance is limited, especially in the context of athletic performance. Further, existing studies on the relationship between financial rewards and athletic performance provide conflicting results. Thus, the aim of this research was to explore the relationship between monetary incentives and athletic performance among soccer athletes on a National Premier Soccer League (NPSL) team.

The purpose of this chapter is provide context and background for the current study while also exposing the research gap that was addressed by this study. In this chapter, the researcher reviews and synthesizes relevant research on the topics of motivation, performance, and incentives. The chapter begins with a description of the search strategy employed to locate sources for this chapter. Next, the researcher describes the theories selected for this study's framework. The majority of the chapter is dedicated to a review of research on monetary incentives, performance, and motivation. The literature review closes with a brief summary and transition to Chapter 3.

Search Strategy

Resources for this chapter were located using several databases, including Academic OneFile, ProQuest, Academic Search Premier, LexisNexis, Gale InfoTrac, American Psychological Association, Digital Commons, SAGE, Taylor & Francis Online, IngentaConnect, ScienceDirect, EBSCO, ABI/INFORM, and Wiley. The researcher emphasized research published within the last 5 years, but included seminal studies to provide context and background, as necessary. The surprisingly limited amount of research on athletic performance and monetary incentives required the researcher to broaden the scope of search terms to include the following: *athlete, athletic performance, monetary incentives, financial incentives, human motivation, expectancy theory, theory of planned behavior, self-determination theory, competition, non-monetary incentives, performance pay, shirking, choking under pressure, effects of monetary incentives, shirking, effort, self-efficacy, professional incentives, salary, bonuses,* and *contract year.*

Theoretical Framework

The framework for this study was comprised of the following three theories: Expectancy theory (Vroom, 1964), the Theory of Planned Behavior (Ajzen, 1991), and Self-Determination theory (Deci & Ryan, 1985). Upon review of the relevant literature and theories, it became clear there are many factors influential to athletic performance. The theoretical framework identified provides a foundation for exploring human behaviors, cognitions, and motivations.

Expectancy Theory

The basis of Vroom's (1964) expectancy theory is that individuals' behaviors are the results of conscious choices to minimize pain and maximize pleasure. The theory "helps explain individuals' motivation to engage in certain behaviors, particularly those that they perceive will

lead to rewards that they value" (Rice, Malen, Jackson, & Hoyer, 2015, p. 30). Thus, expectancy theory aligns well with an investigation of the relationship between monetary rewards (pleasure) and performance. According to this theory, people will work hard to meet goals with desirable outcomes they are confident they can achieve. However, they will put little effort into achieving less desirable goals that they are less confident in achieving (Goksoy & Argon, 2015).

Vroom (1964) postulated that individuals' levels of effort determine their performance, which is based on their expected rewards. The antecedents that motivate individuals to place effort into achieving outcomes include expectancy, instrumentality, and valence. Expectancy describes beliefs that efforts will improve performance; thus, an individual's expectancy of his or her ability to achieve objectives will directly determine his or her effort levels. Instrumentality refers to beliefs that performance is essential to achieving goals or outcomes. Finally, valence describes how attractive rewards are to individuals. A person's level of motivational force is the level of effort he or she exerts to achieve a goal. Within the context of expectancy theory, Van Eerde and Thierry (1996) described motivational force as the product of *valence* x *instrumentality* x *expectancy*.

As Goksoy and Argon (2015) explained, expectancy theory is based on the following assumptions:

1. Expectations based on individuals' motivations, experiences, and needs influence their behaviors
2. Behaviors are the results of conscious choices
3. Individuals expect different rewards, such as pay increases, job security, or advancement, for their behaviors

Self-efficacy is also an important part of expectancy theory (Vroom, 1964). As Hoy and Miskel (2012) explained, the effort that individuals put into achieving outcomes is based on their self-efficacy beliefs regarding the likelihood of success. Individuals also act based on whether or not they belief their performance will be recognized, and their perceptions of the value in the reward.

Researchers have used expectancy theory (Vroom, 1964) to investigate human motivation in a variety of contexts. For example, Hsu, Shinnar, and Powell (2014) used the theory to explore the role of entrepreneurial education on students' motivations to become entrepreneurs and found that expectancy, instrumentality, and valence all increased students' entrepreneurial motivations. Goksoy and Argon (2015) employed expectancy theory to explore teachers' expectations of performance rewards. The researchers found that teachers' expectations of rewards included monetary rewards, verbal recognition, and certificates of appreciation. Similarly, researchers have employed expectancy theory to investigate teachers' perceptions of rewards and the effects or rewards on motivation (Rice et al., 2015). Malina and Washington (2014) used expectancy theory to discuss the relationship between employee motivation, quality of work life, and rewards.

Although much of the research on expectancy theory (Vroom, 1964) is based on the relationship between workplace incentives and performance (Garbers & Konradt, 2014; Goksoy & Argon, 2015; Osibanjo, Adeniji, Falola, & Heirsmac, 2014; Rice et al., 2015), researchers have also used the theory to assess the influence of incentives on athletic performance. For example, White and Sheldon (2014) employed expectancy theory to analyze boosts in contract year performance among professional athletes. Researchers have also used expectancy theory to assess how expectancy affected learning and motor performance among golfers (Palmer,

Chiviacowsky, & Wulf, 2016). Thus, expectancy theory provided an appropriate lens for the examination of correlations between athletic performance and monetary rewards in the current study.

Theory of Planned Behavior

The second theory selected for the study's framework was the theory of planned behavior (Ajzen, 1991). The theory of planned behavior is a behavioral theory that links individuals' behaviors and beliefs. Ajzen (1991) suggested that individuals' intentions to behave in specific ways are affected by three antecedents, including their (a) attitudes toward the behavior, (b) subjective norms, and (c) perceived control over behaviors. The scholar explained that these three antecedents are highly predictive of behavioral intentions and can account for much variation in human behavior. Intentions are the product of motivational factors that influence behaviors: "They are indications of how hard people are willing to try, of how much of an effort they are willing to exert, in order to perform the behavior" (Ajzen, 1991, p. 181). As individuals' intentions to behave in certain ways increase, so too should their performance of those behaviors. Of course, it is necessary to acknowledge that an individual's ability to perform certain behaviors may be dependent on other factors, such as opportunities to perform behaviors, the availability of resources, and the cooperation of others. The greater an individual's resources and opportunities to perform behaviors, and the fewer barriers that impede him or her, the greater an individual's perceived control over behaviors. Thus, Ajzen explained, "to the extent that a person has the required opportunities and resources, and intends to perform the behavior, he or she should succeed in doing so" (p. 182).

Attitudes toward behaviors describe the degree to which individuals' appraisals of behaviors are favorable or unfavorable (Ajzen, 1991). Subjective norms refer to perceived social

pressures to engage in or refrain from behaviors, while behavioral control refers to an individual's access to resources and opportunities needed to perform behaviors. *Perceived* behavioral control, then, describes an individual's perceptions of his or her ability to perform certain behaviors. In the case of the current study, perceived behavioral control describes athletes' confidence in their abilities to perform well on athletic tests.

Perceived behavioral control may reflect individuals' past experiences and anticipated obstacles to performing behaviors. Ajzen's (1991) description of perceived behavioral control follows from Bandura's (1977) concept of self-efficacy, which describes individuals' beliefs in their abilities to successfully take action in situations. According to the theory of planned behavior, perceived behavioral control and behavioral intention predict behavioral achievement. It is possible that the motivating effect of monetary incentives on behavioral intentions may be undermined by low levels of perceived behavioral control.

The influence of the three antecedents of intention (attitude, subjective norms, and perceived behavioral control) vary across situations and behaviors (Ajzen, 1991). In certain situations, one antecedent may exhibit significantly greater influence over behaviors, and in others, all three may have a rather equal influence. It is also not necessary for all three antecedents to demonstrate influence in every situation. Researchers have employed the theory of planned behavior to explore human behavior and financial incentives in a variety of contexts. For example, Amini, Ahmad, and Ambali (2014) used the theory to investigate how monetary rewards and penalties influenced recycling behaviors.

Self-Determination Theory

The final theory selected for the study's theoretical framework was Deci and Ryan's (1985) self-determination theory (SDT). SDT is a framework for understanding human motivation that integrates intrinsic motivation, extrinsic motivation, and amotivation. Intrinsic motivation describes "engaging in an activity for the pleasure and satisfaction derived from it," whereas extrinsic behaviors are those "performed as a means to an end and not for their own sake" (Gillet, Vallerand, & Paty, 2013, p. 1200). Financial incentives and rewards are an example of extrinsic motivators. Finally, amotivation describes the total absence of motivation.

Deci and Ryan (1985) also described two additional forms of motivation in SDT: autonomous and controlled. Autonomous motivation describes that in which individuals integrate the value of an activity or behavior into their sense of self. Through autonomous motivation, individuals become advocates and supporters of their own actions. Controlled motivation, on the other hand, refers to outside forms of control that influence individuals' actions. The two forms of controlled regulation are external and introjected. External regulation occurs when behaviors are the function of external rewards or punishments, while introjected regulation, action is controlled both internally and by other factors such as the ego.

According to SDT (Deci & Ryan, 1985), people act based on the psychological needs of competence, relatedness, and autonomy. Competence describes the need to master outcomes and deal effectively with one's environment, while relatedness describes an individual's desire to interact and connect with others. Finally, autonomy describes an individual's free will to take actions and control the course of his or her life.

Many researchers have used SDT to explore motivation and performance among athletes from a variety of sports (Chin et al., 2012; Gillet et al., 2010, 2013; Lamont & Kennelly, 2012;

Marr, 2016). For example, Gillet et al. (2010) investigated the role of coaches' autonomy support in judo athletes' self-determined motivation before competition. In a later study, Gillet et al. (2013) employed SDT to develop motivational profiles associated with poor and superior performance among elite tennis players. Chin et al. (2012) used SDT to explore self-determined motivations and goal orientations among adolescent track athletes. In a qualitative study on Olympic track and field athletes, Marr (2016) used SDT to explore the psychosocial aspects of the experiences of winning Olympic medals. Finally, Lamont and Kennelly (2012) employed the theory to study athletic motivation among Australian triathletes.

Together, expectancy theory (Vroom, 1964), the theory of planned behavior (Ajzen, 1991), and self-determination theory (Deci & Ryan, 1985) provided a strong psychological framework for investigating the relationship between monetary incentives and athletic performance.

Incentives, Motivation, and Performance

A variety of incentives can be used to motivate human behavior, including social recognition (Bradler, Dur, Neckerman, & Non, 2016; Droe, 2013), career advancement, goods (Hammerman & Mohnen, 2014), and monetary rewards such as salary increases and bonuses (O'Neil, 2013; White & Sheldon, 2014). A sizeable body of literature indicates that monetary incentives can have adverse effects on performance (Ariely et al. 2009; Kvaløy et al., 2016; Lee & Grafton, 2015; Lewis & Linder, 1997; Masters, 1992; Mobbs et al., 2009), and can undermine individuals' intrinsic motivation (Belle & Cantarelli, 2015; Kvaløy et al., 2016) and enjoyment of tasks (Moller, Buscemi, McFadden, Hedeker, & Spring, 2014). Thus, the following section includes a discussion of monetary incentives, such as salary and performances pay, as well as non-monetary incentives, such as competition, recognition, and environment.

Monetary Incentives

Monetary incentives are financial rewards offered as a tool to encourage people to perform or behave in certain ways (Voh, Mead, & Goode, 2008). Research indicates that monetary incentives cause people to become output-oriented and change their behaviors based on their analysis of costs and benefits (Gneezy & Rustichini, 2000). Monetary rewards can also cause people to act in ways that are more selfish and less considerate of others (Voh et al., 2008). Often, monetary incentives cause people to make decisions and behave based on cost benefit analysis rather than according to social norms or intrinsic motivations (Hammerman & Mohnen, 2014).

Research on the effects of monetary incentives on athletic performance are limited for many reasons. Maier et al. (2016) provided several reasons for the scarcity of data on monetary incentives and performance among elite athletes, such as the small population of elite athletes and high levels of control over contractual information by sports clubs: "While some leagues reveal team expenditures or sometimes even player salaries, data on performance-related bonuses are not usually available to the public" (Maier et al., 2016, p. 593). It is also difficult to quantify the performance of individual athletes who are part of sports teams, as team performance statistics "do not properly reflect athletes' individual performance, and they are regularly influenced by external factors" (Maier et al., 2016, p. 593). Thus, the scope of the following discussion on the relationship between monetary incentives and performance extends beyond athletic performance to include common uses of financial incentives in the workplace. As Ariely et al. (2009) explained, the motivation behind performance-based monetary incentives is the assumption that such incentives will increase motivation and effort, which will then result in

improved performance – and this relationship between monetary incentives and performance can occur on the field or in the office.

Research on the relationship between incentives and performance in a variety of contexts has produced mixed results. Some researchers have reported positive relationships between monetary incentives and performance (Atkinson et al., 2009; Frick, 2011; Kingdon & Teal, 2007; Landry et al., 2015; Martin et al., 2011), while others have reported negative relationships (Agrawal, 2012; Ariely et al., 2009; Mobbs et al., 2009) or no significant effects (Bell & Cantarelli, 20015; Hulleman et al., 2007; Liang & Akiba, 2015). Whether the context is athletic competition, the professional workplace, or charitable organizations, understanding the effects of monetary incentives is important, not only from a performance perspective, but also fiscally. Organizations, especially small businesses or athletic organizations with limited resources, need to understand the potential effects of monetary incentives in order to effectively allocate scarce budgets (Maier et al., 2016).

Monetary rewards are used to motivate human behavior in a variety of ways. Organizations and managers may use incentives in the forms of salaries, bonuses, or commissions as a way to encourage productivity. In the athletic context, players are often enticed to improve their performance to obtain higher salaries, bonuses, or tournament rewards. The behaviors of professional athletes related to the monetary incentives of salaries and contracts is an interesting place to begin this discussion. A thorough review of existing research on monetary incentives and performance among professional athletes revealed two phenomena of interest: contract year performance and shirking.

Contract Year Performance and Shirking

The increase in performance that many professional athletes demonstrate during their contract years illustrates the effects of monetary incentives on elite athletes. White and Sheldon (2014) explored how monetary incentives could improve performance via an effect described as the contract year (CY) phenomenon. The scholars explained, "the CY refers to the last season of an athlete's current contract, meaning that after the season is over the player will become a free agent who is trying to negotiate a new contract" (p. 196). The CY may motivate players to perform better in order to obtain a better paying contract the following season. The contract year can be a great motivator for players in the final years of their contracts, leading them to "compete harder and play at a higher level to secure a new contract" (Landry et al., 2015, p. 1323). Players may intentionally perform better in order to capitalize on the market and improve the contracts offered to them in the following year (Landry et al., 2015).

Sports commentators have reported on the CY phenomenon in different professional sports, including the National Basketball Association (NBA; Helin, 2012; Kennedy, 2012) and Major League Baseball (MLB; Rymer, 2013). White and Sheldon's (2014) investigation was a longitudinal examination of how the CY affected players' performance over 3-years periods. In addition to CY performance, the researchers examined performance during the year before the CY (pre-CY) and the year after the CY (post-CY). The researchers used NBA data from nine seasons, creating a sample of 170 NBA players. Analysis revealed that higher levels of performance during the CY predicted larger post-CY salary increases. However, increases in post-CY salaries did not predict better performance in the following year, leading the researchers to caution, "The CY performance boost is real, but team managers should know that it might be followed by a performance crash" (p. 196). That is, players may temporarily increase their effort

levels to improve performance in the CY, due to the presence of a monetary incentive in the form of a potentially larger salary for the next contract. White and Sheldon explained that players are always aware of the impact their performance has on their salaries, "but during the CY this awareness is especially salient, whereas it likely recedes after players obtain a long-term contract" (p. 197). The recession of performance after the contract year is described as *shirking*.

Other researchers on the CY phenomenon have reported similar effects. For example, O'Neil (2013) examined the potential relationships between CY and offensive performance among free-agent MLB players. The scholar found that players appeared to boost their performance by 1.09% to 1.8% during the CY to secure another desirable contract in the following year. O'Neill and Hummel (2011), who also examined the CY phenomenon among MLB players, found that players' on-base percentages increased by 2.43% to 10.35% during contract years. For every .100 increase in a player's on-base percentage, his annual salary increased between $158,000 and $260,000. Thus, players were motivated by monetary incentives during contract years, performed better during those years, and were then rewarded with larger salaries the following year.

Martin, Eggleston, Seymour, and Lecrom (2011) also found evidence for the CY phenomenon among MLB players. The researchers examined data on 293 players over a 12-year period to assess for shirking and CY-year performance increases. Martin et al. examined each player's offensive contribution using five offensive game statistics: batting average, on-base percentage, slugging percentage, adjusted batting wins, and runs per game. The researchers found that "when comparing means across all five statistics measured, the contract year mean was the highest in each case" (p. 21). In addition, data revealed performance declines during post-CY years. Results from Martin et al.'s investigation indicated CY-year performance

increases, as well as post-CY shirking: “The research demonstrated that players who performed well during their contract year showed a decline in their productivity in the season after free agency” (p. 22).

Landry, Edgar, and Harris (2015) investigated the CY phenomenon among National Hockey League (NHL) players. The scholars were prompted to investigate the issue in the NHL due to scrutiny over increasingly long player contracts, tougher economic conditions, and player salary caps instituted across the league, explaining that league budgets could cover underperformance by overpaid athletes. Landry et al. conducted a historical analysis of player contracts and performance data using a variety of resources. The sample consisted of 670 NHL players from 29 clubs between the years of 2005 and 2011. Similar to findings from research on shirking in other professional sports leagues, analysis indicated that player performance generally declined over the life of a contract, even when controlling for age-related performance decrements; however, slight performance improvements were evident during contract years.

Finally, Frick (2011) investigated the contract year phenomenon among 760 German soccer players. The researcher analyzed data from player observation statistics during four seasons and found that players’ salaries reflected their talent and performance. With an awareness of the impact that performance had on salaries, players’ performance increased throughout their contracts, improving considerably during contract years. Frick explained that the study provided “clear evidence of increasing player effort over the duration of individual contracts. Other things equal, a player’s performance increases by 2%-3% in the last year of the contract, indicating that players can – and indeed do—vary their effort levels strategically” (p. 109).

Performance-Related Pay

While the focus of the current study was athletic performance, this literature review would be remiss if research regarding monetary incentives at the workplace was not addressed, as this is the context in which much of the previous research on performance and monetary incentives was performed. Research on the relationship between monetary incentives and performance extends far beyond the realm of athletic performance; many researchers have examined the effects of pay for performance in other professional sectors (Belle & Cantarelli, 2015; Lah & Perry, 2008; Perry, Engbers, & Jun, 2009). For example, Belle and Cantarelli (2015) examined the effect of financial incentives on effort and different types of motivation among a sample of Italian public managers. The researchers found that financial incentives had no significant increase on participants' intended efforts. Rather, Belle and Cantarelli reported that intrinsic motivation negatively moderated the relationship between financial incentives and intended effort, while extrinsic motivation positively moderated the relationship. That is, intrinsic motivation reduced the effect of monetary bonuses on intended effort, while extrinsic motivation increased it.

Agrawal (2012) cautioned against the pitfalls of performance-related pay in workplace settings because of the negative effect that monetary incentives can have on intrinsic motivation. The researcher explained how monetary incentives can cause reductions in intrinsic motivation, stating that intrinsic motivation is directly reduced by the performance pay an individual receives. In addition to undermining intrinsic motivation, performance-related pay can undermine cooperation and teamwork, as employees become less inclined to work together in favor of competing with one another for financial reward. This detriment may be particularly salient to team sports in an athletic context. Finally, while performance-related pay may improve

the morale of rewarded employees, it can demotivate, anger, and alienate employees who are not rewarded – and who are in the greatest need of improvement (Agrawal, 2012). Similarly, in team athletics, performance pay may prevent lower performing athletes from improving.

Many researchers have explored the role of monetary incentives, in the form of performance-related pay, among schoolteachers. For example, Liang and Akiba (2015) investigated the effects of performance-related pay on improvements in teachers' instruction and found a weak, positive association between performance pay and instructional improvements. However, the researchers also found no significant increase in student achievement among teachers who received performance pay. These findings contradict those from Atkinson et al. (2009) and Kingdon and Teal (2007), who reported significant improvements in student performance associated with teachers' performance-related pay.

Research on performance-related pay sheds light on the ways that monetary incentives can affect human motivation and performance. While incentives are offered with the intention of boosting motivation and performance, research indicates they do not always result in performance increases. As demonstrated by researchers on performance-based pay and the contract-year phenomenon, providing monetary incentives can backfire by undermining intrinsic motivation and disrupting cooperation and cohesion in group settings. The negative effects that monetary incentives can have on intrinsic motivation extend beyond the boardroom and playing field, even reducing altruism. Although altruistic behaviors were beyond the scope of the current investigation, a brief review of studies on this topic provides additional evidence of the negative relationship between intrinsic motivation and monetary incentives.

Negative Effects of Monetary Incentives

As noted above, results from research on the effects that performance-related pay in various contexts is often conflicting, making it impossible to draw conclusions on the effectiveness of this type of monetary incentive on performance. The boost in contract year performance among professional athletes, along with the increase in student performance noted by some researchers on the effects of teacher's performance pay, indicates that money can certainly generate performance improvements in a variety of settings. However, researchers have also noted the undermining effect that monetary incentives can have on intrinsic motivation, which can be a powerful catalyst for performance improvements. As discussed next, a large body of research indicates that monetary incentives can have unintended effects that actually impair performance (Kvaløy, Nieken, & Schöttner, 2016). Scholars posit that monetary incentives can negatively affect performance by undermining individuals' intrinsic motivation and reducing their self-efficacy related to performance tasks (Kvaløy et al., 2016).

Ariely et al. (2009) explored how performance-contingent payments affected motor skill performance in a series of experiments conducted in India and the United States. In the first experiment, the researchers recruited 87 residents of rural India played games where they were rewarded with low, moderate, or large rewards for performance. The games involved creative skills, memory skills, or motor skills. In five of the six games that participants played, there was no significant difference in performance between low- and moderate sized rewards. The researchers also found that participant performance was always lowest in the large reward condition when compared with the low and moderate reward conditions, combined. Performance across the three different skills tested – creative, memory, and motor – all declined as the reward structure increased. The researchers conducted a two more experiments of similar

nature with college students from two different U.S. universities and found that, in general, the addition of greater incentives negatively affected performance. The researchers concluded that "one cannot assume that introducing or raising incentives always improves performance" (p. 467) and that "Beyond some threshold level, it appears, that raising incentives may increase motivation to supra-optimal levels and result in perverse effects on performance" (p. 468).

Monetary dispersion

Another potential issue with monetary incentives that can impede performance relates to unequal dispersion of monetary benefits (salary, bonus, etc.) among members of a group, such as co-workers or members of athletic teams. The potentially negative affect of monetary dispersion is due to people's natural tendency to assess the adequacy of their own pay or benefits by comparing them to the pay and benefits of others (Franck & Nuesch, 2011). For example, according to the wage compression hypothesis, team performance is negatively impacted by increases in wage dispersion, or unequal distribution across members of a team. Within a group, Franck and Neusch (2011) postulated that "the level of social discontent is largely determined by the relative comparison of one's own social and economic conditions within the perceived conditions enjoyed by some specific reference group, in teams typically other teammates" (p. 3038).

Investigations on the effect of monetary dispersion on athletic performance is scant, and findings from existing studies are mixed. For example, Richards and Guell (1998) found that high levels of salary dispersion were associated with a lower percentage of wins among Major League Baseball teams. Similarly, Frack and Neusch (2011) found that very high levels of wage inequality was associated with lower performance among professional soccer teams. Mondello and Maxcy's (2009) study on wage dispersion in the NFL indicated that lower levels of

dispersion were associated with improved team performance. On the contrary, Katayama and Nuch (2011) found no significant influence of salary dispersion on the performance of NBA teams. Despite mixed findings reported in the literature, salary dispersion provides another example of how monetary incentives may affect athletic performance.

No Effect

It is also possible for monetary incentives to have no significant effect on athletic performance. Hulleman, De Koning, Hettigna, and Foster (2007) conducted a study to investigate the effect of extrinsic motivators, in the form of monetary incentives, on the time trial performance of seven trained recreational cyclists. Each participant in Hulleman et al.'s study participated in four 1500-meter time trials, with 48 to 96 hours of rest between each race. The researchers instructed participants to complete each time trial in the shortest time possible. After the first three time trials, participants were provided with feedback about the statistics of their performance, such as velocity profile. Finally, before the fourth time trial, all participants were offered a $100 reward if they were able to beat the best time by at least 1 second. Although the researchers hypothesized that the addition of a monetary incentive would lead to performance improvements, analysis revealed no significant performance effects from the monetary incentives. In fact, most of the participants performed best on their second time trial, suggesting that performance worsened with the addition of the monetary incentive. The researchers posited that these effects may be the result of a negative effect of an extrinsic motivator on individuals' existing intrinsic motivation:

> In situations in which an individual is performing a task because of intrinsic motivation, presenting the individual with extrinsic rewards to perform the activity may actually lower intrinsic motivation. Thus, the additional monetary reward could have lowered the

intrinsic motivation of the cyclists and, therefore, not changed the pattern of performance. (p. 713)

Walchli, Ruffieux, Bourquin, Keller, and Taube (2015) also found no significant effect of monetary rewards on performance. The researchers examined how three different motivators affected motor performance, including augmented feedback (AF), focus of attention (FE), monetary reward (MR), and neural attention (NA). Augmented feedback is that which provides individuals with information regarding quality and outcomes of movements. Focus of attention describes when individuals direct their attention to the effects of their physical movements. Finally, neural attention (NA) describes directed attention at the physical body.

After performing a 10-minute warm-up, 16 participants in Walchli et al.'s (2015) performed countermovement jumps under six different conditions (a) neural attention, (b) AF, (c) MR, (d) AF + FE, (e) AF + RE, and (f) AF + FE + MR. For each condition, participants were given different directions. For example, during the AF condition, participants were directed to jump as high as possible and told they would be able to see the height of their jump on a screen after they performed the movement. For the MR condition, researchers told participants to jump as high as they could, and that the higher they jumped, the more money they would receive as a reward. Results from Walchli et al.'s study indicated the combination of AF and FE had the largest performance benefits. The scholars posited that this may have been because this combination acted on two separate mechanism, with AF tapping into participants' intrinsic motivation, and FE helping to improve the efficiency of each jump. In contrast, the researchers reported that conditions including monetary incentives did not result in better performance than other conditions.

Effect of Consciousness

An element of particular interest in the relationship between performance and monetary incentives is consciousness. While a sizeable body of research indicated the performance-enhancing and reducing effects of monetary rewards, a growing number of studies are devoted to the role of consciousness in the interaction of these factors. For example, Pessiglione et al. (2007) found that conscious awareness of a reward was not required for participants to demonstrate the performance-enhancing benefits of monetary rewards. The researchers directed participants to squeeze a handgrip while they were shown a low or high value coin they could win. As expected, participants squeezed harder when the high value coin was shown to them. However, when the researchers flashed an image of the high or low value coins to participants, at a speed too high to consciously perceive (subliminally), participants demonstrated the same higher levels of performance with the more valuable coins as they had when the more valuable coin had been consciously presented to them. Thus, the researchers concluded that increases in performance may be observed with only slight cues of monetary rewards.

Researchers have also found that subliminal monetary rewards can increase performance on cognitive performance tasks (Bijleveld, Custers, & Aarts, 2010, 2011; Capa, Bustin, Cleeremans, & Hansenne, 2011). For example, Bijleveld et al. (2011) investigated how subliminal rewards affected working memory and cognitive performance among a sample of 53 students. The researchers used subliminal and supraliminal rewards of 1 cent and 50 cents to see how reward presentation and amount affected participants' performance on cognitive tasks. Interestingly, the researchers found that when presented subliminally, high rewards were associated with improved performance. However, when the large rewards were presented consciously, the performance benefits vanished. The researchers posited that "unconscious

rewards can increase performance on a task that relies on working memory and attention processes" (Bijleveld et al., 2011, p. 868).

Non-Monetary Incentives

Many organizations also use non-monetary incentives to encourage performance (Hammerman & Mohnen, 2014). According to Tiedge (2011), around 15% of all compensation offered to individuals takes the form of non-monetary goods, such as fringe benefits, and company cars. In professional settings, as well as athletic competitions, three forms of non-monetary incentives that can increase motivation and performance are competition, praise and recognition, and environment.

Competition

Competition can be a powerful non-monetary incentive for athletes. Many researchers have reported positive correlations between competition and athletic performance (Corbett, Barwood, Ouzounoglou, Thelwell, & Dicks, 2012; Hill, 2014; Hill, 2014a, 2014b; Jane, 2015). Research indicates that when individuals compete against others with higher levels of performance, their own levels of performance are likely to increase (Corbett et al., 2012; Hill, 2014; Hill, 2014a, 2014b; Jane, 2015). For example, one group of researchers examined the influence of head-to-head completion of bioenergetics, pacing strategy, and performance among time trial cyclists (Corbett et al., 2012). The researchers found that cyclists performed significantly better in head-to-head races than in individual time trials. Specifically, cyclists in head-to-head trials exerted much greater anaerobic effort in the later part of the race than they did in individual time trials.

In another study, Hill (2014b) explored the relationship between performance, peers, and tournament structure in 5,000-meter track events. The researcher culled data from a 10-year

period and found that runners' performances were positively affected by the abilities of competing runners. That is, when competing against stronger runners, individuals were likely to experience a performance boost. Jane (2015) reported similar findings on the effect of competition on the performance of high school Taiwanese swimmers. The researcher reported that as the quality of an individual's competitor increased, so too did his or her athletic performance.

Hill (2014a) explored how the performance boost from competing against stronger athletes occurred when individuals were competing against a known superstar athlete. The researcher used data from 100-meter track events in which superstar athlete, Usain Bolt, competed. Hill found that across all ability levels, Bolt's presence was associated with faster times and an increased likelihood of setting personal records. The effect of Bolt's presence was most pronounced for slower runners, but his effect on personal record setting was highest among faster runners.

Praise, Recognition, and Self-Efficacy

Verbal feedback, such as constructive criticism, praise, or recognition, is another form of non-monetary incentive that can improve performance. For example, Droe (2013) examined the effects of verbal praise for effort and talent among a group of fourth-grade students. After students completed a simple rhythm test, they were either praised for their efforts, praised for their talents, or not praised at all. After the task, students were instructed to rate their motivation and performance attribution. The researcher found that students who received praise for effort reported a better attitude toward task persistence than those who received no praise or who were just praised for talent. In turn, the boost in feelings of self-efficacy and attitudes toward tasks that individuals obtain from verbal praise can improve performance.

Verbal feedback in the form of recognition and praise can also boost performance. For example, a group of researchers investigated the effect of unannounced, public recognition of employees in a controlled field experiment consisting of 300 participants (Bradler et al., 2016). A random sample of participants unexpectedly received recognition two hours into their three-hour assignment. The researchers found that the subsequent performance of praised participants increased significantly, leading the researchers to conclude that "unannounced provision of public recognition to employees causes a statistically and economically significant increase in performance" (Bradler et al., 2016, p. 3095).

In another study on task performance, Kvaløy et al. (2016) investigated the moderating effect of motivational talk on the relationship between performance and monetary incentives. The researchers followed a 2 x 2 experimental design using 46 male and 93 female participants. The conditions involved treatments with and without pay, and with or without motivational talk. The task that all participants had to complete was entering data into an electronic database. The researchers found that subjects responded to the motivational talk with improved performance, but only when they also received monetary incentives. The combination of monetary incentives and motivational talk also resulted in improvements in the quality of work performed by participants. Interestingly, in the absence of motivational talk, performance pay alone had a negative effect on performance. Results from this study indicated that "communication might be crucial to preventing monetary rewards from backfiring" (Kvaløy et al., 2016, p. 195).

Other scholars reported similar findings regarding the moderating effect of self-efficacy on the relationship between verbal feedback and performance. Wright, O'Halloran, and Stukas (2016) assessed the effect of performance enhancing techniques, including mental imagery, modeling, verbal feedback, and self-talk. The researchers reported that verbal feedback was

associated with significant improvements in self-efficacy, and that increased self-efficacy scores were associated with performance increases after controlling for age, sex, self-esteem, and achievement motivation. Thus, it appeared that verbal feedback improved participants' performance via boosts to individuals' self-efficacy.

As indicated in Kvaløy et al. (2016) and Wright et al.'s (2016) investigations, the relationship between performance and monetary incentives may be moderated by self-efficacy, which describes individuals' beliefs in their abilities to take action and achieve goals (Bandura, 1977). While some researchers (Kvaløy et al., 2016; Wright et al., 2016) reported potentially positive relationships between self-efficacy and performance, others (Bandura & Jourden, 1991; Stone, 1994) found that higher levels of self-efficacy can result in less effort and poorer performance. On the contrary, individuals with lower self-efficacy related to a given task may put more effort into achieving the objective, and thus, end up performing better. Because of the lack of consistency in findings on the relationship between self-efficacy and performance, researchers have also examined factors that could moderate the relationship, such as the levels of self-efficacy (Vancouver, More, & Yoder, 2008) and the discrepancy between the goals and an individual's current state (Schmidt & DeShon, 2010).

Tzur, Ganzach, and Pazy (2016) examined potential moderators of the performance-self-efficacy relationship by investigating the effect of monetary rewards. The researchers conducted three different experiments using a variety of designs, reward structures, tasks, and manipulations. Throughout all three experiments, the researchers found that the effect of self-efficacy tended to be high when rewards were high, and low when rewards were low. The researchers reported that "the higher the reward, the more positive the effect of self-efficacy on

performance" (p. 373). Thus, another way that monetary incentives may affect performance is through self-efficacy.

Environment

The physical environment can also influence individuals' performance in a variety of settings. For example, in the workplace, employee performance can be influenced by a variety of environmental variables such as office temperature, humidity, and lighting (Ali, Chua, & Lim, 2015). Leblebici (2012) reported that work environment can affect performance via behavioral factors such as engagement, comfort, morale, and productivity. Nguyen, Dang, and Nguyen (2014) reported that workplace environment improved employee performance by improving employees' comfort levels.

Monetary vs. Non-Monetary Goods

Hammerman and Mohnen (2014) conducted a study to examine differences in the effects that monetary and non-monetary incentives had on performance. While the researchers did find that participants performed better when in pursuit of monetary prizes over non-monetary goods, they also noted that the quality of the effort could decrease when monetary incentives were significant. Contrary to findings from previous researchers, who suggested larger monetary incentives could result in the choking under pressure phenomenon (Lee & Grafton, 2015; Mobbs et al., 2009), Hammerman and Mohnen found the opposite to be true; that is, higher incentives resulted in more concerted, quality efforts. A particularly interesting finding reported by the researchers was the effect of monetary incentives on labeling individuals' performances: "Money seems to clearly label winners and losers of tournaments, whereas non-monetary prizes may be subjectively adjustable and can be used to upgrade a subject's position ex-post, even if he is not among the winners" (Hammerman & Mohnen, 2014, p. 10).

Neural Research

While much of the research on monetary incentives and performance is grounded in seminal literature within the discipline of psychology (Baumeister, 1984; Martens & Landers, 1970; Wood & Hokanson, 1965), neurological researchers are increasingly interested in how incentives arouse parts of the brain (Chib, De Martino, Shimojo, & O'Doherty, 2012; Kurniawan et al., 2010; Pessiglione et al., 2007). For example, Kurniawan et al. (2009) conducted an experiment to see how activity of the putamen, an area of the brain, was involved when individuals participated in a hand grip activity. The researchers specifically examined participants' brain activity variations based on force factors and the involvement of monetary reward. The researchers were unable to detect positive activity in the putamen related to monetary reward.

In another brain study using hand grip force, Pessiglione et al. (2007) examined how monetary reward affected physical effort and brain activation. Contrary to Kurniawan et al.'s (2010) results, the researchers found that greater effort was correlated with greater anticipated rewards. Chib et al. (2012) used brain imaging to explore how skill-based tasks and performance pay affected neural processes. The researchers found that performance increased as incentives got larger, but worsened when incentives were perceived as very large. These findings echoed those of previous researchers on the phenomenon of choking under pressure (Ariely et al., 2009; Beilock et al., 2004; Mobbs et al., 2009).

Summary

The aim of this chapter was to review and synthesize research on performance and monetary incentives in order to contextualize the current study and reveal a gap in the existing body of research. While a significant number of studies exist regarding the relationship between

monetary incentives on performance, results are mixed. Some researchers reported positive relationships between monetary incentives and performance (Atkinson et al., 2009; Frick, 2011; Kingdon & Teal, 2007; Landry et al., 2015; Martin et al., 2011), while others reported negative relationships (Agrawal, 2012; Ariely et al., 2009; Mobbs et al., 2009) or no significant correlations (Bell & Cantarelli, 20015; Hulleman et al., 2007; Liang & Akiba, 2015). In fact, a sizeable body of literature indicates that monetary incentives have adverse effects on performance (Ariely et al. 2009; Kvaløy et al., 2016; Lee & Grafton, 2015; Lewis & Linder, 1997; Masters, 1992; Mobbs et al., 2009), and can undermine individuals' intrinsic motivation (Belle & Cantarelli, 2015; Kvaløy et al., 2016) and enjoyment of tasks (Moller, Buscemi, McFadden, Hedeker, & Spring, 2014).

Further, the body of research on the effects of monetary incentives on athletic performance is small and mostly limited to studies on salaries and contracts among high level athletes (Frick, 2011; Landry et al., 2015; Martin et al., 2011; O'Neil, 2013; O'Neil & Hummel; White & Sheldon, 2014). There were few studies addressing monetary incentives and athletic competition among amateur athletes, and those studies indicated little to no positive effects of incentives on performance (Hulleman et al., 2007; Walchli et al., 2015). Much of the research found was limited to investigations of motor performance through simple grip strength or rhythm experiments (Droe, 2013; Kurniawan et al., 2009; Pessiglione et al., 2007), which are contextually and physically very different from assessments of athletic performance.

One reason for the dearth of related studies may be the large number of factors involved in assessing performance and incentives. This literature review revealed the relationship between performance and incentives can be moderated by a variety of factors – particularly, self-efficacy and intrinsic motivation (Agrawal, 2012; Belle & Cantarelli, 2015; Droe, 2013; Frey &

Oberholzer-Gee, 1997; Kvaløy et al., 2016; Walchli et al.,2015; Wright et al., 2016). Thus, a significant gap exists in the research on the effects that monetary incentives have on the performance of amateur athletes. The following chapter includes a discussion of the study's methods, including design, rationale, participant selection, data collection, data analysis, and ethical procedures.

Chapter 3: Research Methods

Introduction

The relationship between incentives and athletic performance is a topic of psychological research that has been examined in a variety of contexts. Although significant research on the topic exists, investigations on the relationships between athletic performance and monetary incentives have produced conflicting results. Some researchers have reported positive relationships between monetary incentives and performance (Atkinson et al., 2009; Frick, 2011; Kingdon & Teal, 2007; Landry et al., 2015; Martin et al., 2011), while others reported negative relationships (Agrawal, 2012; Ariely et al., 2009; Mobbs et al., 2009) or no relationships at all (Bell & Cantarelli, 20015; Hulleman et al., 2007; Liang & Akiba, 2015). In addition, a review of the research on monetary incentives and athletic performance indicates the relationship between performance and incentives may be moderated by perceived self-efficacy and intrinsic motivation (Agrawal, 2012; Belle & Cantarelli, 2015; Droe, 2013; Frey & Oberholzer-Gee, 1997; Kvaløy et al., 2016; Walchli et al.,2015; Wright et al., 2016).

The aim of the current research was to explore the relationship between three levels of monetary incentives ($0, $3, and $10) and the athletic performance of adolescent male soccer players. In addition, the researcher investigated whether perceived physical self-efficacy or intrinsic motivation moderated the relationship between athletic performance and monetary incentives. This chapter provides details of the study's methods, including the research design, population and sample, and procedures for recruitment, participation, and data collection. In addition, the study's instrumentation, data analysis plan, and ethical procedures are presented.

Research Design and Rationale

Due to the lack of randomization, the current study followed a quasi-experimental design. Randomization is an experimental control method that prevents against selection and treatment biases (Suresh, 2011). This study did not involve a control group because all participants received the study treatment, which included three levels of monetary incentives (no incentive, $3 incentive, and $10 incentive) before each of the three athletic assessments. Specifically the researcher employed a one-group pre-test post-test design in which three different treatments (no incentive, $3 incentive, and $10 incentive) were implemented. The pre-test was 50-yard dash time at baseline, when no monetary incentive was offered. The two post-tests were 50-yard dash time after a small monetary incentive ($3) was offered, and again after a large monetary incentive ($10) was offered. The independent variables were the three levels of monetary incentives ($0, $3, and $10), and the dependent variable was athletic performance, assessed as participants' times on 50-yard dashes. The researcher assessed for moderating effects of intrinsic motivation, measured via the Sport Motivation Scale (SMS, Pelletier et al., 1995, see Appendix A), and perceived physical self-efficacy, measured via the Physical Self-Efficacy Scale for Children (PSESC; Colella et al., 2008 – See Appendix B).

Methodology

Population

The population for this study consisted of adolescent male soccer players between the ages of 11 and 13, who played on two teams for a youth soccer league in the Midwestern United States. Between the two teams, there are a total of 32 athletes (16 per team).

Sample and Sampling Procedures

A convenience sampling technique was used to gather participants for this study. Convenience sampling is a nonprobability sampling technique in which members of the target population are selected based on practical criteria, their willingness to participate, researchers' access to those individuals, or geographic proximity (Etikan, Abubakar, & Alkassim, 2015). Because the researcher coaches other teams in the same soccer league, the sample provided proximity and access, which helped ensure data collection was time- and cost-efficient. To be eligible for the study, participants had to:

- Be current players on one of the two selected youth soccer teams,
- Have been on the team since the beginning of the current season,
- Be male, and
- Be between the ages of 11 and 13.

Using G*Power analysis, the researcher calculated the a priori sample size required to achieve a power of 0.8 with an effect of 0.3 for a repeated measures ANOVA. With a total sample of 24, the researcher would achieve 0.8 power. A post hoc calculation of achieved power, based on a smaller sample size of 16 (which would be half of the total number of potential participants), would result in 0.61 power. The researcher expected athletes to be excited to participate in the investigation and anticipate a sample of at least 16 athletes, which was achieved.

Procedures for Recruitment, Participation, and Data Collection

The researcher recruited participants from the soccer teams from the league he works with. The researcher employed no coercion to convince athletes to participate in the investigation. Running drills are a routine aspect of every practice, so participants were not asked to perform any physical tests beyond what was normally expected of them during soccer

practice. The only difference was that the researcher offered participants small performance-based prizes and surveyed them prior to the first and second conditions to assess intrinsic motivation and perceived physical self-efficacy.

To recruit participants for the study, the researcher announced the research at the end of each team's weekly practice. It was important that athletes did not know details about the monetary incentives until just before they participated in the second and third conditions, as knowledge of the incentives could have influenced outcomes. For example, if athletes knew they would be offered incentives for improving upon their best time after each 50-yard dash, they may have intentionally run slower during the baseline assessment. In addition, athletes could be motivated to put in additional training outside of soccer practice in order to improve their times for the incentivized conditions. Thus, in order to control for these possible behavioral changes, participants were not aware of the sizes of the monetary incentives or requirements to obtain them until just before they participated in the second and third conditions. Accordingly, the researcher simply described the study to potential participants as an assessment of their motivation and athletic performance, which involved small prizes for performance. The researcher explained that participants would be asked to complete a survey and run timed 50-yard dashes at the beginning of two consecutive weekly practices. The researcher answered any questions that athletes had and distributed the parental consent form (Appendix C) to all athletes after practices. The researcher told athletes they must have their parents sign the consent form and return it to him by the following practice in order to participate in the study. In addition, he told athletes that parents were free to contact him by phone or email (provided on the consent form) with any study-related questions.

The parental consent form (Appendix C) included details of the study's purpose and participation requirements. The parental consent form explained that the study was an investigation of relationships between monetary incentives, athletic performance, intrinsic motivation, and perceived physical self-efficacy. The parental consent form also explained that the study would require athletes will complete a survey and run timed 50-yard dashes at the beginning of two consecutive weekly practices. Finally, the form stated that participants would be offered varying levels of incentives for their performance on the physical tests. Parents were encouraged to contact the researcher with any study-related questions or concerns, via the email address and phone number provided on the parental consent form. The form stated that the first timed 50-yard dash would take place during the following practice, and that the signed form must be returned in order for athletes to participate.

During the following practice, the researcher collected the signed parental consent forms from all athletes who wished to participate. All athletes, even any who were not participating, jogged two laps around the soccer field to warm up their muscles before participating in the first timed 50-yard dash. After all athletes warmed up, those who desired to participate in the study and returned signed parental consent forms were taken to a designated part of the field where the researcher measured off start and finish lines for the 50-yard dash, before practice. Any athletes who do not wish to participate or who have not returned signed parental consent forms were taken to another area of the soccer field where participated in comparable running drills with their coach.

Condition 1: No Incentive

The researcher had athletes take a seat on the field and provided each participant with a clipboard, pencil, and a copy of the research survey. The survey consisted of the SMS (Pelletier

et al., 1995) and the PSESC (Bolella et al., 2008). The researcher instructed the athletes to place their names at the top of the survey. Athletes were instructed to read each survey item carefully and select the responses that best described their thoughts and feelings. The survey took approximately 10 minutes to complete. After each participant completed the survey, the researcher collected it. After all surveys were complete, the researcher placed them in a locked briefcase to which only he had access.

After all athletes completed the brief research survey, the researcher gathered participants at the starting line for the 50-yard dash. He explained that the goal of the assessment was simply to run the 50-yard dash as fast as possible. Athletes participated, one at a time, as the researcher called their names. The order of the names in which athletes participated was based on the order in which athletes returned the parental consent forms to the researcher at the beginning of practice. Athletes were not aware of the order until their names were called. The researcher explained that he would blow a whistle to signal each athlete to begin the test when it was his turn. The researcher answered any questions that athletes had before beginning the baseline physical assessment.

After all questions were answered, the researcher walked to the finish line with a clipboard and list that contained the names of all participating athletes in the order in which they returned the parental consent forms. The researcher called out the name of the first participant, who then stepped up to the starting line. The researcher simultaneously blew a whistle and started a stopwatch for the first athlete to begin the 50-yard dash. When the athlete crossed the finish line, the researcher stopped the stopwatch and recorded the athlete's time next to his name on the list (Appendix D). This step was repeated until all athletes completed the 50-yard dash.

Condition 2: Small Incentive ($3)

Assessment for condition 2 (small incentive) took place one week after the first assessment. Similar to the first assessment, the researcher instructed all athletes, even those who were not participating, to jog two laps around the soccer field to warm up their muscles before participating in the first timed 50-yard dash. After all players warmed up, participating athletes were taken to the same part of the field where the researcher had previously measured off start and finish lines for the 50-yard dash. The researcher used the same device to measure the 50 yards as he did the previous week to avoid the influence of any calibration differences between measurement devices. Non-participants were taken to another area of the soccer field, where they will participated in comparable running drills with their coach.

Prior to participating in the second physical assessment, the researcher had participants re-take the research survey, consisting of the SMS (Pelletier et al., 1995) and the PSESC (Bolella et al., 2008). The researcher followed the same steps described for condition 1. After all athletes completed the research survey, the researcher gathered all participants at the starting line for the 50-yard dash. He explained that the goal of the assessment was to run the 50-yard dash as fast as possible. The researcher follow the same procedure described for condition 1, except this time he informed participants that they would win a $3 cash reward if they beat their 50-yard dash time from the previous week. Athletes ran in the same order as they did the previous week. The coach called out each athlete's name, time their second 50-yard dash, and recorded it on the list (see Appendix D). After all athletes completed the second condition, the researcher provide a $3 cash reward to those who improved upon their previous time.

Condition 3: Large Incentive ($10)

After completing the second condition, the researcher explained that athletes had 10 minutes to rest and get water before they would run the third 50-yard dash. After 10 minutes passed, athletes return to the starting line of the 50-yard dash. The researcher explained that athletes would participate in a final 50-yard dash. The researcher followed the same procedure described for condition 2, except this time he informed participants that they would be provided a $10 cash reward if they improved upon their previous best time, whether from the first or second test. Athletes ran in the same order as they did in the previous assessment. The researcher called out each athlete's name, timed their second 50-yard dash, and recorded it on the list (see Appendix D). After all athletes completed the third condition, the researcher provided a $10 cash reward to all athletes who improved upon their best time. In addition, the researcher ensured that after all assessments were over, all participants received a total of $13, regardless of their performance.

Instrumentation

The study was guided by the following research questions:

RQ1. What is the relationship between athletic performance and varying levels of monetary incentives among a sample of adolescent male athletes?

RQ2. Does intrinsic motivation moderate the relationship between athletic performance and monetary incentives among a sample of adolescent male athletes?

RQ3. Does perceived physical self-efficacy moderate the relationship between athletic performance and monetary incentives among a sample of adolescent male athletes?

The independent variable for the study was level of monetary incentive ($0, $3, and $10), and the dependent variable was athletic performance (time on the 50-yard dash). The researcher also

assessed for possible moderation from intrinsic motivation and perceived physical self-efficacy. This section includes an operationalized definition of each construct and a discussion of the instruments that were used to assess them.

Sport Motivation Scale (SMS; Pelletier et al., 1995)

Intrinsic motivation describes "engaging in an activity for the pleasure and satisfaction derived from it" (Gillet et al., 2013, p. 1200). Intrinsic motivation will be assessed using the Sport Motivation Scale (SMS, Pelletier et al., 1995, see Appendix A). The scale was originally developed by in French and called the *Echelle de Motivation dans les Sports* (EMS; Briere, Vallerand, Blais, & Pelletier, 1995). The EMS was translated to English by Pelletier et al. (1995), producing psychometric properties similar to those of the original scale (Granero-Gallegos, Baena-Extremera, Gomez-Lopez, Sanchez-Fuentes, & Abraldes, 2014). The SMS is a 28-item scale that uses 7-point subscales to assess motivation. Participants use the subscales, which range from 1 (does not correspond at all) to 7 (corresponds exactly), to respond to the following prompt: "Why do you practice your sport?" The SMS assess for three dimensions of motivation, including intrinsic motivation, extrinsic motivation, and amotivation. Twelve items assess for intrinsic motivation; 12 items assess for extrinsic motivation; and 4 items assess for amotivation.

An extensive validation process was performed on the SMS (Pelletier et al., 1995), which involved two studies and over 600 athletes. The 7-factor structure of the SMS was supported via confirmatory factor analysis and produced acceptable reliability (Pelletier et al., 1995). The 7-factor structure of the SMS has also been supported in factor analytic studies by several other researchers (Bara et al., 2011; Burtscher, Furtner, Sachse, & Burtscher, 2011; Doganis, 2000). Moreno et al. (2009) found that the scale produced good consistency and reliability when used to

assess students' motivation during physical education classes. Jackson, Ford, Kimiecik, and Marsh (1998) found support for the construct reliability and validity of the SMS among samples of French- and English-speaking athletes. Zahariadis, Tsorbatzoudis, and Grouios (2005) found that the SMS provided satisfactory concurrent validity when used to assess motivation in physical education among a sample of 165 male and female students (average age = 13.9 years). Finally, Granero-Gallegos et al. (2014) tested the reliability and validity of the SMS and found that all items demonstrated standard factor loadings >0.60, ranging from 0.73 to 0.97. The *t-value* was >1.96 and individual reliability was >0.05.

In addition to Moreno et al. (2009) and Zahariadis et al. (2005), other researchers have employed the SMS (Pelletier et al., 1995) to assess motivation among adolescent athletes. For example, Garcia-Mas et al. (2010) used the SMS to investigate the relationship between sports motivation and commitment among a sample of male soccer players between the ages of 14 and 16. Jõesaar, Hein, and Hagger (2012) employed the SMS to examine reciprocal relationships between three factors of athletic motivation among a sample of 362 male and female athletes between the ages of 11 and 16. Participants in Jõesaar et al.'s study were involved in a variety of sports, including swimming, badminton, basketball, soccer, and volleyball.

Physical Self-Efficacy Scale for Children (PSESC; Bolella et al., 2008)

Self-efficacy describes individuals' beliefs in their abilities to successfully take action in situations (Bandura, 1977). Physical self-efficacy describes individuals' beliefs about their capabilities "to successfully engage in physical activities with some frequency, duration, and intensity" (p. 842). As Colella et al. (2008) explained, self-efficacy is a determinant and consequence of physical activity; thus researchers have investigated the relationship between self-efficacy and motor skills (Feltz, 1992; Weiss & Ferrer-Caja, 2002).

Much of the research on perceived physical self-efficacy has employed Ryckman, Robbins, Thornton, and Cantrell's (1982) Physical Self-Efficacy scale, which consists of two subscales: Perceived Physical Ability and Physical Self-Presentation Confidence. In the current study, perceived physical self-efficacy was assessed using the Physical Self-Efficacy Scale for Children (PSESC; Colella et al., 2008, see Appendix B). This is a modification of items that Bortoli and Robazza (1997) adopted from Ryckman et al.'s Perceived Physical Ability subscale. Bortoli and Robazza's instrument consisted of 10 items. Colella et al. selected and modified six of those 10 items to make them easily understood by children. Items 1, 3, and 5 are scored 1 to 4, while items 2, 4, and 6 are reversed. The score of each item is added to create a final test score, which can range from 6 to 24. High scores indicate a high self-perception of physical ability, whereas low scores reflect a low self-perception.

Colella et al. (2008) developed the PSESC to assess children's perceptions of their physical abilities. Among a sample of 1914 boys and girls between the ages of 8 and 10, the researchers found the instrument to demonstrate internal reliability and validity across sex and age. Other studies indicated the measure was a valid and reliable assessment of perceived physical self-efficacy among children (Colella, Morano, Robazza, & Bortoli, 2009; Morano, Colella, Robazza, Bortoli, & Capranica, 2011).

Researchers have used Colella et al.'s (2008) PSESC to assess the relationship between perceived physical self-efficacy and motor function in a variety of contexts. For example, Berg, Becker, Martian, Primrose, and Wingen (2012) used the scale to examine physical self-efficacy and motor function following an 8-week intervention of video game use by a child with Down syndrome. Paloma, Rio, and D'Anna (2013) used the scale to assess differences in perceived physical self-efficacy between recreational and competitive gymnasts. Participants in Paloma et

al.'s investigation included 58 female gymnasts between the ages of 8 and 10. Carissimi et al. (2016) used the PSESC to explore the relationship between physical self-efficacy and body mass index among a sample of 1560 children between the ages of 8 and 12.

Athletic Performance

Athletic performance was assessed via time on the 50-yard dash. Many researchers have used the 50-yard dash to assess athletic performance in youth. For example, Lopez-Williams et al. (2005) employed a 50-yard dash to measure relationships between athletic performance, peer acceptance, and social behaviors among a group of children with ADHD. Slaughter, Lohman, and Miser (1980) used the 50-yard dash as an assessment of physical performance in their study on the relationship between body composition and physical performance among girls between the ages of 7 and 12. Gross and Johnson (1984) used the test to assess relationships between athletic performance and social status among a sample of boys and girls between the ages of 9 and 13. Finally, Ball, Massey, Misner, McKeown, and Lohman (1992) employed the 50-yard dash to assess the relationship between static strength and motor performance among a sample of boys between the ages of 7 and 11.

Data Analysis Plan

Data for this study consist of three types of interval data: scores from the SMS (Pelletier et al., 1995), scores form the PSESC (Colella et al., 2008), and times recorded for each of the three athletic assessments (50-yard dash). For each participant, seven data points will be collected, including:

- Baseline intrinsic motivation score
- Baseline perceived physical self-efficacy score
- Baseline 50-yard dash time (condition 1, no monetary incentive)

- Reassessed intrinsic motivation score
- Reassessed perceived physical self-efficacy score
- 50-yard dash with small monetary incentive ($3) offered
- 50-yard dash time with large monetary incentive ($10) offered

Intrinsic motivation scores (baseline and reassessed) will be determined by the average score of the 12 items on the SMS (Pelletier et al., 1995) which assess the intrinsic motivation dimension. These include items 1, 2, 4, 8, 12, 13, 15, 18, 20, 23, 25, and 27. This score will range from 1 to 7, with lower scores indicating lower levels of intrinsic motivation, and higher scores indicating higher levels of intrinsic motivation. It should be noted that, as explained in Chapter 4, the researcher opted to only utilize baseline scores from the SMS.

Perceived physical self-efficacy (baseline and reassessed) will be determined by scores on Colella et al.'s (2008) PSESC. This instrument consists of 6 items with four choices ranging in value from 1 to 4. The total score on the PSESC is the summation of all items, creating a final score ranging from 6 to 24. High scores indicate a high self-perception of physical ability, whereas low scores reflect a low self-perception of physical ability. It should be noted that, as explained in Chapter 4, the researcher opted to only utilize baseline scores from the PSESC.

Athletic performance was assessed via recorded times on the 50-yard dash for each of the three conditions (no monetary incentive, small monetary incentive, and large monetary incentive). All data were uploaded into SPSS. To determine whether the participant run times for each individual were significantly different based on monetary incentive level, the researcher conducted a repeated measures linear mixed-effects model. To determine which levels of motivation differed from one another with respect to run times, the researcher conducted post-hoc pairwise comparisons.

Threats to Validity

A couple of threats to validity existed. First, there was no control group. However, even without a control group, each participant acted as their own control via the baseline measures. It was not feasible to have controls try to run faster in the quasi-experimental condition. Another issue was selection bias due to non-random sampling. However, as mentioned previously, random sampling was not feasible in this study. As a result, the generalizability of the study was limited by the sample.

Ethical Procedures

Ethical procedures were employed to ensure the fair and ethical treatment of all participants. First, the researcher followed principles of ethical research described in the Belmont Report (U.S. Department of Health and Human Services, 1979), including respect, beneficence, and justice. In addition, he obtained approval from Walden University's IRB before beginning any part of data collection. After obtaining IRB approval, the researcher introduced the study to athletes and distributed parental consent forms (Appendix C). Parental consent forms were used in lieu of participant consent forms because all participants were under the age of 18. The parental consent form ensured that all athletes and their parents were provided with study details, including an understanding that participation was completely voluntary and athletes had the right to withdraw at any time. In addition to obtaining parental consent, the researcher had participants complete an assent form (Appendix E) to athletes to ensure they understood participation requirements and their right to withdraw at any point. The aim of the consent process was to make sure participants understood study risks, benefits, and the voluntary nature of the research (U.S. Department of Health and Human Services, 1979).

The identities of all participants remained confidential, as no identifying information was be published. Study-related documentation, including parental consent forms, completed research surveys, and the record of participants' performance on the physical assessments were kept in the researcher's locked briefcase, to which only he has access. After all data collection was complete, the researcher uploaded information from participants' physical assessments and completed surveys to SPSS for analysis. The data were housed on the researcher's personal, password-protected computer. As required by Walden University, all study documentation and data will be kept for a period of 5 years, after which, it will be destroyed by a company that provides professional data discarding services.

Summary

The aim of this research was to explore the relationship between three levels of monetary incentives ($0, $3, and $10) and the athletic performance of adolescent male soccer players. In addition, the researcher investigated whether perceived physical self-efficacy or intrinsic motivation moderated the relationship between athletic performance and monetary incentives. This study followed a one-group pre-test post-test design in which three different treatments (no incentive, $3 incentive, and $10 incentive) were implemented. The pre-test was 50-yard dash time at baseline, when no monetary incentive was offered. The two post-tests were 50-yard dash time after a small monetary incentive ($3) was offered, and again after a large monetary incentive ($10) was offered. The researcher assessed for moderating effects of intrinsic motivation, measured via the SMS (Pelletier et al., 1995), and perceived physical self-efficacy, measured via the PSESC (Colella et al., 2008).

This chapter provided details of the methods for the current quasi-experimental study, including the design, sample, and procedures for data collection and analysis. Instrumentation,

threats to validity, and ethical procedures were also discussed. Study results will be presented in Chapter 4, and a discussion of findings and implications will appear in Chapter 5.

Chapter 4: Results

Introduction

The purpose of this quasi-experimental investigation was to explore the relationship between three levels of monetary incentives ($0, $3, and $10) and the athletic performance of adolescent male soccer players. In addition, the researcher investigated whether perceived physical self-efficacy or intrinsic motivation moderated the relationship between athletic performance and monetary incentives. The study was guided by the following questions:

RQ1. Does a relationship exist between athletic performance and varying levels of monetary incentives among a sample of adolescent male athletes?

RQ2. Does intrinsic motivation moderate the relationship between athletic performance and monetary incentives among a sample of adolescent male athletes?

RQ3. Does perceived physical self-efficacy moderate the relationship between athletic performance and monetary incentives among a sample of adolescent male athletes?

This chapter provides results from the analysis. It begins with a discussion of the data collection strategy employed, followed by a discussion of the results, including a description of the sample and statistical assumptions. Next, results of statistical analyses are presented. The chapter closes with a brief summary.

Data Collection

Originally, the researcher intended to obtain a sample of 16 athletes from the two soccer teams he coaches. However, Walden University's IRB presented concerns over utilizing players from the researcher's soccer team. Thus, the researcher instead recruited 16 soccer players from two teams with the same soccer league, which he was not involved with coaching in any way.

All participants were between the ages of 11 and 13. The average age was 12, with a median of 12.125. The ages of each participant are provided in Table 1.

Table 1

Participant Ages

Participant Pseudonym	Age
Jason	12
Michael	12
Christopher	12
Zack	12
Joe	12
Blake	12
Adam	12
Anthony	12
Jeffrey	12
Andy	11
Brian	13
Tom	12
Corbin	13
Mitch	12
Gary	13
Craig	12

Data were collected during weeks of October 4 and October 11, 2017. As planned, the researcher recruited a convenience sample of 16 soccer players from two teams with a soccer club located in the Midwestern United States. This club agreed to serve as the partner organization for the study. Convenience sampling is a nonprobability sampling technique (Etikan et al., 2015); thus, results of this study are not generalizable to other populations of athletes. The researcher announced the study to athletes from the two teams at the end of soccer practice on September 27 2017, describing the research as an assessment of their motivation and athletic performance.

Assessments for the first condition ($0 incentive) took place one week after the researcher announced the study, on September 27, 2017. Only athletes who returned the consent form and who met the inclusion criteria were able to participate. The inclusion criteria were:

- Be current players on one of the two youth soccer teams selected for the study,
- Have been on the team since the beginning of the current season,
- Be male, and
- Be between the ages of 11 and 13.

The original inclusion criteria required players to be between the ages of 13 and 14 in order to participate. However, this age range was based on the ages of players from the two teams the researcher originally intended to sample (that is, the teams he coached). Because the researcher was required to revise his methods to sample two teams that he did not coach, the ages of participants was slightly younger. This change required him to revise the age range criteria to 11 to 13 years.

Of the 24 total athletes that were invited to participate, 16 obtained consent and volunteered. Among those who obtained parental consent, the researcher also obtained written

assent to ensure the players' autonomous decisions to participate. The researcher endeavored to obtain a sample of at least 24 participants to achieve a power of 0.8; however, only 16 players agreed to participate and provided necessary permissions. Thus, a sample 16 participants was obtained, which was adequate for achieve a power of 0.61.

Data collection, including the three timed runs and the completion of the SMS (Pelletier et al., 1995) and the PSESC (Bolella et al., 2008) occurred after regular practices, over the course of 2 weeks. Assessment for the second and third conditions ($3 and $10 incentives) took place one week after the first incentive, as described in Chapter 3 of this dissertation. After all athletes completed the third condition, the researcher provided a $10 cash reward to all athletes who improved upon their best time. In addition, the researcher made sure that all participants received a total of $13 at the end of data collection, so that no participant received a greater cash reward than another.

Results

Three types of data were used in this analysis, including participants' 50-yard dash run times for each of the three levels of monetary incentive ($0, $3, and $10). In addition, intrinsic motivation scores were calculated from the SMS (Pelletier et al., 1995), and perceived physical self-efficacy was calculated from the PSESC (Bolella et al., 2008). The researcher's original plan was to collect intrinsic motivation and physical self-efficacy scores at baseline, and then again before the two conditions for which monetary incentives were offered. Although these data were collected, the researcher decided that intrinsic motivation and perceived physical self-efficacy should be relatively stable characteristics that were unlikely to change dramatically from one week to the next. Thus, the data analysis plan was revised slightly to only utilize baseline intrinsic motivation and physical self-efficacy scores.

The range for intrinsic motivation scores was from 1 to 7, with 7 indicating the highest intrinsic motivation score. Intrinsic motivation was assessed using the Sport Motivation Scale (SMS, Pelletier et al., 1995, see Appendix A). The SMS is a 28-item scale that uses 7-point subscales to assess motivation. Participants use the subscales, which range from 1 (does not correspond at all) to 7 (corresponds exactly), to respond to the following prompt: "Why do you practice your sport?" The SMS assess for three dimensions of motivation, including intrinsic motivation, extrinsic motivation, and amotivation. Twelve items assess for intrinsic motivation; 12 items assess for extrinsic motivation; and 4 items assess for amotivation.

Physical self-efficacy describes individuals' beliefs about their capabilities "to successfully engage in physical activities with some frequency, duration, and intensity" (p. 842). Colella et al. (2008) developed the six-item PSESC to assess children's perceptions of their physical abilities. The range for physical self-efficacy scores was from 6 to 24, with 24 indicating the highest possible level of perceived self-efficacy on the PSESC.

Finally, participants' times for the 50-yard dash were measured in seconds. Within this sample, mean and median run times became lower, indicating faster run speeds and increased physical performance, as the size of the monetary incentive increased. Figure 1 provides an illustration of the average run times for each level of monetary incentive ($0, $3, and $10), and includes 95% confidence intervals for each run time, as calculated directly from the data.

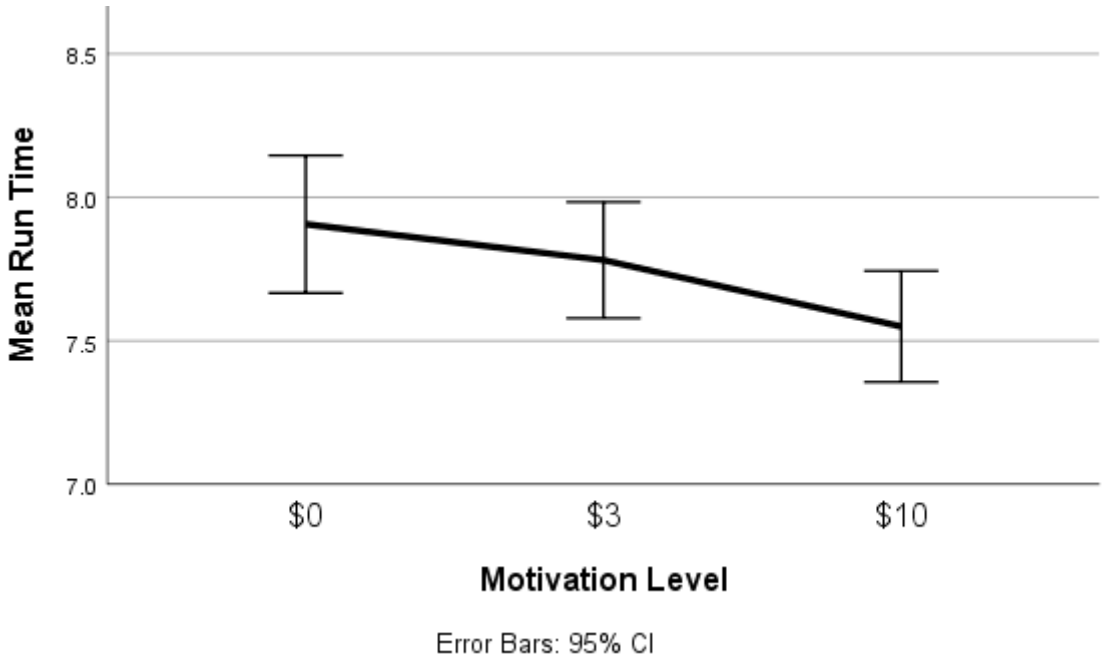

Figure 1. Line Plot of Mean Run Times by Motivation Level

The three run times, as well as intrinsic motivation and physical self-efficacy scores for each of the 16 participants are summarized in Table 2. The average intrinsic motivation score was 5.15, with a minimum of 4 and maximum of 7. Thus, the average level of intrinsic motivation among participants, along a 7-point scale, was moderately strong. The average score for physical self-efficacy was 18.86, with a median of 19. Out of a possible maximum score of 24, the average level of perceived physical self-efficacy was moderate, as well. As depicted in Table 2, average run times decreased as monetary incentives increased, dropping from 7.91 seconds for the first condition ($0 incentive) to 7.55 seconds for the third condition ($10 incentive).

Table 2

Summary Statistics of Five Measures

Measure	N	Mean	Median	Std. Deviation	Minimum	Maximum
Intrinsic Motivation Score	16	5.15	5.04	0.974	4	7
PSESC Score	16	18.63	19.00	2.335	15	24
Run Time 1	16	7.91	7.90	0.449	6.8	8.6
Run Time 2	16	7.78	7.85	0.380	6.9	8.3
Run Time 3	16	7.55	7.55	0.363	6.6	8.2

Research Question 1

The first research question aimed at investigating whether a relationship existed between athletic performance (indicated by times on the 50-yard dash) and the different levels of monetary incentives ($0, $3, and $10). In order to determine whether the participant run times for each individual were significantly different based on monetary incentive level, the researcher conducted a repeated measures linear mixed-effects model. This model was valuable for recognizing the dependent nature of the repeated measures taken for each participant, by including a subject effect.

Assumptions. To examine the assumption of normality, the researcher created a histogram of the residuals of the model, in which a normal curve was imposed. As illustrated in Figure 2, the residuals appeared to be approximately normally distributed.

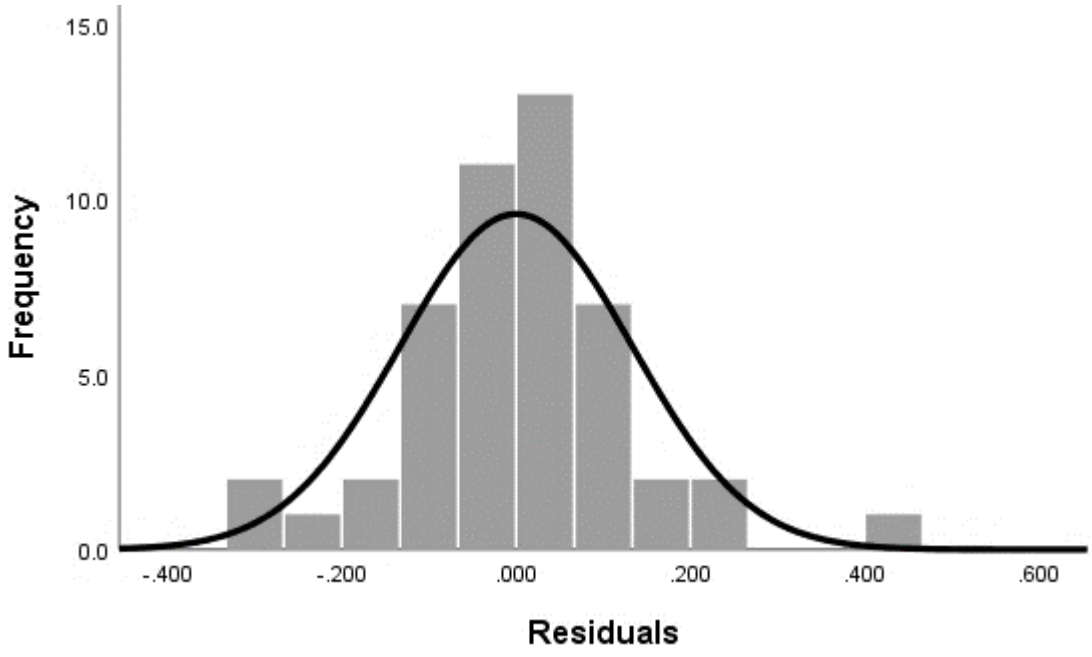

Figure 2. Histogram of Model Residuals

Next, the researcher examined the assumptions of linearity and homogeneity by plotting the residuals against the predicted values from the model. As illustrated in Figure 3, there were no obvious departures from the linear pattern of this model.

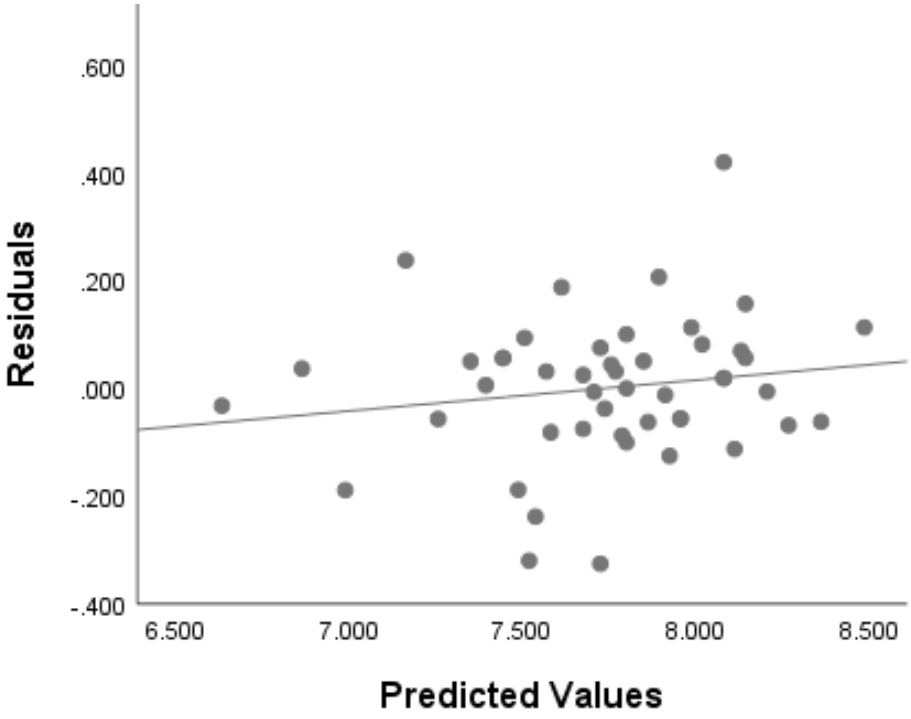

Figure 3. Scatterplot of Residuals v. Predicted Values

Finally, the researcher conducted a Levene's test to determine whether the residuals had equal variance across participants' run times for each of the three levels of incentives. Results of this test are provided in Table 3. The *p*-value of 0.242 indicated that there was no statistically significant departure from homogeneity; thus, the assumptions of the model were satisfied.

Table 3

Results of Levene's Test for Homogeneity of Variance across Runs

Levene Statistic	*df*1	*df*2	*p*-value
1.466	2	45	0.242

Model Results

Table 4 provides the overall results of the model. According to Table 4, there was a statistically significant difference in run times across the three different levels of motivation ($F(2, 30) = 19.41$, $p < 0.001$).

Table 4

Overall Model Tests

Source	Numerator *df*	Denominator *df*	*f*	*p*-value
Intercept	1	15	6785.995	< 0.001
Motivation	2	30	19.409	< 0.001

Table 4 illustrates the average run times from the model (which match those in Table 1), plus confidence intervals around each average run time. The test indicated that with 95% confidence, the true average run time of the entire population of athletes for each level of motivation (beyond those in this sample) falls within its respective range.

Table 5

Estimated Mean Run Times

		95% Confidence Interval	
Incentive Level	Mean	Lower Bound	Upper Bound
$0	7.91	7.70	8.12
$3	7.78	7.57	7.99
$10	7.55	7.34	7.76

Finally, in order to determine which levels of motivation differed from one another with respect to run times, the researcher conducted post-hoc pairwise comparisons (see Table 6). The motivation levels (as indicated by run times) demonstrated by participants for the $10 incentive were significantly different from the motivation levels demonstrated for the $0 and $3 incentives. Statistically significant differences in motivation levels did not exist between the $0 and $3 incentives. It should be noted that these figures were adjusted for multiple testing, that is, running more than one test simultaneously because there were three tests, using the Bonferroni adjustment.

Table 6

Post-hoc Pairwise Comparisons

Level A	Level B	Mean Difference (A-B)	Standard Error	t	df	p-value
$0	$3	0.125	0.058	2.16	30	0.118
$0	$10	0.356	0.058	6.14	30	< 0.001
$3	$10	0.231	0.058	3.98	30	0.001

Research Question 2

The second research question was designed to examine whether intrinsic motivation moderated the relationship between athletic performance and monetary incentives. In a statistical sense, moderation occurs when the relationship between two variables is dependent on a third variable (Cohen, Cohen, Aiken, & West, 2003). Moderation is represented by a statistical interaction between two variables (monetary incentive and run times). In the current study, the two potential moderators that the researcher examined were intrinsic motivation and perceived physical self-efficacy. The overall results of the tests for moderation by intrinsic motivation are provided in Table 7. As demonstrated by the analysis, there was not a statistically significant interaction between monetary incentive and intrinsic motivation ($F(2, 28) = 0.145$, $p = 0.866$). That is, intrinsic motivation had no effect on the demonstrated relationship between athletic performance and monetary incentives.

Table 7

Overall Model Tests with Intrinsic Motivation Interaction

Source	Numerator df	Denominator df	F	p-value
Intercept	1	14	227.320	< 0.001
Motivation	2	28	0.577	0.568
Intrinsic Motivation	1	14	0.324	0.578
Motivation * Intrinsic Motivation	2	26	0.145	0.866

While monetary incentive was no longer statistically significant, this lack of significance was inconsequential to the interpretation of the potential moderation effect, which was tested only by looking at the interaction of the two factors. Without statistical significance, there were no additional tests or comparisons to analyze.

Research Question 3

The aim of the third research question was to investigate whether perceived physical self-efficacy moderated the relationship between athletic performance and monetary incentives. The overall results of this model are provided in Table 8. There was not a statistically significant interaction between monetary incentives and physical self-efficacy ($F(2, 28) = 0.554$, $p = 0.581$). That is, perceived physical self-efficacy had no effect on the demonstrated relationship between

athletic performance and monetary incentives. Because of the lack of statistical significance, there were no additional tests or comparisons to analyze.

Table 8

Overall Model Tests with Physical Self-Efficacy Interaction

Source	Numerator df	Denominator df	F	P value
Intercept	1	14	139.54	< 0.001
Motivation	2	28	1.525	0.235
PSESC Score	1	14	2.24	0.157
Motivation * PSESC Score	2	28	0.554	0.581

Summary

The aim of this study was to determine whether different levels of monetary incentives ($0, $3, and $10) influenced athletic performance among a sample of adolescent male soccer players. Athletic performance was assessed via players' 50-yard dash run times for each of the three levels of monetary incentives. Analysis revealed that players' average run times significantly decreased as monetary incentives increased. Post-hoc pairwise comparisons revealed that run times were statistically significantly lower for the $10 incentive condition than for the $0 and $3 conditions, but that the differences in run times for the $0 and $3 conditions were not significant. Thus, it appeared that the $10 incentive had a stronger, positive influence on athletic performance than did the $3 incentive, which may be due to players' perceptions of the differences between a $3 and $10 reward.

Next, the researcher investigated whether two characteristics internal to individual players (intrinsic motivation and perceived physical self-efficacy) may have moderated the observed relationship between athletic performance and monetary incentive. Intrinsic motivation was assessed via 12 items from Pelletier et al.'s (1995) SMS. Analysis revealed that intrinsic motivation had no statistically significant interaction effect on the relationship between athletic performance and monetary incentives; thus, players' internal motivation to perform well had no significant bearing on the degree to which they were influenced by the different levels of monetary incentives.

Finally, participants' perceived physical self-efficacy was assessed via Colella et al.'s (2008) PSESC. Analysis revealed that perceived physical self-efficacy had no statistically significant interaction effect on the relationship between athletic performance and monetary incentives; thus, players' perceptions of their abilities to perform well had no significant bearing on the degree to which they were influenced by the different levels of monetary incentives. The lack of moderation effects from intrinsic motivation and perceived physical self-efficacy were particularly interesting, given a significant body of research that indicates the strong influence of these characteristics on athletic performance (Agrawal, 2012; Bandura & Jourden, 1991; Belle & Cantarelli, 2015; Hulleman et al., 2007; Kvaløy et al., 2016; Tzur et al., 2016; Wright et al., 2016). Thus, while findings revealed that participants' athletic performance was significantly influenced by levels of monetary incentives, participants' intrinsic motivation and perceived physical self-efficacy did not have any effect on these relationships. A discussion on these findings is provided in the following chapter, including limitations, recommendations, and key implications.

Chapter 5: Discussion

Introduction

The use of incentives can be a powerful tool for motivating adolescents to behave and perform in positive and healthy ways. In order to use monetary incentives effectively, it is essential to understand their effectiveness, as well as the influence of moderators on the relationship between incentives and performance. The purpose of this quasi-experimental investigation was to explore the relationship between three levels of monetary incentives ($0, $3, and $10) and athletic performance among adolescent male soccer players. In addition, the researcher investigated whether perceived physical self-efficacy or intrinsic motivation moderated the relationship between athletic performance and monetary incentives.

Findings from this study shed light on the usefulness of monetary incentives among adolescents. Analysis revealed that players' average run times significantly decreased as monetary incentives increased. Thus, it appeared that the $10 incentive had a stronger, positive influence on athletic performance than did the $3 incentive, which may be due to differences in players' perceptions of the value of the different rewards. Analysis for the second and third research questions revealed that intrinsic motivation and perceived physical self-efficacy had no statistically significant interaction effect on the relationship between athletic performance and monetary incentives; thus, players' internal motivation and perceptions of their abilities to perform had no significant bearing on the degree to which they were influenced by the different levels of monetary incentives.

This chapter provides a discussion of study findings, beginning with the researcher's interpretation of the results. Study limitations are discussed, followed by recommendations for

practice and future research. Finally, practical and theoretical implications are presented. The chapter closes with the researcher's concluding remarks.

Interpretation of Findings

Research Question 1. The first research question aimed at investigating whether a relationship existed between athletic performance (indicated by times on the 50-yard dash) and the different levels of monetary incentives ($0, $3, and $10). The motivation levels (as indicated by run times) demonstrated by participants for the $10 incentive were significantly different from the motivation levels demonstrated for the $0 and $3 incentives. Statistically significant differences in motivation levels did not exist between the $0 and $3 incentives. These findings support those from previous researchers on the utility of monetary incentives for improving performance (Atkinson et al., 2009; Frick, 2011; Kingdon & Teal, 2007; Landry et al., 2015; Martin et al., 2011). Ariely et al. (2009) posited that performance-based monetary incentives work by increasing motivation and effort, which leads to improvements in performance.

Findings from this study challenge those from other investigators who reported negative effects of monetary incentives (Agrawal, 2012; Ariely et al., 2009; Mobbs et al., 2009). Previous investigations on the effects of monetary incentives on athletic performance were mostly limited to studies on salaries and contracts among high level athletes (Frick, 2011; Landry et al., 2015; Martin et al., 2011; O'Neil, 2013; O'Neil & Hummel; White & Sheldon, 2014). Only a couple of studies were located that examined monetary incentives and athletic competition among amateur athletes. Among those studies on amateurs, researchers reported little to no positive effects of incentives on performance (Hulleman et al., 2007; Walchli et al., 2015); this clearly counters findings from the current investigation. The different findings from the current

investigation could be based on a number of things (i.e., differences in athlete's ages, experience, sports backgrounds, etc.), creating many opportunities for future research.

Some previous researchers (Bell & Cantarelli, 20015; Hulleman et al., 2007; Liang & Akiba, 2015) reported no significant effects of monetary incentives, which was partially supported by the current investigation, as the differences in the effects of no ($0) incentive and the small ($3) incentive were insignificant. Thus, it is likely that the effectiveness of a monetary incentive is related to individuals' perceptions of the value of the incentive. In the current investigation, greater value associated with the $10 incentive may have contributed to the significant differences in athletic performance associated with the small ($0, $3) and large ($10) incentives. Previous research indicates there may be a point at which a growing monetary incentive has a negative effect on performance, backfiring and interfering with athletes' intrinsic motivations (Hulleman et al., 2007). However, because the maximum incentive offered during the current investigation was $10, and the effect of that $10 incentive was significant and positive, the current research did not reveal a point at which such a backfire effect may occur. Future researchers could pursue this line of inquiry by offering incentives of a larger size to determine if such an effect exists among similar samples.

Research Question 2. The second research question was designed to examine whether intrinsic motivation moderated the relationship between athletic performance and monetary incentives. Analysis revealed that intrinsic motivation had no effect on the demonstrated relationship between athletic performance and monetary incentives. This finding was somewhat interesting, due to existing research that indicates intrinsic motivation has a significant influence on athletic performance (Agrawal, 2012; Belle & Cantarelli, 2015; Droe, 2013; Frey & Oberholzer-Gee, 1997; Kvaløy et al., 2016; Walchli et al.,2015; Wright et al., 2016).

Findings from this study may challenge those from previous researchers who reported that monetary incentives actually negatively moderated the relationship between financial incentives and intrinsic motivation (Bell & Cantarelli, 2015). That is, previous research indicates that higher levels of intrinsic motivation can actually reduce the positive effect that monetary rewards had on intended effort. Similarly, Agrawal (2012) cautioned against the pitfalls of performance-related pay because of the negative effect that monetary incentives can have on intrinsic motivation. Agrawal reported that intrinsic motivation was directly reduced by monetary rewards and could undermine cooperation and teamwork, which are particularly important in any type of cooperative environment. Other researchers have reported that monetary incentives can actually impair performance by undermining intrinsic motivation and reducing self-efficacy (Kvaløy et al., 2016). Although the aim of this study was not to explore the influence of monetary incentives on intrinsic motivation or self-efficacy, findings did not indicate that intrinsic motivation or self-efficacy had any influence on the relationship between monetary incentives and performance. Rather, findings from this investigation indicated that monetary incentives improved athletic performance.

Research Question 3. The aim of the third research question was to investigate whether perceived physical self-efficacy moderated the relationship between athletic performance and monetary incentives. Analysis revealed that perceived physical self-efficacy had no effect on the demonstrated relationship between athletic performance and monetary incentives. This finding was unexpected and countered Vroom's (1964) expectancy theory, which suggests that people will work hard to meet goals with desirable outcomes when they are confident they can achieve those goals. On the other hand, Vroom posited that people put less work toward goals they are less confident in achieving (Goksoy & Argon, 2015). Based on expectancy theory, the

researcher of the current investigation expected that participants' levels of perceived physical self-efficacy would positively moderate the relationship between monetary incentives and athletic performance; that is, higher levels of self-efficacy would result in a greater positive effect of monetary incentives. Findings from the analysis, however, indicated that perceived physical self-efficacy did not moderate this relationship. The large monetary incentive increased performance regardless of players' levels of perceived physical self-efficacy; that is, their performance did not vary based on levels of perceived physical self-efficacy.

Theoretical. The framework for this study was comprised of three theories: expectancy theory (Vroom, 1964), the theory of planned behavior (Ajzen, 1991), and self-determination theory (Deci & Ryan, 1985). Expectancy theory is based on the belief that individuals' behaviors are dictated by conscious choices that are designed to minimize pain and maximize pleasure. Expectancy theory is useful for explaining why individuals engage in behaviors they perceive will lead to reward or pleasure. People work harder to achieve goals when the outcomes include pleasure or rewards, but only if they are confident they can achieve the desired outcome (Vroom, 1964). In this way, expectancy theory posits that self-efficacy is essential to performance because the effort individuals put toward achieving outcomes is based on their self-efficacy beliefs regarding their likelihood of success (Hoy & Miskel, 2012).

The aim of the current investigation was not to examine the relationship between self-efficacy and performance, but to explore whether self-efficacy moderated the relationship between monetary incentives and athletic performance. Results indicated that monetary incentives did influence performance, but that self-efficacy did not interact with that relationship. In some ways, this challenges Vroom's supposition that people work harder to achieve goals only if their self-efficacy beliefs regarding the achievement of those goals are adequate.

Findings from this study revealed that participants worked harder (ran faster) to achieve their goals (improve upon their previous run times), regardless of perceptions of physical self-efficacy.

Bandura's (1977) theory of self-efficacy is also central to the theory of planned behavior because self-efficacy influences perceived behavioral control. Thus, perceived behavioral control and behavioral intentions combine to predict behavioral achievement or performance (Ajzen, 1991). In the context of the current study, the researcher posited that the theory of planned behavior may help explain how perceived physical self-efficacy influences athletic performance, via perceived behavioral control. Again, because self-efficacy did not influence the relationship between monetary incentives and athletic performance, findings challenge the theory of planned behavior in the context of monetary incentives and athletic performance. It appeared that monetary incentives improved athletic performance, regardless of self-efficacy beliefs. Thus, individuals did not only exert greater effort to obtain the higher rewards if they had stronger beliefs in their physical self-efficacy.

The final theory selected for this study was Deci and Ryan's (1985) self-determination theory (SDT), which provides a framework for understanding human motivation. According to the theory, intrinsic motivators are those that inspire individuals to engage in activities for personal pleasure and satisfaction, whereas extrinsic motivators are external incentives that inspire people to behave in certain ways. In the current study, participants' intrinsic motivation was assessed using Pelletier et al.'s (1995) Sport Motivation Scale (SMS). Baseline assessment of participants' intrinsic motivation scores on the SMS allowed the researcher to explore what role, if any, intrinsic motivation had in the relationship between monetary incentives and athletic performance. Because intrinsic motivation did not have any significant interaction effect on the

relationship between monetary incentives and athletic performance, the extrinsic motivator of a large monetary reward appeared to motivate athletes, regardless of their intrinsic motivation.

Limitations of Study

This study was bound by a number of limitations. First, all participants were located in the same middle-class, Midwestern community, and played for the same soccer league. For this reason, the demographic characteristics of participants, in terms of age, socioeconomic status, and race, were likely to be relatively homogenous. It is possible that demographic characteristics such as race and socioeconomic status may significantly

Perceived physical self-efficacy did not have a moderating effect on the relationship between athletic performance and monetary incentives in this study; however, it is important to note that participants may have had stronger beliefs in their physical abilities to perform well, due to their athletic team participation. That is, if physical self-efficacy scores were relatively evenly distributed because participants all had a relatively similar, strong sense of perceived self-efficacy, a moderating effect of physical self-efficacy may be unlikely. However, had the sample been comprised of participants from a variety of athletic backgrounds, including those who had a history of participation in team sports, as well as those who had never played organized sports, perceived physical self-efficacy scores may have been more heterogeneous among the sample and demonstrated a moderating effect on the relationship between athletic performance and monetary incentives. Along this same line, a sample that had been wholly comprised of participants with no athletic background may have produced significantly different results in terms of the effects of perceived physical self-efficacy.

In addition, the demographic variation of participants was limited to male athletes between the ages of 11 and 13. It is possible that athletes in different age categories (younger or

older) may have different levels of perceived physical self-efficacy. For example, an older group of players with more athletic experience may demonstrate higher levels of PPSE than a younger group, because of more experience that has improved their athletic confidence.

The athletic test that was used to assess physical performance may also present a limitation. The 50-yard dash is a simple test of sprint performance, but this is only one of many facets of physical performance. For example, the 50-yard dash does not assess for endurance or agility, as other tests, such as a mile run or hurdles, do. The 50-yard dash was selected for the current study because of its simplicity and known familiarity among participants; that is, no specific practice or instruction was required for players to complete this assessment. However, it is certainly possible that other performance assessments with which players were not adept may have produced significantly different performance scores. For example, had the athletic assessment been a rope climb – a test at which adolescent boys are not likely to be highly practiced—their performance may have been similarly poor across all three assessments, regardless of monetary incentive offered, because they simply lack the upper body strength to perform well on such an assessment. In this way, different types of physical assessments may have produced very different results regarding the relationship between performance and incentives, as well as any moderating effects of perceived physical self-efficacy or intrinsic motivation.

This research was also limited to three assessments of athletic performance, following three levels of monetary incentive ($0, $3, and $10). It is possibly that the inclusion of additional assessments, over a longer period of time may have produced different results. Had the physical assessments been spaced out differently, results may have also differed. For example, although the researcher provided participants with a short recovery period between the

second and third performance assessments, there was likely to still be a drop in physical performance during the $10 incentive condition because it followed shortly after the assessment for the $3 incentive condition. Still, even with this possible performance drop, participants' physical performance increased significantly for the $10 incentive. Had the researcher waited another week to conduct the final performance assessment (for the $10 incentive), it is possible that run times may have been even faster because participants were not working against fatigue from the previous run test. However, the researcher was bound by time, so this limitation was accepted.

It is also possible that different levels of monetary incentives may have affected performance in different ways. Although all participants were from the same middle-class community in the same town, it is not possible to account for possible differences in perceptions of financial incentives. Results from the current investigation indicated that the $3 incentive did not significantly improve performance over no ($0) incentive; however, the difference between the large ($10) incentive and the small ($3) incentive was significant. It is possible that larger incentives may have resulted in even greater improvements in athletic performance. Future researchers may examine the effects of larger incentives to determine at what point the increase in incentive no longer results in an increase in performance – or, at which point incentive increases have a negative effect on performance. It is also likely that the degree to which a monetary incentive motivates athletes to perform better is related to their perceptions of the value of that incentive. For example, players with poor socioeconomic backgrounds may perceive a $10 reward to be more valuable than do players from more affluent backgrounds. Because the current investigation did not control for socioeconomic backgrounds, or assess players' perceptions of the value of the rewards, this presents a limitation.

Finally, although passing a physical examination was a prerequisite to playing on the soccer teams selected for the current study, the researcher did not know if any athletes possessed slight developmental or cognitive delays that may have influenced their perceptions of the rewards or their physical abilities. Based on the researcher's observation, no team members possessed any obvious developmental or cognitive delays. In addition, participants' athletic backgrounds, such as the amount of time they had been playing soccer or engaged in team sports, was not taken into consideration. These factors may have influenced performance, as well as perceived physical self-efficacy.

Recommendations

Practical Recommendations

Practical recommendations can be made based on study findings. Although it is unlikely that monetary incentives are often used to motivate adolescent athletes, results from this investigation do indicate that such incentives may be effective. Just as some investigators have found monetary incentives to be an effective way to improve performance among amateur and professional athletes (Atkinson et al., 2009; Frick, 2011; Kingdon & Teal, 2007; Landry et al., 2015; Martin et al., 2011), cash rewards may be a useful way to improve performance among younger athletes. In conjunction with other motivators, such as praise and recognition, extrinsic motivators may be an effective way to help young athletes realize their athletic potential. However, it is the researcher's opinion that monetary rewards should not be used in a way that detracts from player's love of the sport and passion for personal best. That is, players' performance should not become dependent on monetary rewards. Adolescents should engage in sports for the many benefits of simply participating in athletic competition – whether individual or team sports. There are many wonderful benefits to sports participation, such as learning

teamwork, discipline, and personal accountability. Regular use of monetary incentives could potentially undermine these benefits.

Other extrinsic motivators (whether they have monetary value or not) may be useful for encouraging and challenging adolescent athletes. For example, the researcher of this investigation also serves as a coach to adolescent soccer players. Although he does not leverage cash rewards to motivate players, he does reward players' with "patches" for different accomplishments on the field, such as showing up to practice early, being a leader, scoring a goal, acting with bravery, playing with heart, and performing defensive duties. Players are ceremoniously rewarded with these patches each week, in front of their teammates. The actual reward of the patch, as well as recognition from coaches and teammates, are non-monetary extrinsic motivators that seem to improve players' performance. Thus, while this study was strictly about monetary incentives, and results indicated that financial rewards can improve athletic performance, cash rewards are by no means the only tool that coaches or parents could or should use.

Also, although findings from this study did not indicate physical self-efficacy or intrinsic motivation to be significant moderators of the relationship between incentives and performance, this does not mean that these factors are not important elements to consider when exploring ways to improve the athletic performance of adolescents. Previous research indicates that intrinsic motivation and self-efficacy can have a significant, positive influence on sports performance. Thus, a practical recommendation is for coaches and parents to engage athletes in activities that facilitate intrinsic motivation and build athletes' confidence in their abilities to perform.

Recommendations for Future Research

A number of recommendations for future research can be made based on results from the current investigation. Because research on the interaction of monetary incentives, athletic performance, intrinsic motivation, and perceived physical self-efficacy is scant, future scholars may use finding from this study to pursue a number of research opportunities. One opportunity for future research is a replication of the current study, but among athletes with different backgrounds and demographic characteristics. Such an investigation may shed light on individual characteristics that may influence the relationship between monetary incentives and athletic performance. For example, athletes' genders, ages, socioeconomic status, or team sport may influence any of the factors assessed in the current investigation (athletic performance, self-efficacy, or intrinsic motivation).

Future researchers may also repeat this study, but with different levels of rewards. As mentioned earlier, it is possible that monetary rewards of over $10 may have produced even greater performance improvements, but because the maximum incentive provided in the current investigation was $10, there is no way of knowing whether greater rewards would affect performance differently, or at what level the increase in reward no longer results in performance gains. Researchers may also compare the effects of monetary rewards to those of other extrinsic rewards, such as social recognition or praise, to explore how different extrinsic motivators affect performance among this population.

Another opportunity for future research is to conduct a large-scale, empirical investigation across multiple geographic locations, using a random sample, in order to produce generalizable results. Because the current investigation was limited to players from one league in the same geographic region, and because the sample was nonrandom, results are not

generalizable to other populations. A follow-up investigation that utilizes a larger, more varied, random sample may shed greater light on the interaction of athletic performance, monetary incentives, perceived physical self-efficacy, and intrinsic motivation.

Future researchers may also conduct qualitative investigations to better understand the mechanisms behind the factors assessed in the current investigation, especially perceived physical self-efficacy and intrinsic motivation. Research involving individual interviews, focus groups, or questionnaires may shed additional light on these factors. Finally, future researchers may replicate the current study, using other physical assessments to measure athletic performance. As previously mentioned, it is possible that the types of assessment may produce different results, in terms of athletic performance. It would also be interesting to create a perceived physical self-efficacy instrument that is specific to the athletic assessment, rather than general to the sport. For example, if the instrument used to assess perceived physical self-efficacy in the current study was specific to participants' self-efficacy beliefs relative to performance on the 50-yard dash, different findings may have emerged in terms of physical self-efficacy scores, as well as the potential moderating effect of physical self-efficacy on the relationship between athletic performance and monetary incentives.

Implications

Social Change

Possible implications for social change exist in findings from the current study. As noted in earlier chapters, monetary incentives for athletic performance are somewhat controversial, and the effects of such incentives are mixed. Some researchers have reported positive relationships between monetary incentives and performance (Atkinson et al., 2009; Frick, 2011; Kingdon & Teal, 2007; Landry et al., 2015; Martin et al., 2011), while others have reported negative

relationships (Agrawal, 2012; Ariely et al., 2009; Mobbs et al., 2009) or no significant effects (Bell & Cantarelli, 20015; Hulleman et al., 2007; Liang & Akiba, 2015). When extrinsic motivators such as monetary incentives are used, it is important to understand how those motivators work, and how other factors may influence the mechanisms through which they work.

Another possible social implication of the current research is fostering a mindset of achievement and goal-orientation among adolescents. Using different tools to motivate adolescents may help them recognize their own potential and teach them to go after their goals, rather than sitting back and waiting for opportunities to come to them. Especially among youth who lack a strong network of support at home (through family members and friends), use of extrinsic motivators (such as monetary incentives) among athletic coaches may be empowering to youth who otherwise feel disempowered and discouraged.

Conclusion

The current investigation addressed an important gap in the current literature regarding monetary incentives and athletic performance. Although scant literature existed on the effects of such incentives on athletic performance, the samples were limited to amateur athletes, and findings revealed little to no influence of cash rewards on athletic performance (Hulleman et al., 2007; Walchli et al., 2015). Findings from the current study clearly challenge findings from previous investigators, as a significant, positive relationship between athletic performance and monetary incentives emerged. Interestingly, results indicated that players' intrinsic motivation and perceived physical self-efficacy did not influence the relationship between incentives and performance, challenging Vroom's (1964) expectancy theory and the theory of planned behavior (Ajzen, 1991).

Regardless of the athlete's age or level of competition, it is essential for coaches to understand how monetary rewards motivate athletes, and then use that information to determine the most appropriate use, if any, of such rewards. Dependence on monetary rewards among young athletes, such as the participants in the current project, may undermine some of the essential benefits of athletic competition during formative years of development. Quite possibly, as a society, there has been a shift toward the use of monetary incentives in a way that athletes have come to expect them. Monetary incentives should not be used in a way that detracts from sportsmanship, intrinsic motivation. As a tool, monetary incentives may help to push young athletes to realize their potential, but they should not become an essential part of competition.

References

Adams, J. S. (1963). Toward an understanding of inequity. *Journal of Abnormal and Social Psychology, 67,* 422-436.

Agrawal, C. (2012). Performance-related pay-hype versus reality. *Management Labour Studies, 37*(4), 337-344. doi:10.1177/0258042X13484848

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179-211. doi:10.1016/0749-5978(91)90020-t

Ali, A. S., Chua, S. J. L., & Lim, M. E. (2015). The effect of physical environment comfort on employees' performance in office buildings: A case study of three public universities in Malaysia. *Structural Survey, 33*(4/5), 294-308. doi:10.1108/SS-02-2015-0012

Amini, F., Ahmad, J., & Ambali, R. (2014). The influence of reward and penalty on households' recycling intention. *Procedia ACPCBEE, 10,* 187-192. doi:10.1016/j.apcbee.2014.10.036

Arbetron, A. J. A., Sheldon, J., & Herrera, C. (2005). Beyond safe havens: A synthesis of 20 years of research on boys & girls clubs. Full report. Philadelphia, PA: Boys & Girls Clubs of America.

Ariely, D., Gneezy, U., Loewenstein, G., & Mazar, N. (2009). Large stakes and big mistakes. *The Review of Economic Studies, 76*(2), 451-469. doi:10.1111/j.1467-937x.2009.00534.x

Atkinson, A., Burgess, S., Croxson, B., Gregg, P., Propper, C., Slater, H., & Wilson, D. (2009). Evaluating the impact of performance-related pay for teachers in England. *Labour Economics, 16*(3), 251-261. doi:10.1016/j.labeco.2008.10.003

Ball, T. E., Massey, B. H., Misner, J. E., McKeown, B. C., & Lohman, T. G. (1992). The relative contribution of strength and physique to running and jumping performance. *The Journal of Sports Medicine and Physical Fitness, 32*(4), 364-371.

Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, NJ: Prentice- Hall.

Bandura, A., & Jourden, F. J. (1991). Self-regulatory mechanisms governing the impact of social comparison on complex decision making. *Journal of Personality and Social Psychology, 60*(6), 941–951. doi:10.1037/0022-3514.60.6.941

Bara, F. M., Andrade, D., Miranda, R., Nunez, J. L., Martin-Albo, J., & Ribas, P R. (2011). Preliminary validation of a Brazilian version of the Sport Motivation Scale. *Universitas Psychologica, 10,* 557-566.

Baumeister, R. F. (1984). Choking under pressure: self-consciousness and paradoxical effects of incentives on skillful performance. *Journal of Personality and Social Psychology, 46*(3), 610–620. doi:10.1037//0022-3514.46.3.610

Beilock, S. L., Kulp, C. A., Holt, L. E., & Carr, T. H. (2004). More on the fragility of performance: Choking under pressure in mathematical problem solving. *Journal of Experimental Psychology, 133*(4), 584–600. doi:10.1037/0096-3445.133.4.584

Belle, N., & Cantarelli, P. (2015). Monetary incentives, motivation, and job effort in the public sector: An experimental study with Italian government executives. *Review of Public Personnel Administration, 35*(2), 99-123. doi:10.1177/0734371X13520460

Berg, P., Becker, T., Martian, A., Primrose, K. D., & Wingen, J. (2012). Motor control outcomes following Nintendo Wii use by a child with down syndrome. *Pediatric Physical Therapy, 24*, 78-84. doi:10.1097/PEP.0b013e31823e05e6

Bijleveld, E., Custers, R., & Aarts, H. (2010). Unconscious reward cues increase invested effort, but do not change speed–accuracy tradeoffs. *Cognition, 115*(2), 330−335. doi:10.1016/j.cognition.2009.12.012.

Bijleveld, E., Custers, R., & Aarts, H. (2011). Once the money is in sight: Distinctive effects of

conscious and unconscious rewards on task performance. *Journal of Experimental Social Psychology, 47*(4), 865-869. doi:10.1016/j.jesp.2011.03.002

Bortoli, L., & Robazza, C. (1997). Italian version of the Perceived Physical Ability Scale. *Perceptual and Motor Skills*, 85(1), 187-192.

Bradler, C., Dur, R., Neckermann, S., & Non, A. (2016). Employee recognition and performance: A field experiment. *Management Science, 62*(11), 3085-3099. doi:10.1287/mnsc.2015.2291

Briere, N. M., Vallerand, R. J., Blais, M. R., & Pelletier, L. G. (1995). Développement et validation d'une mesure de motivation intrinsèque, extrinsèque et d'amotivation en context sportif: l'Échelle de motivation dans les sports (ÉMS). *International Journal of Sport Psychology,* **26**, 465-489.

Burtscher, J., Furtner, M., Sachse, P., & Burtscher, M. (2011). Validation of a German version of the Sport Motivation Scale (SMS28) and motivation analysis in competitive mountain runners. *Perceptual & Motor Skills, 112*(3), 807-820.

Capa, R. L, Bustin, G. M., Cleeremans, A., & Hansenne, M. (2011). Conscious and unconscious reward cues can affect a critical component of executive control: (Un)conscious updating? *Experimental Psychology, 58*(5), 370-375. doi:10.1027/1618-3169/a000104

Carissimi, A., Adan, A., Tonetti, L., Fabbri, M., Hidalgo, M. P., Levandovski, R. . . Martoni, M. (2016). Physical self-efficacy is associated to body mass index in schoolchildren. *Jornal de Pediatria* (in press). doi:10.1016/j.jped.2016.04.011

Chib, V. S., De Martino, B., Shimojo, S., & O'Doherty, J. P. (2012). Neural mechanisms underlying paradoxical performance for monetary incentives are driven by loss aversion. *Neuro, 74*(3), 582-594. doi:10.1016/j.neuron.2012.02.038

Chin, N-S., Koo, S., & Low, W-Y. (2012). Self-determination and goal orientation in track and field. *Journal of Human Kinetics, 33*(1), 151-161. doi:10.2478/v10078-012-0054-0

Cohen, J., Cohen, P., Leona S. A., & West, S. H. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences*. Hillsdale, N.J.: L. Erlbaum Associates.

Colella, D., Morano, M., Bortoli, L., & Robazza, C. (2008). A physical self-efficacy scale for children. *Social Behavior and Personality, 36*(6), 841-848.

Colella, D., Morano, M., Robazza, C., & Bortoli, L. (2009). Body image, perceived physical ability, and motor performance in nonoverweight and overweight Italian children. Percept Mot. Skills, 108, 209-218.

Cooper, D. R., & Schindler, P. S. (2003). *Business research methods.* Toronto, Canada: Monarchy Books.

Corbett, J., Barwood, M. T., Ouzounoglou, A., Thelwell, R., & Dicks, M. (2012). Influence of competition on performance and pacing during cycling exercise. *Medicine & Science in Sports & Exercise, 44*(3), 509-515. doi:10.1249/MSS.0b013e31823378b1

Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Thousand Oaks, CA: Sage.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York, NY: Plenum Publishing Co.

Doganis, G. (2000). Development of a Green version of the Sport Motivation Scale. *Perceptual & Motor Skills, 90*, 505-512.

Droe, K. L. (2012). Effect of verbal praise on achievement goal orientation, motivation, and performance attribution. *Journal of Music Teacher Education, 23*(1), 63-78. doi:10.1177/1057083712458592

Etikan, I., Musa, S. A., & Alkassim, R. S. (2015). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics, 5*(1), 1-4. doi:10.11648/j.ajtas.20160501.11

Eysenck, M.W., Derakshan, N., Santos, R., Calvo, M.G. (2007). Anxiety and cognitive performance: Attentional control theory. *Emotion, 7*(2), 336-353. doi:10.1037/1528-3542.7.2.336

Eyting, M., Hosemann, A., & Johannesson, M. (2016). Can monetary incentives increase organ donations? *Economics Letters, 142*, 56-58. doi:10.1016/j.econlet.2016.03.005

Feltz, D. L. (1992). Understanding motivation in sport: A self-efficacy perspective. In G. C. Roberts (Ed.), *Motivation in sport and exercise* (pp. 93-105). Champaign, IL: Human Kinetics.

Franck, E., & Nuesch, S. (2011). The effect of wage dispersion on team outcome and the way team outcome is produced. *Applied Economics, 43*(23), 3037-3049. doi:10.1080/00036840903427224

Frey, B. S., & Oberholzer-Gee, F. (1997). The cost of price incentives: An empirical analysis of motivation crowding-out. *American Economic Review*, 87, 746–755.

Frick, B. (2011). Performance, salaries, and contract length: Empirical evidence from German soccer. *International Journal of Sport Finance, 6*(2), 87-118. Retrieved from http://fitpublishing.com/journals/ijsf

Galvin, T. (2015). *The impact of a mentoring/financial incentive program on at-risk high school students.* (Doctoral dissertation). Retrieved from DigitalCommons at http://commons.emich.edu/theses.

Garbers, Y., & Konradt, U. (2014). The effect of financial incentives on performance: A

quantitative review of individual and team-based financial incentives. *Journal of Occupational and Organizational Psychology, 87*(1), 102-137. doi:10.1111/joop.12039

Garcia-Mas, A., Palou, P., Gili, M., Ponseti, X., Borras, P. A., Vidal, J. . . Sousa, C. (2010). Commitment, enjoyment and motivation in young soccer competitive players. *The Spanish Journal of Psychology, 13*(2), 609-616.

Gillet, N., Vallerand, R. J., Amoura, S., & Baldes, B. (2010). Influence of coaches' autonomy support on athletes' motivation and sports performance: A test of the hierarchical model of intrinsic and extrinsic motivation. *Psychology of Sport and Exercise, 11*(2), 155-161. doi:10.1016/j.psychsport.2009.10.004

Gillet, N., Vallerand, R. J., & Paty, B. (2013). Situational motivational profiles and performance with elite performers. *Journal of Applied Social Psychology, 43*(6), 1200-1210. doi:10.1111/jasp.12083

Gneezy, U., & Rustichini, A. (2000). Pay enough or don't pay at all. *Quarterly Journal of Economics, 115*(3), 791–810. doi:10.1162/003355300554917

Goksoy, S., & Argon, T. (2015). Teacher views on performance and rewards in the framework of expectancy theory. *Journal of Educational Sciences Research, 5*(2), 143-161. doi:10.12973/jesr. 2015.52.8

Granero-Gallegos, A., Baena-Extremera, A., Gomez-Lopez-M., Sanchez-Fuentes, J. A., & Abraldes, J. A. (2014). Psychometric properties of the "Sport Motivation Scale (SMS) adapted to physical education. *Journal of Sports Science and Medicine, 13*, 801-807. Retrieved from http://www.jssm.org

Gross, A. M., & Johnuson, T. C. (1984). Athletic skill and social status in children. *Journal of Social & Clinical Psychology, 2*(1). doi:10.1521/jscp.1984.2.1.89

Helin, K. (2012). Tyreke Evans promises a big year. Coincidentally, it's his contract year. Retrieved from http:// probasketballtalk.nbcsports.com/2012/09/12/tyreke-evanspromises-a-big-year-coincidentally-its-his-contract-year/.

Herzberg, F., Mausnek, B., & Snyderman, B. (1959). *The motivation to work* (2nd ed.). New York, NY: John Wiley and Sons.

Higuchi, T., Imanaka, K., & Hatayama, T. (2002). Freezing degrees of freedom under stress: Kinematic evidence of constrained movement strategies. *Human Movement Science, 21,* 831-846. doi:10.1016/s016-79457(02)00174-4

Hill, B. (2014a). The heat is on: Tournament structure, peer effects, and performance. *Journal of Sports Economics, 15*(4), 315-337. doi:10.1177/1527002512461156

Hill, B. (2014b). The superstar effect in 100-meter tournaments. *International Journal of Sports Finance, 9*(2), 111-129. Retrieved from http://fitpublishing.com/journals/ijsf

Hoy, W. K., & Miskel, G. C. (2012). *Educational administration, theory, research and practice.* Ankara: Nobel Yayin Dagitim.

Hsu, D. K., Shinnar, R. S., & Powell, B. C. (2014). Expectancy theory and entrepreneurial motivation: A longitudinal examination of the role of entrepreneurship education. *Journal of Business & Entrepreneurship*, 26(1), 121-140. Retrieved from http://asbe.us/jbe/

Hulleman, M., De Koning, J. J., Hettinga, F. J., & Foster, C. (2007). The effect of extrinsic motivation on cycle time trial performance. *Medicine & Science in Sports & Exercise*, 39(4), 709-715. doi:10.1249/mss.0b013e31802eff36

Jackson, S., Ford, S., Kimiecik, J. C., & Marsh, H. (1998). Psychological correlates of flow in sport. *Journal of Sports Medicine and Physical Fitness, 42,* 233-238.

Jõesaar, H., Hein, V., & Hagger, M. S. (2012). Youth athletes' perception of autonomy support from the coach, peer motivational climate and intrinsic motivation in sport setting: One-year effects. *Psychology of Sport and Exercise, 13,* 257-262. doi:10.1016/j.psychsport.2011.12.001

Jane, W-J. (2015). Peer effects and individual performance: Evidence from swimming competitions. *Journal of Sports Economics, 16*(5), 531-539. doi:10.1177/1527002514521429

Katayama, H., & Nuch, H. (2011). A game-level analysis of salary dispersion and team performance in the national basketball association. *Applied Economics, 43*(10), 1193-1207. doi:10.1080/00036840802600335

Kennedy, A. (2012). NBA PM: Players to watch in contract year. Retrieved from http://www.hoopsworld.com/nbapm-players-to-watch-in-contract-year.

Kingdon, G. G., & Teal, F. (2007). Does performance related pay for teachers improve student performance? Some evidence from India. *Economics of Education Review, 26*(4), 473-486. doi:10.1016/j.econedurev.2006.02.007

Kurniawan, I. T., Seymour, B., Talmi, D., Yoshida, W., Chater, N., & Dolan, R. J. (2010). Choosing to make an effort: The role of striatum in signaling physical effort of a chosen action. *Journal of Neurophysiology, 104*(1), 313-321. doi:10.1152/jn.00027.2010

Kvaløy, O., Nieken, P., & Schöttner, A. (2016). Hidden benefits of reward: A field experiment on motivation and monetary incentives. *European Economic Review, 76,* 188-199. doi:10.1016/j.euroecorev.2015.03.003

Lah, T. J., & Perry, J. L. (2008). The diffusion of the Civil Service Reform Act of 1978 in

OECD countries: A tale of two paths to reform. *Review of Public Personnel Administration, 28*(3), 282-299. doi:10.1177/0734371x08319950

Lamont, M., & Kennelly, M. (2012). A qualitative exploration of participant motives among committed amateur triathletes. *Leisure Sciences, 34*(3), 236-255. doi:10.1080/01490400.2012.669685

Landers, D. M., Wang, M. Q., and Courtet, P. (1985). Peripheral narrowing among experienced and inexperienced rifle shooters under low-and high-stress conditions. *Research Quarterly for Exercise and Sport, 56*(2), 122-130. doi:10.1080/02701367.1985.10608446

Landry, J., Edgar, D., & Harris, J. (2015). National Hockey League guaranteed contracts: A principal agent problem impacting on performance. *Management Research Review, 38*(12), 1306-1330. doi:10.1108/MRR-06-2014-0146

Lee, T. G., & Grafton, S. T. (2015). Out of control: Diminished prefrontal activity coincides with impaired motor performance due to choking under pressure. *NeuroImage, 105*, 145-155. doi:10.1016/j.neuroimage.2014.10.058

Levitt, S. D., List, J. A., Neckermann, S., & Sadoff, S. (2016). The behaviorist goes to school: Leveraging behavioral economics to improve educational performance. *American Economic Journal, 8*(4), 183-219. doi:10.1257/pol.20130358

Lewis, B., Linder, D. (1997). Thinking about choking? Attentional processes and paradoxical performance. *Personality and Social Psychology Bulletin, 23*(9), 937–944. doi:10.1177/0146167297239003

Liang, G., & Akiba, M. (2015). Teacher evaluation, performance-related pay, and constructivist instruction. *Educational Policy, 29*(2), 375-401. doi:10.1177/0895904813492379

Lockie, R. G., Jalilvand, F., Jordan, C. A., Callaghan, S. J., Jeffriess, M. D., Luczo, T. M., & Schultz, A. B. (2015). Research-grade scoring for the functional movement screen and relationships with athletic performance tests in team sports athletes. *Journal of Athletic Enhancement, 4*(1), 1-8. doi:10.4172/2324-9080.1000188

Lopez-Williams, A.,, Chacko, A., Wymbs, B. T., Fabiano, G. A., Seymour, K. E., Gnagy, E. M. . . Morris, T. L. (2005). Athletic performance and social behavior as predictors of peer acceptance in children diagnosed with attention-deficit/hyperactivity disorder. *Journal of Emotional and Behavioral Disorders, 13*(3), 173-180.

Maier, C., Woratschek, H., Ströbel, T., & Popp, B. (2016). Is it really all about money? A study on incentives in elite sports. *European Sport Management Quarterly, 16*(5), 592-612. doi:10.1080/16184742.2016.1188841

Malini, H., & Washington, A. (2014). Employees' motivation and valued rewards as a key to effective QWL – From the perspective of expectancy theory. *TSM Business Review, 2*(2), 45-54. Retrieved from http://www.tsm.ac.in/LinkPageContent.aspx?Mid=68&PiD=0

Marr, D. R. (2016). *An exploration of self-determination theory in individual track and field Olympic medalists from the United States of America at the 2012 London games.* (Doctoral dissertation). Retrieved from ProQuest Theses and Dissertations.

Martens, R., & Landers, D. M. (1970). Motor performance under stress: a test of the inverted-U hypothesis. *Journal of Personality and Social Psychology, 16*(1), 29–37. doi:10.1037/h0029787

Martens, M. P., & Webber, S. N. (2002). Psychometric properties of the Sport Motivation Scale: An evaluation with college varsity athletes from the U.S. *Journal of Sport & Exercise Psychology, 24*, 254-270.

Martin, J. A., Eggleston, T. M., Seymour, V. A., & Lecrom, C. W. (2011). One-hit wonders: A study of contract-year performance among impending free agents in Major League Baseball. *NINE: A Journal of Baseball History and Culture, 20*(1), 11-26. doi:10.1353/nin.2011.0053

Maslow, A. (1943). A theory of human motivation. *Psychological Review, 50*, 370-396.

Massie, R., Smith, B., & Tolfrey, K. (2015). Recommendations for recruiting and retaining adolescent girls in chronic exercise (training) research studies. *Sports, 3*, 219-235. doi:10.3390/sports3030219

Masters, R. S. W. (1992). Knowledge, knerves and know-how: the role of explicit versus implicit knowledge in the breakdown of a complex motor skill under pressure. *British Journal of Psychology, 83*(3), 343–358. doi:10.1111/j.2044-8295.1992.tb02446.x

McAuley, E., Duncan, T., & Tammen, V. V. (1989). Psychometric properties of the Intrinsic Motivation Inventory in a competitive sport setting: A confirmatory Factory analysis. *Research Quarterly for Exercise and Sport, 60*(1), 48-58. doi:10.1080/02701367.1989.10607413

Mellstrom, C., & Johannesson, M. (2008). Crowding out in blood donation: Was Titmsuss right? *Journal of European Economic Association, 6*(4), 845-863. doi:10.1162/jeea.2008.6.4.845

Mobbs, D., Hassabis, D., Seymour, B., Marchant, J. L., Weiskopf, N., Dolan, R. J., & Frith, C. D. (2009). Choking on the money: Reward-based performance decrements are associated with midbrain activity. *Psychological Science, 20*(8), 955-962. doi:10.1111/j.1467-9280.2009.02399.x

Moller, A. C., Buscemi, J., McFadden, H. G., Hedeker, D., & Spring, B. (2014). Financial

motivation undermines potential enjoyment in an intensive diet and activity intervention. *Journal of Behavioral Medicine, 37*(5), 819-827. Doi:10/1007/s10865-013-9542-5

Mondello, M., & Maxcy, J. (2009). The impact of salary dispersion and performance bonuses in NFL organizations. *Management Decision, 47*(1), 110-123. doi:10.1108/00251740910929731

Morano, M., Colella, D., Robazza, C., Bortoli, L., & Capranica, L. (2011). Physical self-perception and motor performance in normalweight, overweight, and obese children. *Scandinavian Journal of Medical Science and Sports, 21*, 465-473.

Moreno, J. A., Cervelló, E., Zomeño, T. E., & Marín, L.E. (2009). Predicción de las razones de disciplina en Educación Física. Acción Psicológica 6(2), 7-15.

Murayama, T., & Sekiya, H. (2015). Factors related to choking under pressure in sports and the relationships among them. *International Journal of Sports Health Sciences, 13,* 1-16. doi:10.5432/ijshs.201416

Noteboom, J. T., Barnholt, K. R., & Enoka, R. M. (2001). Activation of the arousal response and impairment of performance increase with anxiety and stressor intensity. *Journal of Applied Physiology, 91*(5), 2093-2101. Retrieved from http://jap.physiology.org/

Nguyen, P. D., Dang, C. X., & Nguyen, L. D. (2015). Would better earning, work environment, and promotion opportunities increase employee performance? An investigation in state and other sectors in Vietnam. *Public Organization Review, 15*(4), 565-579. doi:10.1007/s11115-014-0289-4

O'Neill, H. M. (2013). Do major league baseball hitters engage in opportunistic behavior? *International Advanced Economics Research, 19*(3), 215-232. doi:10.1007/s11294-013-9419-y

O'Neill, H. M., & Hummel, M. (2011). Do Major League Baseball hitters come up big in their contract year? *Virginia Economics Journal, 16,* 13-25.

Osibanjo, O. A., Adeniji, A. A., Falola, H. O., & Heirsmac, P. T. (2014). Compensation packages: A strategic tool for employees' performance and retention. *Leonardo Journal of Sciences, 13*(25), 65-84. Retrieved from http://ljs.academicdirect.org/

Palmer, K., Chiviacowsky, S., & Wulf, G. (2016). Enhanced expectancies facilitate golf putting. *Psychology of Sport and Exercise, 22,* 229-232. doi:10.1016/j.psychsport.2015.08.009

Pelletier, L. G., Fortier, M. S., & Vallerand, R. J. (1995). Toward a new measure of intrinsic motivation, extrinsic motivation, and amotivation in sports: The Sport Motivation Scale (SMS). *Journal of Sport & Exercise Psychology, 17,* 35-53.

Paloma, F. G., Rio, L., & D'Anna, C. (2013). Physical self-efficacy in women's artistic gymnastic between recreational and competitive level. *Journal of Human Sport & Exercise, 9*(1), S341-S347. doi:10.14198/jhse.2014.9.Proc1.18

Perry, J. L., Engbers, T. A., & Jun, S. Y. (2009). Back to the future? Performance-related pay, empirical research, and the perils of persistence. *Public Administration Review, 69*(1), 39-51. doi:10.1111/j.1540-6210.2008.01939_2.x

Pessiglione, M., Schmidt, L., Draganski, B.,Kalisch, R., Lau, H., Dolan, R. J., & Frith, C. D. (2007). How the brain translates money into force: A neuroimaging study of subliminal motivation. *Science, 316*(5826), 904-906. doi:10.1126/science.1140459

Pijpers, J. R., Oudejans, R. R. D., Bakker, F. C., & Beek, P. J. (2006). The role of anxiety in perceiving and realizing affordances. *Ecol. Psychol., 18*(3), 131-161. doi:10.1207/s15326969eco1803_1

Rice, J. K., Malen, B., Jackson, C., & Hoyer, K. M. (2015). Time to pay up: Analyzing the

motivational potential of financial awards in a TIF program. *Educational Evaluation and Policy Analysis, 37*(1), 29-49. doi:10.3102/0162373714524622

Richards, D. G., & Guell, R. C. (1998). Baseball success and the structure of salaries. *Applied Economics Letters, 5*(5), 291-296. doi:10.1080/758524403

Ryckman, R. M., Robbins, M. A., Thornton, B., & Cantrell, P. (1982). Development and validation of a physical self-efficacy scale. *Journal of Personality and Social Psychology, 42*, 891-900.

Rymer, Z. D. (2013). How much do pressure, incentive motivate stars in an MLB contract year? Retrieved from http://bleacherreport.com/articles/1607688-how-much-do-pressureincentive-motivate-stars-in-an-mlb-contract-year.

Sherer, M., Maddux, J. E., Mercandante, B., Prentice-Dunn, S., Jacobs, B., & Rogers, R. W. (1982). The self-efficacy scale: Construction and validation. *Psychological Reports, 51*, 663-671.

Schmidt, A. M., & DeShon, R. P. (2010). The moderating effects of performance ambiguity on the relationship between self-efficacy and performance. *Journal of Applied Psychology, 95*, 572–581. doi:10.1037/a0018289

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasiexperimental designs for generalized causal inference*. Boston, MA: Houghton Mifflin.

Slaughter, M. H., Lohman, T. G., & Misner, J. E. (1980). Association of somatotype and body composition to physical performance in 7 to 12 year-old-girls. *Journal of Sports Medicine and Physical Fitness, 20*(2), 189-198.

Springer, M. G., Rosenquist, B., & Swain, W. A. (2015). Monetary and non-monetary student

incentives for tutoring services: A randomized controlled trial. *Journal of Research on Educational Effectiveness.* doi:10.1080/19345747.2015.1017679

Stone, D. N. (1994). Overconfidence in initial self-efficacy judgments: Effects on decision processes and performance. *Organizational Behavior and Human Decision Processes, 59*, 452–474. doi:10.1006/obhd.1994.1069

Swanson, R. A., & Holton, E. F. III. (Eds.). (2005). *Research in organizations: Foundations and methods of inquiry*. San Francisco, CA: Berrett-Koehler.

Tanaka, Y. & Sekiya, H. (2006). The influence of acute psychological stress on golf putting. *Japanese Journal of Sport Psychology, 33,* 1-18. Retrieved from https://www.jstage.jst.go.jp/browse/jjspopsy

Tiedge, A. (2011). Zusatzleistung im Betrieb. Mehr als nur Gehalt. http://www.manager-magazin.de/unternehmen/karriere/0,2828,749416,00.html

Tsutsumi, M. (2006). The phenomenon of “agari" and self consciousness: A preliminary approach to social anxiety. *Memoirs, Faculty of Education, Shimane University, 40*, 29-33.

Tzur, K. S., Ganzach, Y., & Pazy, A. (2016). On the positive and negative effects of self-efficacy on performance: Reward as a moderator. *Human Performance, 29*(5), 362-377. doi:10.1080/08959285.2016.1192631

U.S. Department of Health and Human Services. (1979). *The Belmont Report: Ethical principles and guidelines for the protection of human subjects of research*. Retrieved from http://www.hhs.gov/ohrp/humansubjects/guidance/belmont.html

Van Eerde, W., & Thierry, H. (1996). Vroom’s expectancy models and work-related criteria: A

meta-analysis. *Journal of Applied Psychology, 81*(5), 575-586. doi:10.1037//0021-9010.81.5.575

Vancouver, J. B., More, K. M., & Yoder, R. J. (2008). Self-efficacy and resource allocation: Support for a nonmonotonic, discontinuous model. *Journal of Applied Psychology, 93,* 35–47. doi:10.1037/0021-9010.93.1.35

Vohs, K. D., Mead, N. L., & Goode, M. R. (2008). Merely activating the concept of money changes personal and interpersonal behavior. *Association for Psychological Science, 17*(3), 208–212. doi:10.1111/j.1467-8721.2008.00576.x

Vroom, V. H. (1964). *Work and motivation.* New York, NY: Wiley.

Walchli, M., Ruffieux, J., Bourquin, Y., Keller, M., & Taube, W. (2015). Maximizing performance: Augmented feedback, focus of attention, and/or reward? *Medicine & Science in Sports & Exercise, 48*(4), 714-719. doi:10.1249/MSS.0000000000000818

Weiss, M. R., & Ferrer-Caja, E. (2002). Motivational orientations and sport behavior. In T. S. Horn (Ed.), *Advances in sport psychology* (2nd ed., pp. 101-183). Champaign, IL: Human Kinetics.

What Works Clearinghouse. (2006). *Financial incentives for teen parents to stay in school*. Washington, D.C.: U.S. Department of Education.

White, M. H., & Sheldon, K. M. (2014). The contract year syndrome in the NBA and MLB: A classic undermining pattern. *Motivation and Emotion, 38*(2), 196-205. doi:10.1007/s11031-013-9389-7

Williams, A. M., Vickers, J., & Rodrigues, S. (2002). The effects of anxiety on visual search,

movement kinematics, and performance in table tennis: A test of Eysenck and Calvo's processing efficiency theory. *Journal of Sport and Exercise Psychology, 24*(4), 438-455. doi:10.1123/jsep.23.4.438

Wright, B. J., O'Halloran, P. D., & Stukas, A. A. (2016). Enhancing self-efficacy and performance: An experimental comparison of psychological techniques. *Research Quarterly for Exercise and Sport, 87*(1), 36-46. doi:10.1080/02701367.2015.1093072

Zahariadis, P. N., Tsorbatzoudis, H., & Grouios, G. (2005). The Sport Motivation Scale for children: Preliminary analysis in physical education classes. *Perceptual and Motor Skills, 101*, 43-54.

Appendix A: Sport Motivation Scale

Using the scale below, please indicate to what extent each of the following items corresponds to one of the reasons for which you are presently practicing your sport?

Does not correspond at all		Corresponds a little		Corresponds moderately	Corresponds a lot	Corresponds exactly
1	2	3	4	5	6	7

Why do you practice your sport?

1. For the pleasure I feel in living exciting experiences.

   1 2 3 4 5 6 7

2. For the pleasure it gives me to know more about the sport that I practice.

   1 2 3 4 5 6 7

3. I used to have good reasons for doing sport, but now I am asking myself if I should continue doing it.

   1 2 3 4 5 6 7

4. For the pleasure of discovering new training techniques.

   1 2 3 4 5 6 7

5. I don't know anymore; I have the impression of being incapable of succeeding in this sport.

   1 2 3 4 5 6 7

6. Because it allows me to be well regarded by people that I know.

   1 2 3 4 5 6 7

7. Because, in my opinion, it is one of the best ways to meet people.

   1 2 3 4 5 6 7

8. Because I feel a lot of personal satisfaction while mastering certain difficult training techniques.

   1 2 3 4 5 6 7

9. Because it is absolutely necessary to do sports if one wants to be in shape.

   1 2 3 4 5 6 7

10. For the prestige of being an athlete.

    1 2 3 4 5 6 7

11. Because it is one of the best ways I have chosen to develop other aspects of myself.

    1 2 3 4 5 6 7

12. For the pleasure I feel while improving some of my weak points.

    1 2 3 4 5 6 7

13. For the excitement I feel when I am really involved in the activity.

    1 2 3 4 5 6 7

14. Because I must do sports to feel good myself.

    1 2 3 4 5 6 7

15. For the satisfaction I experience while I am perfecting my abilities.

    1 2 3 4 5 6 7

16. Because people around me think it is important to be in shape.

    1 2 3 4 5 6 7

17. Because it is a good way to learn lots of things which could be useful to me in other areas of my life.

1 2 3 4 5 6 7

18. For the intense emotions I feel doing a sport that I like.

1 2 3 4 5 6 7

19. It is not clear to me anymore; I don't really think my place is in sport.

1 2 3 4 5 6 7

20. For the pleasure that I feel while executing certain difficult movements.

1 2 3 4 5 6 7

21. Because I would feel bad if I was not taking time to do it.

1 2 3 4 5 6 7

22. To show others how good I am good at my sport.

1 2 3 4 5 6 7

23. For the pleasure that I feel while learning training techniques that I have never tried before.

1 2 3 4 5 6 7

24. Because it is one of the best ways to maintain good relationships with my friends.

1 2 3 4 5 6 7

25. Because I like the feeling of being totally immersed in the activity.

1 2 3 4 5 6 7

26. Because I must do sports regularly.

1 2 3 4 5 6 7

27. For the pleasure of discovering new performance strategies.

1 2 3 4 5 6 7

28. I often ask myself; I can't seem to achieve the goals that I set for myself.

1 2 3 4 5 6 7

Appendix B: Physical Self-Efficacy Scale for Children

Item #				
1	I run very slowly	I run slowly	I run fast	I run very fast
2	I am able to do very difficult exercises	I am able to do difficult exercises	I am able to do only easy exercises	I am able to do only very easy exercises
3	My muscles are very weak	My muscles are weak	My muscles are strong	My muscles are very strong
4	I move very rapidly	I move rapidly	I move slowly	I move very slowly
5	I feel very insecure when I move	I feel somewhat insecure when I move	I feel sure when I move	I feel very sure when I move
6	I don't feel tired at all when I move	I don't feel tired when I move	I feel tired when I move	I feel very tired when I move

Appendix C: Parental Consent Form

Dear Parent/Guardian,

My name is Sean Jones. I am a soccer coach with your child's league and a student of psychology at Walden University. With your permission, I would like to invite your child to participate in my dissertation research on the relationship between incentives and athletic performance among male soccer players. Participation will help us better understand how rewards can affect performance in sports.

If you give permission for your athlete to participate, he will take part in three timed 50-yard dashes at two different points. Before he completes the first run, I will have him fill out a survey to give me an idea of different things that may affect his athletic performance, such as motivation and self-assurance. These surveys will take about 15 minutes to fill out. Participants will be asked simple questions about why they practice soccer and how strong and athletic they think they are. Then he will complete the first run. One week later, he will repeat the survey and 50-yard dash – but this time, he will run twice. He will be offered rewards for his times on the second and third runs, but I will not tell him what the rewards are, or what he must do to win them, until right before the second and third runs take place.

The first survey and run will take place on [10/4/2017], after practice. The second and third runs will happen a week later, on [10/11/2017]. The second and third runs will occur after practice, but there will be a 10 minute break between the runs. Prior to the second and third runs, players will fill out the survey again, after they know rewards will be given for their runs. My goal is to understand how different levels of monetary incentives may affect performance. At the end of all the runs, I will be sure that all players are actually provided a total of $13, so that no one participant receives more money than another.

Participation in this research is completely voluntary and athletes do not have to complete the survey or runs, although their participation may shed important light on how incentives affect the athletic performance. Athletes will be treated no differently, regardless of whether or not they decide to participate. If an athlete begins the study and then decides he no longer wishes to participate, he will be removed from the study and any data that has been collected on him will be disposed of. I am happy to answer any questions you or your athlete may have related to the study before participation. There are no major risks to participation that are greater than the risks athletes normally take during soccer practice, like pulling a muscle. Athletes' identities will stay private because I will not use their names anywhere in the reports I publish for the study.

You can ask me any questions about this study the next time you see me. You may contact me at [501.722.2819]. In addition, you may reach my dissertation chair Dr. Carolyn Davis at carolyn.davis5@mail.waldenu.edu. You may also contact Walden University's Institutional Review Board at irb@mail.waldenu.edu with any questions or concerns. If you have read this form and agree to provide permission for your child to participate in this investigation, please sign below. Please keep a copy of this form for yourself.

_____

[Student Printed Name]

_____

[Parent/Guardian Printed Name]

Appendix D: Recording Form

50-yard dash times			
Athlete name	Condition 1 - no incentive	Condition 2 – small incentive	Condition 3 – large incentive

Appendix E: Assent Form

I am a coach for another team in this league. I am inviting you to participate in a study. The purpose of this study is to see how rewards affect your athletic performance. If you choose to participate, you will take part in three 50-yard dashes at two different points in time. Before you complete the first run, I will have you fill out a survey to give me an idea of things that may affect your run times, like your motivation and self-assurance. These surveys will take about 15 minutes to fill out. You will be asked simple questions about why you play soccer and how strong and athletic you are. Then you will complete your timed run. One week from today, we will repeat the survey and 50-yard dash – but this time, you will run twice. You may be offered a reward for your performance on the second and third runs, but I will not tell you what the reward is, or what you must do to win it, until right before the second and third runs take place. There are no major risks to participation that are greater than the risks you normally take during soccer practice, like pulling a muscle. Participation will help us better understand how rewards can affect performance in sports.

It is up to you to decide if you want to participate or not. If you do not want to participate, you do not have to. Nobody will treat you any differently, regardless of whether or not you decide to participate. If you decide you no longer wish to participate after you begin the study, just let me know. Your information will stay private because I will not use your name anywhere in the reports I publish for the study.

Please talk about this study with your parents before you decide if you want to be in it. I will also ask your parents to give their permission. Even if your parents say you can be in the study, you can still say that you don't want to. It is okay to say "no" if you don't want to be in the study. No one will be mad at you. If you change your mind later and want to stop, you can.

You can ask me any questions about this study the next time you see me. You may contact me at [501.722.2819]. In addition, you may reach my dissertation chair Dr. Carolyn Davis at carolyn.davis5@mail.waldenu.edu. You may also contact Walden University's Institutional Review Board at irb@mail.waldenu.edu with any questions or concerns. After all your questions have been answered, you can decide if you want to be in this study or not. Please keep a copy of this form for yourself.

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If you want to be in this study, please sign.
If you don't want to, please do not sign.

PRINT your name	Date
SIGN your name	Date
Signature of Person Obtaining Consent	Date

Appendix F: Permission to use the PSESC

From: "Dario Colella" <dario.colella@unifg.it>
Date: Jun 26, 2017 10:21
Subject: Re: Permission please
To: "Sean Jones" <mersean@gmail.com>
Cc:

Dear Colleague

Thanks you for the attention!

With great pleasure
Attention: the questionnaire is for children (ages 8-11).
I attach the scale for data analisys

best regards

dario colella

2017-06-26 14:21 GMT+02:00 Sean Jones <mersean@gmail.com>:

Mr. Colella,

I am a doctoral candidate at Walden University and am currently conducting my dissertation research on monetary incentives and athletic performance. The purpose of my q
relationship between three levels of monetary incentives (no incentive, small incentive, and large incentive) and the athletic performance of adolescent male soccer players. In
physical self-efficacy or intrinsic motivation moderate the relationship between athletic performance and monetary incentives.

I will be using Pelletier et al.'s Sports Motivation Scale to examine participants' intrinsic motivation. I found your instrument, the Physical Self-Efficacy Scale for Children, to b
participants' self-efficacy. With your expressed permission, I would like to utilize this scale in my dissertation research.

Please let me know if you have any questions. I look forward to your reply.

Kind regards,

Sean Paul Jones

Appendix G: Letter of Cooperation

6800 PINNACLE VALLEY DRIVE
LITTLE ROCK, AR 72223
501-400-3631
NSHERWOOD6@GMAIL.COM

To whom it may concern,

The Mighty Bluebird Soccer Club agrees to allow Sean Paul Jones to work with our athletes for his research project provided the family of each athlete completes a parental consent form. Thanks so much.

Nick Sherwood