

PREDICTING COLLEGE WOMEN ROWERS' MOTIVATION AND PERSISTENCE:
A SELF-DETERMINATION THEORY APPROACH

by
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A thesis
submitted in partial fulfillment
of the requirements for the degree of
Master of Science in Kinesiology
Boise State University

May 2015

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BOISE STATE UNIVERSITY GRADUATE COLLEGE

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A Self-Determination Theory Approach

Date of Final Oral Examination: 03 March 2015

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ACKNOWLEDGEMENTS

My heartfelt thanks to Dr. Nicole Bolter for her expert guidance, tireless enthusiasm, and unwavering dedication to this thesis. Thank you as well for your mentorship and support during my time at Boise State, I am truly grateful. My appreciation also extends to the members of my thesis committee for their efforts and encouragement throughout this process. I would like to thank my family and friends for their love and support, in particular, my father Scott Coon and mother Brenda Dale, as well as my wonderful sister, Megon Coon. Finally, I would like to give my endless gratitude to my partner Adam Schwind for his understanding and love.

ABSTRACT

Predicting College Women Rowers' Motivation and Persistence:

A Self-Determination Theory Approach

Collegiate women's rowing has evidenced unprecedented growth in the past three decades. With an average roster of 50.2 athletes, women's "crew" has been an attractive sport for colleges and universities to add to their program offerings and achieve compliance with Title IX. To satisfy the increased demand for female athletes, college rowing teams often recruit athletes with no previous rowing experience (i.e., "true novices"). Unfortunately, many programs experience significant attrition within their novice and varsity rowing rosters each season. Thus, while Title IX has been successful in affording opportunities for women rowers, the present study sought to determine the factors that predict and enable athletes' persistence in the sport and identify ways to help maintain those opportunities. One way to understand college rowers' continued participation behaviors is to examine their motivation. According to self-determination theory (SDT), coaching behaviors predict the satisfaction of athletes' basic psychological needs, which in turn determine athletes' motivation and persistence or dropout from sport. **PURPOSE:** The purpose of this study was to examine individual and social-contextual factors that contribute to rowers' motivation and continued participation or dropout from sport. As an extension of previous research, this study differentiated between the type of coach athletes primarily work with and employed a longitudinal

design. **METHOD:** NCAA Division I, II, and III female rowing athletes ($N = 174$) completed self-report questionnaires focused on their perceptions of autonomy-supportive coaching behaviors, basic needs satisfaction (i.e., competence, autonomy, relatedness), and motivational orientation at two time points (i.e., Time 1, Time 2) over two competitive seasons. At Time 2, 97 athletes were still active rowers (i.e., persisted) and 22 athletes had dropped out. **RESULTS:** First-year, true novice rowers reported significantly less perceived competence when compared to their more experienced peers. Athletes who worked primarily with their head coach felt significantly more competent and autonomous compared to athletes who worked most often with assistant, J.V., or novice coaches. Perceptions of autonomy and coach relatedness were positively related to intrinsic motivation and negatively related to athletes' amotivation. Rowers' amotivation at Time 1 significantly predicted dropout at Time 2. Continuing participants reported similar feelings of needs satisfaction and motivation at Time 1 and Time 2.

DISCUSSION: Findings are in line with previous research and SDT suggesting that satisfaction of athletes' basic needs and self-determined forms of motivation are key predictors of persistence in sport. Results also support the SDT assumption that dropout in sport will occur when athletes feel they have neither intrinsic nor extrinsic reasons for continuing participation. Findings can inform coaching practices and administrative decisions to ensure rowers' long-term participation, maintain the viability and growth of the sport, and ultimately satisfy the larger goals and spirit of Title IX.

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CHAPTER ONE: INTRODUCTION

Passage of Title IX of the Education Amendments of 1972 has had a significant influence on American society and the world of college sports (Hogshead-Makar & Zimbalist, 2007). Title IX, as it pertains to intercollegiate athletics, ensured that colleges “Provide equal athletic opportunities for members of both sexes” (Hogshead-Makar & Zimbalist, 2007, p. 73). While the scope of the Education Amendments encompassed much more than its regulation of intercollegiate athletics activities, Title IX and women’s collegiate sports have been closely linked, the latter benefitting from countless new opportunities for women in competitive sport. College women’s rowing is one such sport that has a shared and complicated history with the passage of Title IX.

Women’s rowing became popular among college and university athletics departments when it was added to the National Collegiate Athletic Association’s (NCAA) list of “Emerging Sports,” a group of nine sports identified as a means to help alleviate the disparity in men’s and women’s sport offerings at the college level (“Emerging Sports for Women”). Across all NCAA divisions, rowing has an average roster of 50.2 athletes (the largest roster among all women’s collegiate sports) (Acosta & Carpenter, 2014). Due in part to the sport’s sizable roster average, it became an attractive sport for athletics departments to add to expand their women’s sport opportunities and achieve compliance with Title IX. Consequently, women’s rowing has grown considerably in the past three decades (Acosta & Carpenter, 2014). The sport has grown

from being offered at only 6.9% of institutions in 1977 to nearly 15% of colleges and universities in 2012.

Increased participation opportunities for female rowers at the college level, however, have been unmatched by high school and junior rowing programs (Rosner, 2001). Rosner describes this mismatch of participation opportunities and scholarships at the college level relative to qualified junior athletes:

The lack of a broad participation base [at the junior level] has led to an odd disparity. There are simply more athletic scholarships available in women's rowing than there are high school athletes talented enough to earn them. (Rosner, 2001, p. 329)

High school and junior rowing programs have been unable to provide college teams with sufficient numbers of experienced, high-caliber junior rowing athletes (Hogshead-Makar & Zimbalist, 2007). As a consequence, college rowing teams are left to recruit inexperienced, novice athletes to fill their rosters. Commonplace in college rowing, these athletes, labeled true novices, have no previous experience in the sport and represent a unique population of athletes given they compete at a level where elite, expert athletes are more common.

Despite efforts to provide participation opportunities for female athletes, many rowing programs experience significant dropout within their novice and varsity rowing rosters each season. Thus, while Title IX has been successful in affording opportunities for women rowers, the present study aimed to understand how to help maintain those opportunities and enable athletes' long-term participation (i.e., behavioral persistence) in the sport. One way to understand college rowers' continued participation behaviors is to examine their motivation. Therefore, the overall purpose of this research was to determine why college rowing athletes persist in sport by studying their motivation.

Athletes who demonstrate behavioral persistence in sport maintain their participation and demonstrate adherence to sport (Deci & Ryan, 1985; Vallerand & Bissonnette, 1992). Current research on athletes' behavioral persistence considers the relationship between persistence and dropout from sport to be generally antagonistic (Sarrazin, Vallerand, Guillet, Pelletier, & Cury, 2002; Vallerand, Fortier, & Guay, 1997). That is, an athlete drops out of sport when they fail to persist. Motivation appears to be a key variable to consider when understanding and predicting behavioral persistence in sport (Ryan & Deci, 2000; Sarrazin et al., 2002).

Athlete Persistence in College Sport: A Self-Determination Theory Perspective

Motivation and behavioral persistence as a possible outcome can be explained using the theoretical framework of human motivation, self-determination theory (SDT). SDT theorists Deci and Ryan (2000) posit that intrinsic motivation is one of the most important predictors of sport participation over time; that is, when participants find intrinsic satisfaction and significant value in an activity, they are more likely to persist in it. Research has consistently shown that athletes who evidence greater intrinsic motivation and more self-determined motives for participation are more likely to continue participating (e.g., Hagger & Chatzisarantis, 2007; Pelletier, Fortier, Vallerand, & Brière, 2001).

Self-determination theory proposes a causal sequence with four stages to describe the processes that predict athletes' motivation and persistence/continued participation in sport (e.g., Deci & Ryan, 1985, 2000). This sequence was stated formally in Vallerand's (1997) hierarchical model of intrinsic and extrinsic motivation. In this model, social factors predict the satisfaction of psychological mediators (e.g., basic psychological

needs), which predicts the type of motivation an athlete adopts. This type of motivation (i.e., more or less self-determined), according to this model, directly influences athletes' behavioral consequences such as dropout or persistence (Vallerand, 1997). As evidenced by the causal sequence, social factors are integral to the motivational process as they directly impact the satisfaction of athletes' psychological needs and in turn athletes' motivation.

Social Factors Predicting Athlete Persistence: Coach Behavior

SDT predicts that social factors are one of the most significant antecedents of athletes' motivation in sport (Hagger & Chatzisarantis, 2007). The behavior of the coach within the social environment is considered to be the most pervasive. Hollembeak and Amorose's (2005) study of male and female NCAA Division I athletes confirm that coaching behaviors were significantly related to athletes' motivation. Pelletier and colleagues (2001) also found a positive association between athletes' perception of their coaches as supportive and responsive and athletes' self-determined motives for participation in sport.

The style of coach interaction has been found to be particularly influential on athlete motivation and has received the greatest attention in sport motivation research (Hagger & Chatzisarantis, 2007; Horn, 2008; Mageau & Vallerand, 2003). Deci and Ryan (2000) distinguish between two styles of coaching behavior: (a) controlling, and (b) autonomy-supportive. Coaches who encourage athletes' involvement in decision-making, offer choice, and recognize and support athletes' feelings and perspectives are considered *autonomy-supportive* (Deci & Ryan, 2000). In other words, coaching behaviors that support athletes' need for volition and are athlete-centered are said to be autonomy-

supportive. Coaches who communicate by intimidating or pressuring athletes are said to be *controlling* (Mageau & Vallerand, 2003). Coaches who adopt this controlling style of coaching favor a coach-centered approach, meaning power and control of the coach are emphasized over the needs and feelings of athletes. Research has consistently found that when coaches exhibit an autonomy-supportive interpersonal coaching style, their athletes experience greater self-determined motivation and thus persistence (Hagger & Chatzisarantis, 2007; Pelletier et al., 2001).

Basic Needs Satisfaction Indirectly Predicting Athlete Persistence

SDT identifies three basic psychological needs as important for predicting athlete motivation and persistence: the need for autonomy, competence, and relatedness. Environments that support one's perception of their efficacy at a task or having adequate ability are said to satisfy one's need for *competence*. An athlete's need for *autonomy* is met when they perceive their actions as self-endorsed or freely-chosen. Athletes who conform to the directions or opinions of others or are merely compliant are not acting autonomously (Ryan & Deci, 2000). Deci and Ryan propose the third, most distal need of *relatedness* is satisfied within social contexts that support one's need for connectedness and belonging. Fulfilling all three of these innate psychological needs is essential for continued psychological integrity, motivation, and persistence in sport (Hagger & Chatzisarantis, 2007; Ryan & Deci, 2000). Intrinsic motivation, according to SDT, is said to be energized by the satisfaction of these psychological needs rather than a function of external reinforcements (Deci & Ryan, 2000). SDT posits that in order to facilitate intrinsic motivation in athletes, social factors (e.g., coaches) must create an environment

that satisfies these psychological needs. That is, basic needs satisfaction mediates the relationship between coaching behaviors and athletes' intrinsic motivation.

Given the importance of psychological need satisfaction in predicting athletes' persistence in sport, true novices in rowing may be "at-risk" of non-persistence or attrition. With no previous rowing experience, true novice athletes may lack perceptions of competence for rowing, which would indicate a deficiency in their basic needs satisfaction. SDT theorists would suggest these athletes are in danger of significant adverse behavioral outcomes (e.g., non-persistence) when their basic need for competence is left unmet (Ryan & Deci, 2000; Vallerand, 1997). The question then becomes, what happens when perceived competence is not present or is limited for a collegiate athlete? Although past studies with college athletes have shown support for SDT's theoretical predictions that social factors predict the satisfaction of athletes' basic needs, which then influences motivation, the motivational profiles of true novice athletes may look different. Thus, understanding the reasons how and or why rowers (including true novices) may be at-risk of not persisting may offer further insight into how to ensure their continued participation in the sport.

Summary of Past Research

Self-determination theory proposes that the satisfaction of athletes' basic psychological needs yields more self-determined types of motivation and therefore greater persistence in sport. SDT also maintains that the behavior of the coach, specifically whether or not they adopt an autonomy-supportive coaching style, is an important influence on athletes' need satisfaction, their motivational profile, and athletes' persistence in sport. These motivational processes have been consistently supported

within the literature. Taken together, it is necessary to consider athletes' basic needs satisfaction as well as their perception of coaches' autonomy-supportive behaviors to understand college rowers' motivation and continued participation in the sport.

Limitations of Previous Research

Two limitations exist in previous research examining athletes' motivation and persistence from an SDT perspective that will be addressed in the present study. Although the influence of the coach on athlete motivation and persistence in sport has been consistently supported in the literature (Amorose & Anderson-Butcher, 2007; Hagger & Chatzisarantis, 2007), little distinction has been made regarding the type of coach athletes may work with in the college setting (e.g., assistant coach, head coach). While it is often assumed that the head coach is being studied, many college athletics programs employ a number of coaches that work with athletes in varying capacities within a team. These coaches may possess different personal characteristics (e.g., level of coaching experience, training, and education), hold different expectations, beliefs, and goals for athletes, and in turn, treat athletes differently (Horn, 2008). The present study addressed this gap by assessing the type of coach athletes primarily work with (i.e., head coach vs. assistant coach) and determined if different coaches differentially affect athletes' need satisfaction, motivation, and ultimately their persistence.

Another limitation of past studies is the utilization of a cross-sectional research design. Such designs prevent researchers from drawing causal inferences about the relationships among variables collected at only one time point (Amorose & Anderson-Butcher, 2007; Lonsdale, Hodge, & Rose, 2009). For example, in studies measuring motivation and persistence at the same time point, it is not clear if motivation at one time

predicts persistence or dropout at a later date. Therefore, previous research may be inadequate to fully understand the causal relationships between psychosocial factors, athletes' motivation, and their continued persistence in sport over time. The present study addressed this gap in the current literature by examining athletes' motivational profiles and participation status over the course of two competitive seasons. Together, examining type of coach and adopting a longitudinal design may help to better explain and predict rowers' motivation and persistence in college sport.

Purpose

The purpose of this study was to better understand the psychosocial experiences of female collegiate rowers, including those of true novices. The possible factors that may predict athletes' motivation and persistence were examined. These factors included the following psychosocial and social contextual constructs: athlete perceptions of competence, autonomy, relatedness, motivation, autonomy-supportive coaching behaviors, type of coach (i.e., head coach vs. assistant coach) and rowing experience (e.g., true novice or not). These constructs were assessed at two time points across two competitive seasons, thereby utilizing a longitudinal research design. The following questions were addressed:

- 1) Research Question 1: Does athletes' status as a true novice account for differences in rowers' basic needs satisfaction, perceptions of autonomy-supportive coaching behaviors, or motivation for rowing?
- 2) Research Question 2: Does the type of coach an athlete primarily works with account for differences in rowers' basic needs satisfaction, perceptions of autonomy-supportive coaching behaviors, or motivation for rowing?

- 3) Research Question 3: To what extent do the psychosocial and social contextual factors explain rowers' motivation?
- 4) Research Question 4: Does rowers' type of motivation at one time point predict their continued participation at a later time point?
- 5) Research Question 5: For rowers who have continued their participation in the sport, do their psychosocial factors change or stay the same across two competitive seasons?

Significance of the Study

This study contributes to existing theory and research examining athlete motivation and persistence from a self-determination theory approach and extends previous research by distinguishing type of coach and utilizing a longitudinal approach. Results highlight the motivational profiles of rowing athletes, including those of true novices. Results also identify the factors that predict athletes' behavioral persistence and thus provide new insight about a unique population in collegiate athletics. Ultimately, this research aligns with the larger goals of Title IX by helping to explain why female student-athletes in the sport of rowing persist or drop out. Findings from the present study may also inform best practices for university rowing coaches, offer insights for institutions that sponsor the sport, and suggest possible interventions for improving athlete motivation and retention that reflect the core purpose and values of the NCAA.

CHAPTER TWO: LITERATURE REVIEW

The passage of Title IX of the Education Amendments of 1972 was a monumental ruling in American history. Hogshead-Makar and Zimbalist (2007) recount the magnitude of this federal statute:

Other than women's suffrage, possibly no other piece of legislation has had a greater effect on women's lives. This simple piece of federal legislation has had a powerful impact on American society through its expansion of equal educational opportunities for women. (p. 50)

Title IX, a federal statute passed June 23, 1972, made into law that any educational program or activity receiving financial assistance from the federal government is prohibited from excluding, denying the benefits of, or discriminating against any participant on the basis of sex (Brake, 2010). Although this landmark legislation made no mention at first of equal participation for women in athletics, passage of the Javits Amendment in 1974 ensured that intercollegiate sports, big or small, revenue-producing or not, were not exempt from the scope of Title IX as an antidiscrimination law (Brake, 2010). To remain in compliance with Title IX requirements, college athletics programs must satisfy one of the following criteria (i.e., "the three-part test"): (1) ensure athletics participation opportunities are proportionate to men's and women's academic enrollment numbers, (2) demonstrate a history and continued practice of expanding sport opportunities that reflect the interests and abilities

of the underrepresented sex, or (3) show that programs have fully and effectively accommodated the abilities and interests of both sexes (Brake, 2010).

Despite outlining specific measures for Title IX compliance, women's sport participation numbers in the early 1990s were still considerably lower than their postsecondary enrollment numbers (Hogshead-Makar & Zimbalist, 2007). Among Division I athletics programs, the percentage of female participants was barely higher than participation levels in 1980. The NCAA's 1994 *Gender Equity Study* reported similar findings of NCAA incompliance with Title IX mandates among colleges and universities. In response to these low participation numbers for women, the NCAA created the Gender-Equity Task Force, a group charged with finding ways to achieve gender equity among the NCAA member institutions (Hogshead-Makar & Zimbalist, 2007).

One of the recommendations of this Gender-Equity Task Force was to identify a list of "emerging sports" that would help increase participation numbers of women athletes at the collegiate level (Hogshead-Makar & Zimbalist, 2007, p. 131). These sports, which included women's ice hockey, bowling, and water polo, were sports that had become increasingly popular at the high school level. In addition to the list of "emerging sports" the Task Force's objectives were twofold: (1) fulfill high school athletes' aspirations of competing at the college level, and (2) increase female athlete participation numbers to help achieve compliance with Title IX (Hogshead-Makar & Zimbalist, 2007).

Women's Collegiate Rowing and Title IX

One of the “emerging sports” was women’s rowing (“crew”), a sport that has since evidenced the fastest growth compared to all other “emerging sports” identified by the Task Force. In contrast to the roughly 6% of colleges and universities offering the sport in 1981, 13% of schools now sponsor rowing—a more than two-fold increase in 30 years (Acosta & Carpenter, 2014). Participation rates in 2012 revealed there were 7,282 female rowers participating on 145 teams in NCAA Divisions I, II, and III. Further, the average rowing team roster among all NCAA divisions was 50.2 athletes, the largest roster size in all of women’s collegiate sports (Acosta & Carpenter, 2014). This sizable roster average has made rowing a popular sport for colleges and universities to add to achieve gender proportionality and thereby remain in compliance with Title IX mandates. The sport’s average roster size and popularity within college athletics departments help to explain rowing’s accelerated growth over the past few decades.

Although opportunities for women to row at the college level have increased markedly over the past 30 years, high school and junior rowing programs have been unable to supply sufficient numbers of experienced, high-caliber junior rowing athletes to meet the demands of college teams (Hogshead-Makar & Zimbalist, 2007). Rosner (2001), in his study of the financial, legal, and ethical issues of women’s rowing, describes this disparity:

There are simply not many athletes competing in the sport, let alone those with the desire to row intercollegiately. This has severely limited the pool of highly talented rowers available to be recruited by college rowing programs. (p. 304)

Thus, a shortage exists of experienced, female rowing athletes from which college teams may recruit. To contend with this shortage, many college and university rowing

programs recruit and include athletes with no prior experience in the sport. True novices, as they are called in the sport, are first-year college rowing athletes with no previous rowing experience. In other words, a true novice rower has never before picked up an oar. And while these true novices are commonplace in collegiate rowing, they are a unique phenomenon within intercollegiate athletics given that sport at this level has historically been dominated by elite, expert athletes. In fact in 2001, it was estimated 90% of rowing student-athletes nationwide had no rowing experience before college (Rosner, 2001).

Despite efforts to provide participation opportunities for these female student-athletes, many rowing programs experience significant attrition rates within their rosters each season (Macur, 2004). Attrition from the sport hinders rowing teams that wish to grow their programs, challenges teams seeking to become or stay competitive within their conferences, and effectively thwarts programs' efforts to meet gender-equity participation requirements. Thus, determining the factors that predict and enable rowers' persistence in rowing is critical for the growth and viability of the sport and the experiences of its participants. Further, understanding why rowing athletes maintain their participation or drop out from the sport is fundamental to satisfying the larger goals and spirit of Title IX. Examining these outcomes using a social-psychological lens may help explain rowers' continued participation or dropout behaviors and offer best practice recommendations to teams that wish to engender athletes' long-term participation in the sport.

Defining Athlete Persistence, Dropout, and Motivation

For the purposes of this study, persistence is defined as continued participation or sport adherence (Ryan & Deci, 2000). In sport, those athletes who persist keep playing or maintain their participation. Dropout occurs within sport when participants fail to persist

or disengage from an activity (Vallerand et al., 1997). Much of the research seeking to understand athletes' sport persistence and dropout recognize these two outcomes as inherently related and most often behaviors opposite of one another (Sarrazin et al., 2002; Vallerand et al., 1997). As such, athletes who do not persist drop out of sport.

Motivation, commonly defined as the "direction and intensity of one's effort" (Lox, Martin Ginis, & Petruzzello, 2010, p. 48), is key to understanding persistence in sport and often understood as a behavior or outcome (Vallerand & Losier, 1999). For example, an athlete who is highly motivated to execute, adopt, or change a given a behavior (e.g., master a two-handed backhand in tennis) would be expected to work extremely hard at accomplishing that goal. Accordingly, this athlete would likely persist in the activity regardless of repeated failures and little improvement (Lox et al., 2010). Research has established a causal relationship between one's motivation and their behavioral persistence in activities (e.g., Pelletier et al., 2001; Ryan & Deci, 2000; Vallerand & Losier, 1999). That is, greater motivation predicts greater persistence in an activity. Thus, understanding athletes' motivation for sport participation may help explain why some rowers persist and why others drop out.

Sport psychology researchers and practitioners recognize that athletes can generally have two types of motivation (Lox et al., 2010). Intrinsic motivation is an active, personal commitment emanating from within (Ryan & Deci, 2000). Activities that are intrinsically motivating to an athlete are undertaken in absence of external rewards or separable consequences or prompts and done for their inherent enjoyment. Motivation theorists Ryan and Deci (2000) propose that intrinsically motivated individuals are inherently predisposed to seek out challenges, actively develop their skills, and find

interest in new activities (Ryan & Deci, as cited in Hagger & Chatzisarantis, 2007). Conversely, extrinsic motivation is a type of motivation derived from external sources not inherent in the activity itself (Hagger & Chatzisarantis, 2007). Extrinsically motivated athletes' behaviors and performance of activities are contingent on extrinsic incentives or rewards. Research in motivation and sport persistence has found that greater intrinsic motivation in athletes was predictive of their persistence in sport over time (Pelletier et al., 2001). It follows that in order to maintain sport participation, intrinsic motivation in the sport must be nurtured and internalized.

College Athlete Persistence in Sport: A Self-Determination Theory Perspective

Self-determination theory (SDT), a theory of motivation that seeks to explain human behavior, has been one of the most influential theories offered to the field of social psychology in the past thirty years (Hagger & Chatzisarantis, 2007). SDT provides a suitable framework to understand the factors that enhance and undermine rowers' motivation and thus their persistence in sport. Self-determination theory proposes that individuals venture to participate, exert effort, and persist in activities to the extent these behaviors actualize desired goals or outcomes. SDT theorists Deci and Ryan (2000) contend that an individual's motives for doing an activity may vary in the extent the motivation is internally derived (i.e., self-determined) or contingent on external sources (nonself-determined). Thus, an individual's motivation can be characterized as self-determined (i.e., intrinsically driven) when they experience their behavior as efficacious and internally-derived (Deci & Ryan, 1985; Ryan & Deci, 2000).

Figure 1 illustrates Deci and Ryan's (1985; 2000) proposed continuum of self-determined motivation, a reflection of the extent to which an individual's motivation is

self-determined (i.e., emanates from the self) versus nonself-determined (i.e., controlled by external sources). Positioned at the right of this continuum is intrinsic motivation, defined as an active, individual commitment to act. Opposite of intrinsic motivation at the left end is amotivation, a state absent of any intention to act. Athletes are considered to be amotivated when they no longer know why they participate in sport (Hagger & Chatzisarantis, 2007). It follows that intrinsic motivation is more self-determined in nature, while amotivated athletes are entirely nonself-determined. SDT posits four types of extrinsic motivation with varying degrees of autonomy that span this continuum and reflect the extent to which an individual's behavior has been incorporated into their sense of self (Ryan & Deci, 2000).

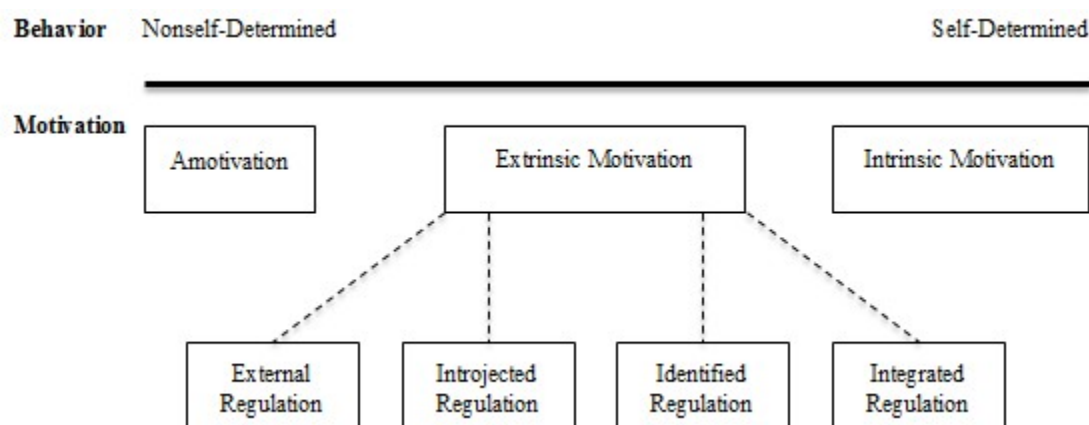


Figure 1. Self-Determination Theory's Continuum of Self-Determined Motivation and Regulatory Styles adapted from "Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being," by R. M. Ryan, & E. L. Deci, 2000, *American Psychologist*, 55(1), 68-78.

The least self-determined, most extrinsically-motivated behavior is referred to as being externally regulated (Ryan & Deci, 2000). This regulatory style characterizes motives that are contingent on rewards and constraints and interpersonally controlled. For example, an athlete's decision to join a team because they feel pressure from others to

stay in shape would be regulated by external pressures and considered to be the least autonomous form of extrinsic motivation. Introjected regulation, the next type of extrinsic motivation on the continuum, is considered to be more autonomous than external regulation because behaviors are said to be intrapersonally controlled (Ryan & Deci, 2000). Performing behaviors to avoid self-imposed feelings of anxiety or guilt or to maintain feelings of self-worth are characteristic of introjected regulation.

The second most autonomous form of extrinsic motivation, identified regulation, reflects individuals' valuing or owning of a behavior or action such that behaviors are judged to be personally important and highly significant (Ryan & Deci, 2000). Athletes who play on a team because they value the friendships they make or because it allows them to develop skills deemed to be important to their future (e.g., teamwork, dedication) are characterized as being regulated through identification. Finally, integrated regulation is considered to be the most self-determined, autonomous form of extrinsic motivation. These behaviors have been fully integrated in one's self, meaning they are compatible with athletes' values and needs (Ryan & Deci, 2000). For example, an athlete's decision to abstain from junk food during a competitive season because it aligns with their values and needs as an athlete would be regulated by integration. Integrated motives for a behavior are similar to intrinsically-motivated behaviors. However, because they are performed to achieve separable consequences rather than for their inherent enjoyment, integrated motives are characterized as extrinsic (Ryan & Deci, 2000).

Self-determination theory maintains that more self-determined forms of motivation (i.e., intrinsic motivation, integrated and identified regulation) will promote greater persistence in behavior (Hagger & Chatzisarantis, 2007). Consistent with

theoretical predictions, research has shown that athletes with greater self-determined motivation exhibit more positive psychological outcomes including adaptive coping, sport satisfaction, interest, excitement, and confidence in addition to greater behavioral persistence in sport (Amiot, Gaudreau, & Blanchard, 2004; Blanchard, Amiot, Perreault, Vallerand, & Provencher, 2009; Ryan & Deci, 2000). For example, in their seminal study of female swimmers' motivation and persistence in sport, Pelletier and colleagues (2001) found that athletes' intrinsic motivation and identified regulation significantly predicted athletes' persistence over time.

Key to interpreting this continuum of self-determined motivation is the understanding that individuals may internalize behaviors that had once been externally-derived and integrate them into their value system and sense of self (Deci & Ryan, 2000). In this way, an athlete's motives for performing a certain skill or behavior may move along the continuum, effectively becoming more or less self-determined in nature. This continuum, however, is not meant to suggest athletes must progress through each type of motivation or move developmentally along the continuum. Behavior regulation, and thus intrinsic motivation, will vary depending on the social climate as well as the satisfaction of an individual's basic psychological needs (Hagger & Chatzisarantis, 2007). Also important to note, athletes may endorse more than one type of motivation at any time (Vallerand, Pelletier, & Koestner, 2008). For example, an athlete may be intrinsically motivated to participate in a sport but also participate for identified reasons. Thus, an individual's motivational "profile" describes the types of motivation an individual endorses for an activity (e.g., high self-determined forms of motivation and low nonself-determined forms of motivation).

Self-determination theorists propose a four-stage motivational sequence that predicts an individual's behavioral and psychological outcomes. This sequence is stated formally in Vallerand's Hierarchical Model of Extrinsic and Intrinsic motivation (Hagger & Chatzisarantis, 2007; Vallerand, 1997). In his proposed model, Vallerand suggests the progression of the motivational processes that determine behavioral (i.e., persistence) and psychological outcomes occurs in the four stages illustrated in Figure 2. The stage titled "types of motivation" within this sequence accounts for the type of motivation an individual adopts. These types of motivation are represented on the continuum of self-determined motivation (i.e., intrinsic motivation, extrinsic regulatory styles, and amotivation) as outlined in Figure 1.

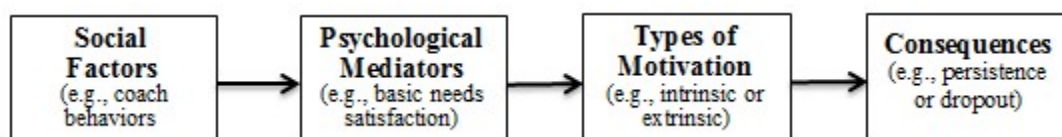


Figure 2. The Hierarchical Model of Intrinsic and Extrinsic Motivation adapted from "Toward a Hierarchical Model of Intrinsic and Extrinsic Motivation," by R. J. Vallerand, 1997, *Advances in Experimental Social Psychology*, 29, 271-360.

This model suggests that social factors will predict the satisfaction of psychological mediators (e.g., basic needs satisfaction). The satisfaction of an individual's psychological mediators will predict the type of motivation (i.e., intrinsic motivation, extrinsic regulatory styles, and amotivation) an individual adopts. This type of motivation will then determine the various consequences or outcomes (e.g., persistence in sport) for an individual (Vallerand, 1997). Vallerand (1997) also proposes that the types of motivation (i.e., intrinsic, extrinsic, amotivation) an individual adopts exist within three hierarchical levels of generality. Atop this hierarchy, motivation can be represented within an individual as a more stable construct or orientation (i.e., global

level of motivation). That is, an athlete's global level of motivation would be characterized as a general predisposition to a certain type of motivation in many situations and environments. The second level of this hierarchy is an individual's contextual motivation. Contextual motivation describes an athlete's motivation within a specific context (e.g., college rowing). This type of motivation is subject to greater variation than one's global motivational orientation and is useful in predicting changes in behaviors and outcomes (Vallerand, 1997). The third level of motivation is situational motivation. This type of motivation refers to the "here and now of motivation" (Vallerand, 1997, p. 293). In other words, situational motivational level describes an athlete's motivation specific to moments in time. In the present study, athletes' level of contextual motivation, specific to the context of collegiate women's rowing, will be examined and discussed as it relates to athletes' behavioral and psychological outcomes in sport.

Studies that have tested Vallerand's (1997) four-stage causal sequence to explain the processes involved in sport persistence/dropout among competitive youth and college athletes have found support for this motivational model (e.g., Hollembeak & Amorose, 2005; Sarrazin et al., 2002). A discussion of the social factors and psychological mediators that predict athletes' motivation and persistence within the sport context will follow.

Psychological Mediators: Basic Needs Satisfaction

SDT posits that individuals actively seek to fulfill three basic psychological needs: competence, relatedness, and autonomy (Deci & Ryan, 1985; Deci & Ryan, 2000). These basic needs direct an individual's goal pursuits and when satisfied characterize the necessary conditions for psychological integrity, growth, and intrinsic motivation in sport (Deci & Ryan, 2000). Research in competitive sport has consistently shown that basic needs satisfaction will foster greater self-determined motivation in athletes (Hollembeak & Amorose, 2005; Sarrazin et al., 2002). Thus, it is important to look at each of the needs when understanding motivation and persistence in sport.

Competence, Intrinsic Motivation, and the Special Case of True Novice Rowers

Much of the research in empirical sport psychology concerns the basic need of competence. Competence, according to self-determination theory, refers to one's perception of having adequate, effective ability (Ryan & Deci, 2000). For example, an athlete would perceive himself or herself as more competent when they have effectively interacted with their environment and have brought about desired effects or outcomes (Standage, Duda, & Ntoumanis, 2006). This basic need, Deci and Ryan (2002) argue, is not a skill that can be attained, but rather a sense of confidence and efficacy. Perceived competence leads people to seek out optimally challenging activities and to strive to maintain and enhance their abilities through an activity. Increasing one's competence has been consistently cited among the reasons why individuals engage in and maintain their involvement in sport (Black & Weiss, 1992; Weiss & Ferrer-Caja in Horn, 2008). For example, in their study of students' persistence and effort in the physical education

setting, Standage and colleagues (2006) found that the basic need of competence was the strongest predictor of students' type of self-determined motivation.

Competence may play an important role in understanding the experiences and motivations of novice rowing athletes. True novices, as previously defined, are college rowing athletes with no previous experience in the sport. Rowing programs nationwide are heavily reliant on this athlete population to fill their rosters, thus ensuring the viability of their teams and helping to remain in compliance with Title IX. Inexperienced athletes to any sport, however, are often lesser-skilled and lacking in basic, sport-specific competencies (Helsen & Starkes, 1999). Such novice athletes may be deficient in the specific skills and competencies integral to playing or performing their sport. This sport-specific competency may be lacking in true novice athletes to the sport of rowing given they have no prior experience. It is hypothesized that this inexperience may lead athletes to believe they are not competent. That is, true novice rowers who perceive themselves as incompetent may not feel their need for competence is satisfied.

According to self-determination theory, none of the basic needs can be thwarted or left unfulfilled without significant negative consequences to an individual's psychological health and well-being (Deci & Ryan, 2000). That is, if an individual is lacking in perceived competence, this may lead to less motivation for the activity and possibly their dropout from sport. Therefore, novice athletes who might be lacking in their basic need for competence may be "at-risk" of non-persistence in the sport of rowing. As such, studying rowers' perceived competence (including true novices' perceptions of competence) is important to understand their motivation and to ensure their long-term participation in the sport.

Autonomy and Intrinsic Motivation

Deci and Ryan (2000) characterize the basic need for autonomy as volition. An individual's need for autonomy is satisfied when they perceive their actions as freely-chosen or self-endorsed; alternatively, when an individual is merely compliant or conforms to the directions or opinions of others, they are not acting autonomously (Ryan & Deci, 2000). Previous research has consistently shown support for the importance of autonomy in predicting self-determined motives in sport. In a longitudinal study of dropout among competitive female handballers, Sarrazin and colleagues (2002) found autonomy to be the most important predictor of athletes' self-determined motivation and to a lesser degree competence and relatedness, respectively.

Adler and Adler (1988) argue that college athletics is an arena that exerts inordinate pressure on individuals and whose teams are characterized as hierarchical organizations with extreme centralization of authority. Coaches, they maintain, place athletes in subordinate roles, "By virtue of their position of authority, power, and superordination, coaches wield enormous influence over the lives of players" (Adler & Adler, 1988, p. 405). Kimball (2007) highlighted the importance of autonomy within the context of college sports in a qualitative study of NCAA Division I student-athletes' perceptions of autonomy. Kimball (2007) sought to better understand student-athletes' reasons for continued participation in college sports, a context that has been found to greatly limit athletes' sense of autonomy (Adler & Adler, 1988; Kimball, 2007). Results suggested that participation in collegiate sport does impose limitations on student-athletes' perceptions of volition. Athletes cited limitations imposed by the control of their coach, power dynamics of the coach-athlete relationship, and academic restrictions as

severely inhibiting their autonomous behavior (Kimball, 2007). These findings suggest the importance of studying athletes' perceptions of autonomy within the college sport setting.

Relatedness and Intrinsic Motivation

The basic need for relatedness is met when an individual reports caring for—and being cared for—by others, as well as feeling a sense of connection and belonging to others within an individual's community (Deci & Ryan, 2002). Self-determination theorists Ryan and Deci (2000) propose relational support (i.e., relatedness) is a more distal need than competence and autonomy in facilitating intrinsic motivation. Ryan and Deci (2000) support this contention by citing evidence of individuals engaging in activities in the absence of significant others (e.g., hiking) and perceiving their behavior as intrinsically-motivated. However, research has shown mixed support for this assumption. Consistent with theoretical predictions, Lonsdale and colleagues (2009) found the need for relatedness to occupy a less proximal role in promoting athlete psychological well-being than the needs of competence and autonomy. Conversely, Hollembeak and Amorose's (2005) findings identify relatedness as a significant and strong predictor of college athletes' intrinsic motivation in sport.

Vallerand (2000) attributes much of these inconsistencies to the role social contexts play in activities; he suggests that “clearly, relatedness can play a major role in determining motivation, especially when people engage in social tasks and activities” (p. 317). In recent years, the role of relatedness in predicting athletes' motivation in sport has received greater attention by researchers (Cox, Duncheon, & McDavid, 2009). McDonough and Crocker (2007) argue that future research should determine not *whether*

relatedness is a significant predictor of athletes' self-determined motivation but *how* and *under what circumstances* relatedness plays a role in predicting athlete motivation. Thus, the basic need for relatedness should be examined in any study seeking to understand the motives for athletes' participation and persistence in sport.

Further, distinguishing between coach and teammate relatedness when examining this construct is important to provide the most accurate portrayal of athletes' needs satisfaction. Although most studies that have examined perceptions of relatedness in the sport setting have combined teammate and coach relatedness to consider them as one influence (e.g., Hollembeak & Amorose, 2005; Sarrazin et al., 2002), some studies have measured them separately (e.g., Kipp & Weiss, 2013). For example, Kipp and Weiss (2013) found coach and teammate relatedness to uniquely and significantly predict indices of athlete well-being. Thus, determining the extent to which athletes' perceptions of relatedness to their teammates and coaches uniquely influence the satisfaction of rowers' basic needs and motivation should more fully capture the construct of relatedness within the team sport setting.

Situational Significance of the Basic Needs

The relative importance of each of the basic needs in predicting athlete motivation, according to SDT, may vary as a result of the situational and functional significance of specific events (Deci & Ryan, 1985; Vallerand, 1997). Discrepancies exist among various studies in the relative importance of each of the basic needs in predicting motivation. For example, Sarrazin and colleagues (2002) found autonomy to be the most important predictor of athletes' self-determined motivation among handball players, while Standage and colleagues' (2006) findings suggest competence to be the main

predictor of athlete motivation in the physical education setting. Thus, the relative priority athletes assign to the satisfaction of their three distinct, basic needs within the sport context may determine which needs play more proximal or distal roles in athletes' self-determined motivation (Hagger & Chatzisarantis, 2007). In this way, Vallerand et al. (1997) maintains, the relevance of a particular situation to the basic needs will predict its impact on motivation. For example, if a particular situation is relevant to an individual's sense of competence, then perceived competence would be expected to have a more potent effect on athlete motivation (Vallerand et al., 1997). In the present study, the situational significance of the basic needs may vary as a result of social and contextual factors specific to the context of collegiate rowing. It is thus important to understand which needs contribute most to athletes' motivation for rowing and their long-term participation in the sport.

Social-Contextual Factors

The social context is paramount to the satisfaction of an individual's basic psychological needs and the facilitation of intrinsic motivation in athletes. Ryan and Deci argue that human potential is "actualized only under certain conditions, largely shaped by the social environment" (Ryan and Deci, 2007, as cited in Hagger & Chatzisarantis, 2007, p. 19). College sport is generally understood to be an inherently social setting in which teammates and coaches work closely to achieve the goals of their respective sport. This social context includes the socializing environment in which sport participants engage in and has been shown to evidence considerable influence in facilitating or forestalling an individual's needs satisfaction and motivational orientations (Hagger & Chatzisarantis, 2007; Vallerand, 1997). While a social context can include a variety of

influences, including the competitive climate/structure, coaches (and teachers in the physical education domain) are considered to be the most influential and have been the subject of considerable empirical research in the field (Hagger & Chatzisarantis, 2007; Vallerand, 1997).

Coach Influence on Needs Satisfaction

Within the sport context, coaching behaviors have been found to be particularly influential determinants of athlete motivation (Horn, 2008; Mageau & Vallerand, 2003). The coaching behavior receiving the most focus in sport motivation research is the style of coach-athlete interaction (Hagger & Chatzisarantis, 2007). According to SDT, the style of interaction employed by the coach can take two forms: autonomy supportive or controlling (Hagger & Chatzisarantis, 2007; Vallerand & Losier, 1999). A coach who employs an autonomy-supportive style encourages self-initiation and choice, recognizes and supports athletes' thoughts and feelings, reinforces their self-regulation of behavior, and asserts their control with limited use of demands and pressure (Hagger & Chatzisarantis, 2007). Conversely, a coach who endorses a controlling interpersonal style acts in a manner that effectively thwarts athletes' needs satisfaction and their self-determined motivation. A coaching style that pressures and is demanding of athletes is inconsistent with the satisfaction of athletes' wants or needs (Hagger & Chatzisarantis, 2007). Empirical research has consistently found that coaching behaviors supportive of athletes' needs for autonomy increase their levels of intrinsic motivation and self-determined extrinsic motivation (Amorose & Anderson-Butcher, 2007; Mageau & Vallerand, 2003). When exposed to sport and educational environments that are autonomy-supportive, athletes and students report greater self-determined (autonomous)

reasons for engagement, higher perceptions of basic needs satisfaction, and greater adaptive cognitive, emotional, and behavioral consequences (Gagné, Ryan, & Bargmann, 2003; Gillet, Vallerand, Amoura, & Baldes, 2010; Quested & Duda, 2010; Standage et al., 2006).

Consistent with SDT as well as past research, Mageau and Vallerand (2003) maintain that by favoring an athlete-centered approach (i.e., autonomy-supportive), coaches communicate their involvement and respect for athletes, which positively influences athletes' relatedness perceptions and their intrinsic/self-determined extrinsic motivation in sport. Hollembeak and Amorose's (2005) findings suggest the reverse is true when examining autocratic coaching styles and athlete motivation. Their findings showed that more authoritarian, unidirectional coaching behaviors were significant negative predictors of athletes' feelings of relatedness, supporting the contention that athletes under this leadership style are less likely to experience a sense of belonging and connectedness with their coaches (Hollembeak & Amorose, 2005). These findings collectively suggest autonomy-supportive environments facilitate athletes' needs, intrinsic motivation, and persistence in sport.

Limitations of Previous Research

Type of Coach

To fully understand the influence of the coach on athletes' needs satisfaction within collegiate sport, it is important to consider the different types of coaches that athletes may work with in this setting. One limitation of previous studies is that they fail to specify the type of coach being researched (e.g., head coach, assistant coach, intern, graduate assistant, volunteer). It is generally assumed the head coach is being studied. On

any given team in collegiate sport, however, there are often a number of coaches that work with athletes occupying different roles and undertaking various responsibilities on a team.

In the sport of rowing, there are often different types of coaches that work with athletes in varying capacities; in her study of collegiate women's rowing coaches and the factors influencing their professional development experiences, Lopez (2012) distinguished between head coaches, assistant coaches, and interns/graduate assistants/volunteers in her selection of participants because of the differing roles and professional competencies these coaches employ. The entry-level and assistant rowing coaches Lopez interviewed reported performing duties that included team management, technical instruction, recruitment, athlete advising, and primarily technical, "on the water" competencies (Lopez, 2012, p. 91). Head coaches' duties included more administrative, "office" responsibilities such as fundraising, equipment acquisition, facility management, and public relations (p. 91). These findings support the contention that different types of rowing coaches may occupy different roles on a team.

The few studies that have differentiated between type of coach suggest the different roles and responsibilities of coaches potentially impact athlete behavior and development. In their study examining injured athletes' perceptions of social support from their coaches and athletic trainers, Robbins and Rosenfeld (2001) distinguished between assistant and head coaches, reasoning that each coach assumes a different role and therefore may provide differing levels of social support to athletes. While their primary focus was on athletic trainers, significant differences were found between

athletes' perceived social support and well being as provided by head coaches, assistant coaches, and athletic trainers.

Rathwell, Bloom, and Loughhead (2014) interviewed head university football coaches to understand the main roles and responsibilities for assistant coaches on college football teams and how those might be different from head coaches. Head coaches reported that assistant coaches provided athletes with a different leadership style, held different training responsibilities, and offered distinct coaching knowledge when compared to head coaches. According to the head coaches interviewed, assistant coaches were more involved in the day-to-day interpersonal interactions with athletes, providing them with encouragement, feedback, and reinforcement (Rathwell et al., 2014).

Collectively these studies suggest that distinguishing the type of coach working with athletes may be a salient factor in understanding athletes' perception of their basic needs satisfaction and coaches' interactional style. Thus, in the present study, assistant, J.V., and novice coaches were examined separately from head coaches to account for the differences in the roles and responsibilities coaches may occupy and perform on rowing teams and their influence on athletes' perceptions.

Longitudinal Design

One other notable limitation in this line of research is that previous studies examining athlete motivation and perceptions of coaching behaviors among college athletes have primarily been cross-sectional, surveying athletes at only one time point (e.g., Amorose & Horn, 2001). Researchers often cite this as a limitation of this design because they cannot draw causal conclusions about the associations among variables on more than one occasion. Longitudinal research may help to address this issue. Pelletier

and colleagues (2001) employed a longitudinal approach to understand dropout behavior in competitive swimmers over two seasons. The results of this study suggest that more self-determined forms of motivation assessed at Time 1 were correlated with greater persistence at 10 months and 22 months later (Time 2 and Time 3, respectively). The present study addresses this gap by assessing athletes' type of motivation (i.e., more or less self-determined) and continued participation over the course of two seasons.

A few longitudinal studies have also shown that athletes' type of motivation and perceived satisfaction of their basic needs change over the course of a competitive season (Amorose & Horn, 2001; Amorose, Anderson-Butcher, & Cooper, 2009). In their pre- to post-season study of first year college athletes, Amorose and Horn (2001) found that athletes' intrinsic motivation increased over the season when coaches exhibited frequent training and instruction behaviors. It is also possible that athletes may experience changes in these variables from season to season as well. For example, an athlete could be intrinsically motivated at the end of a season but experience greater extrinsic motives for participation at the start of a new season. To address this possibility, this study will determine whether athletes' psychosocial factors (including their type of motivation and basic needs satisfaction) change over two time points. Examining whether athletes' psychosocial variables change over time may indicate whether athletes feel more or less satisfied in their basic needs, report greater or less self-determined motives for participation, or perceive their coaches to more or less supportive of their autonomy across seasons. Changes or stability in these variables may offer insight to coaches on the effectiveness/ineffectiveness of their programs in meeting athletes' needs and retaining athletes from season to season, and may suggest areas for improvement and timely

interventions. By adopting a longitudinal approach to measure the psychosocial factors that may affect athletes' motivation and continued participation, this study addresses the limitations posed by previous cross-sectional studies in the field.

In sum, self-determination theory's premise that the satisfaction of the three innate psychological needs yields greater self-determined motivation and thus greater persistence in sport has been consistently supported within the literature. The theory also maintains that coach behaviors, specifically autonomy-supportive coaching behaviors, are important influences on athletes' need satisfaction, their adoption of an intrinsic/self-determined extrinsic motivational profile, and athletes' persistence in sport. Therefore, to understand college rowers' motivation and continued participation behaviors, it is necessary to consider basic needs satisfaction along with perceptions of coaches' autonomy-supportive behaviors within the college rowing setting. As an extension of previous literature, this study will differentiate between the type of coach athletes primarily work with and employ a longitudinal design.

The Present Study

The passage of Title IX has had a significant influence on the collegiate sport of women's rowing (Hogshead-Makar & Zimbalist, 2007). Averaging 50.2 athletes per team, the sport has grown considerably in the past three decades among colleges and universities looking to expand their women's sport opportunities and achieve compliance with Title IX (Acosta & Carpenter, 2014; Brake, 2010). Despite efforts to provide participation opportunities for female athletes, many rowing programs experience significant attrition within their novice and varsity rowing rosters each season. Research is needed to determine the factors that predict and enable rowers' (including true

novices') persistence in rowing. These findings are critical to our broader understanding of college athlete motivation and persistence in sport and fundamental to satisfying the larger goals and spirit of Title IX legislation. Based on the preceding literature review, it was necessary to consider the satisfaction of rowing athletes' three basic psychological needs as well as their perceptions of their coach's autonomy-supportive coaching behaviors to understand college women rowers' persistence in the sport. This study's longitudinal design enabled the study's variables to be assessed at two time points across two competitive seasons. The following questions were addressed:

- 1) Research Question 1: Does athletes' status as a true novice account for differences in rowers' basic needs satisfaction, perceptions of autonomy-supportive coaching behaviors, or motivation for rowing?
- 2) Research Question 2: Does the type of coach an athlete primarily works with account for differences in rowers' basic needs satisfaction, perceptions of autonomy-supportive coaching behaviors, or motivation for rowing?
- 3) Research Question 3: To what extent do needs satisfaction, autonomy-supportive coaching behaviors, type of coach, and rowing experience explain rowers' motivation?
- 4) Research Question 4: Does rowers' type of motivation at one time point predict their continued participation at a later time point?
- 5) Research Question 5: For rowers who have continued their participation in the sport, do their needs satisfaction, autonomy-supportive coaching behaviors, and motivation change or stay the same across two competitive seasons?

CHAPTER THREE: METHOD

Overall Design

The present study was longitudinal and non-experimental in design; athletes were surveyed at two time points over the course of two competitive seasons. Active female rowing athletes were recruited to complete an online survey to measure basic needs satisfaction, motivation for rowing, and perceptions of coaches' behaviors. Time 1 of the survey took place March of 2014; Time 2 took place in October of 2014 to assess the same variables following a six-month period of time and the start of a new competitive season. The same constructs were measured at both time points with the addition of one, open-ended question at Time 2 about athletes' reasons for continued participation or dropout. Athletes who took the online survey at Time 1 satisfied the study's operational definition of having "persisted" in the sport by being an active participant on their rowing team at the Time 1 survey period in the Spring of 2014. Active or inactive athletes who elected to take the survey at Time 2 were grouped according to those who "persisted" or dropped out of the sport between the Time 1 and Time 2 survey periods.

Reflexivity

A common feature of qualitative research is a reflection on the part of the researcher to consider their role in shaping the research process and product (Mauthner & Doucet, 2003). While this study was not qualitative by design, it is nonetheless important to make explicit my personal connection to the sport of women's rowing and my

experience as a true novice athlete and a four-year college rower. Throughout college and after graduation, I also worked as a rowing coach primarily at the college level (NCAA DI and DIII) as well as a coach for junior and masters rowing programs around the U.S. These experiences as an athlete and coach have informed my understanding of and appreciation for the sport of rowing, and in particular the experiences of the true novice rowing athlete and the coaches who recruit, retain, and work with this unique athlete population. My research questions and design for the study were very much influenced by my experience as an athlete and coach. For example, as a college coach, I saw quite a bit of attrition each season and was largely responsible for attempts to retain rowers and recruit new athletes to the team. These experiences influenced the overarching aim of the project, which centered on helping to address the attrition I saw firsthand in the sport. During the recruiting process for this study, I relied heavily on my personal connections to rowing teams I had worked with or was familiar with in the Pacific Northwest to gain access to my participant sample. My discussion and implication sections were infused by my firsthand knowledge and experiences in the sport. I hope I have accurately reported the experiences and concerns of the women rowers I surveyed and contributed to the knowledge base that ultimately betters their experience in the sport.

Participants

Female athletes ($N = 174$) who were current members of their varsity women's rowing team comprised the Time 1 participant sample. Approximately one third of participants were freshman in college ($n = 51$), 32.8% ($n = 57$) were sophomores, 18.4% ($n = 32$) were juniors, 19% ($n = 33$) were seniors, and one student (0.6%) reported being a graduate student. An overwhelming majority (84.5%) of athletes surveyed reported

identifying as White, of non-Hispanic heritage; athletes also reported an average age of 19.9 years ($SD = 1.43$). When asked about their previous sport experience, 90.2% ($n = 157$) revealed they had been involved in competitive sports other than rowing prior to college. The majority (58.6%) of athletes disclosed they received no athletic scholarship monies, 32.2% ($n = 56$) reported being on partial scholarship totaling less than half of tuition, room, and board, and the remaining 9.1% ($n = 16$) reported being on full or partial scholarship totaling more or exactly half of their tuition, room, and board. Of the sample, 70.1% ($n = 122$) identified as true novices in their first-, second-, third-, or fourth-year of rowing eligibility whereas 29.9% ($n = 52$) indicated they had previous rowing experience prior to starting college. Results indicated that 62.6% ($n = 109$) of athletes reported working primarily with their head coach and 35.1% ($n = 61$) reported working primarily with their assistant coach/J.V coach/novice coach. Four athletes did not report which coach they work with most often. At Time 2, 124 (80.5%) of the 174 athletes who completed the survey at Time 1 also completed the survey at Time 2.

Measures

Background Information

Included in the online survey were 18 questions pertaining to athletes' demographic information and athletic background. Survey questions determined athletes' ethnicity, date of birth, scholarship status, the coach they work with most often, their sport participation experience prior to college, and their rowing experience (i.e., true novice or not) among others (see Appendix A for the complete Qualtrics Time 1 Athlete Survey). Athletes' names, email addresses, and the names of their academic institutions were requested in order to follow-up with participants at the Time 2 data collection. Of

the 174 total participants, 154 provided their contact information at Time 1. Aside from athletes' identifying information, no other demographic, athletic background, or contextual data was collected at Time 2.

Motivational Orientation

The Sport Motivation Scale (Pelletier et al., 1995) assessed whether athletes' motivation for rowing was more or less self-determined. Participants responded to 28 items tapping the constructs of intrinsic motivation, extrinsic motivation, and amotivation. The following three types of intrinsic motivation were assessed: (a) to know (4 items), (b) to experience stimulation (4 items), and (c) to accomplish (4 items) as a means of gauging why athletes were participating in the sport of rowing (e.g., "Because I feel a lot of personal satisfaction while mastering certain difficult training techniques"). Three types of extrinsic motivation were also measured including external (4 items) (e.g., "Because it allows me to be well regarded by people that I know"), introjected (4 items) (e.g., "Because it is absolutely necessary to row if one wants to be in shape"), and identified regulation (4 items) (e.g., "Because, in my opinion, it is one of the best ways to meet people"), as well as amotivation (4 items) to assess athletes' external motives for participation (e.g., "I don't know anymore; I have the impression that I am incapable of succeeding in rowing"). Of note, Deci and Ryan (1985, 2000) identify a fourth (and most self-determined) type of extrinsic regulation, known as integrated regulation, which is not measured by the Sport Motivation Scale. See Vallerand (1997) and Pelletier et al. (1995) for a detailed discussion of the empirical problems associated with measuring integrated regulation. Athletes were asked to respond on a 7-point scale ranging from *does not correspond at all* to *corresponds exactly*. The sum and average of the three forms of

intrinsic motivation as well as the sum and average for the subscales of identified regulation, introjected regulation, external regulation, and amotivation were computed to form five motivation scores. The Sport Motivation Scale has shown satisfactory validity and reliability among college athletes (see Vallerand & Fortier, 1998, as cited in Duda, 1998).

Basic Needs Satisfaction

In line with SDT, athletes' three basic psychological needs were assessed: competence, autonomy, and relatedness. For competence, the perceived ability subscale of the Intrinsic Motivation Inventory (McAuley, Duncan, & Tammen, 1989) was utilized. Five items determined athletes' satisfaction of the need for competence (e.g., "I am pretty skilled at rowing") on a scale ranging from 1 (*strongly agree*) to 7 (*strongly disagree*). This subscale of the Intrinsic Motivation Inventory has shown acceptable reliability among college-aged students and athletes in previous research studies (Ntoumanis, 2001; Reinboth & Duda, 2006).

Athletes' perceptions of autonomy were measured using a scale specifically developed by Hollembeak and Amorose (2005) for their study of male and female college athletes' basic needs satisfaction. This measure included six statements indicating athletes' perceived autonomy in rowing (e.g., "I feel forced to do things in my sport, even when I don't really want to do them"). Response options ranged on a 5-point scale from *not at all true for me* to *completely true for me*. The scale's six items have been shown to have strong face validity and demonstrate acceptable internal consistency among studies (Amorose & Anderson-Butcher, 2007; Hollembeak & Amorose, 2005).

Eight items were used to assess athletes' perceptions of relatedness toward their teammates and coaches. Using a version of the Basic Psychological Needs Scale ([http://www .selfdeterminationtheory.org/questionnaires](http://www.selfdeterminationtheory.org/questionnaires)) modified to the context of sport, athletes answered four items meant to indicate their connectedness to teammates (e.g., "I get along with my teammates") and four items to assess coach relatedness (e.g., "I really like my coaches"). Response options ranged on a 5-point scale from *not at all true for me* to *completely true for me*. Previous research with adolescents in the sport and physical activity domains have shown acceptable reliability for this measure (Gagné et al., 2003; Kipp & Weiss, 2013).

Autonomy-Supportive Coaching Behaviors

The short version of the Sport Climate Questionnaire ([http://www.psych.rochester.edu/SDT/measures/ auton_sport.html](http://www.psych.rochester.edu/SDT/measures/auton_sport.html)) was used to assess athletes' perceptions of their coach's autonomy-supportive coaching behaviors. Participants responded to six items regarding the behaviors exhibited by the coach with whom they work with most often to the extent they agreed with each statement (e.g., "My coach conveyed confidence in my ability to do well in rowing"). Response options ranged on a 7-point scale from *strongly disagree* to *strongly agree*. A higher score is indicative of a more autonomy-supportive coaching style as perceived by the athlete. Previous studies of college-aged students (Williams & Deci, 1996) and high school and college athletes (Amorose & Anderson-Butcher, 2007) using various versions of the climate questionnaire have shown acceptable reliability and validity of the items.

Intention to Persist

Athletes were asked to indicate on a seven-point scale (i.e., *very unlikely* to *very likely*) the likelihood they would be returning to their respective teams. At Time 1, athletes were asked whether they intended to return to their team in Fall of 2014. At Time 2, athletes were asked to indicate the likelihood of their return in Fall of 2015.

Participation Status

Athletes' status as either an active or non-active participant on their rowing team in Fall of 2014 was determined. Athletes' participation was categorized as either "active" or "non-active." Participation status was only determined at the Time 2 data collection.

Open-Ended Question

The Time 2 survey included an open-ended question for both active and non-active participants; each group was asked a different open-ended question. Active athletes were asked:

We are interested in the reasons why you decided to return to your rowing team this year. We recognize that athletes continue participation for a wide variety of reasons. In the space provided, can you elaborate on why you decided to continue rowing?

Non-active athletes were given a different open-ended question:

We are interested in the reasons why you decided not to return to your rowing team this year. We recognize that athletes discontinue participation for a wide variety of reasons. In the space provided, can you elaborate on why you decided not to continue rowing?

Procedures

Time 1 Pilot

Pilot testing of the Time 1 survey was conducted from March 10th through March 12th, 2014. Nine female rowing athletes from a college club rowing program completed

the online survey. Participants were given an opportunity to comment with any suggestions they had for improvement of the survey. No suggestions were offered by the student-athletes to improve the survey and only five formatting and clarifying changes were made before initiating the Time 1 data collection. For example, page breaks were added to the survey formatting, prompts were included to cue participants to respond to specific questions, and clarifying terms were used to ensure respondents knew the terms “first-year athlete” and “novice athlete” were synonymous.

Time 1

Time 1 study’s protocol was granted exempt status on March 3rd, 2014 by the University’s Office of Research Compliance Institutional Review Board (see Appendix B). Prior to recruitment and data collection, only one modification was made to the approved protocol to expand the recruitment of participants from colleges and universities to all regions of the United States rather than just the Pacific Northwest and Midwestern U.S. Using the website Qualtrics, an online survey was created to include the five survey measures, as well as the background information and intention to persist questions (see Appendix A). Any female rowing athlete 18 years or older was given the opportunity to take the online survey.

I initiated recruitment of study participants by contacting (by email or phone) head/assistant coaches from NCAA colleges and universities that sponsor varsity women’s rowing teams (see Appendix C for coach phone recruiting script and Appendix D for coach email recruiting script). Although women rowers were recruited from 26 Division I, II, and III colleges and universities from around the United States, I gave primary recruiting emphasis to schools from the Northwestern and Midwestern regions of

the U.S. given my familiarity with rowing programs in this geographic region. I sent an email to coaches who agreed to participate in the study with further details of the research as well as an attached cover letter (see Appendix E) to forward to all current athletes on the team's roster. The cover letter forwarded to rowing athletes described the specifics of the present study, including the voluntary nature of and estimated time to complete the survey, as well as an embedded link to the web-based survey site, Qualtrics.

The survey became available on March 14th through April 1st, 2014, resulting in a two-week data collection period. During this survey period, the survey was available 24 hours a day, seven days a week, and was taken at the convenience of the participants. Athletes above the age of 18 who agreed to participate in the study followed the survey link in the email they received from their head/assistant coach to complete the online survey. To obtain informed consent from participants, the online survey included a cover letter that specifically stated the terms of the survey, the rights of the participant, and that participants' answers and identifying information would remain confidential (i.e., standard IRB procedures; see Appendix B). Participants were reminded that the information they shared on the survey would not be shared with their coaches or teammates. Furthermore, the cover letter explicitly stated why athletes were asked to provide their names, email addresses, and the names of their academic institutions to be used to contact athletes for their participation in the Time 2 data collection. According to the Qualtrics output, approximately 82% of respondents took between 9-18 minutes to complete the survey.

Time 2 Pilot

The Time 2 survey included only one new question from Time 1, so the pilot comprised only one open-ended question for both active and non-active participants (see Appendix F for Qualtrics Time 2 Active Athlete Survey and Appendix G for Qualtrics Time 2 Non-Active Athlete Survey). The questions were piloted from September 15-22, 2014. One non-active and five active female rowing athletes from a college club rowing program answered the open-ended questions. Qualitative responses provided by the pilot sample sufficiently addressed the prompt, as such, no changes were made to the Time 2 Active/Non-Active Surveys before the Time 2 data collection.

Time 2

The Time 2 study protocol was approved by the IRB in August of 2014 (see Appendix H), at which time recruitment of the 154 participants from Time 1 who had provided their contact information began. On August 17, participants were sent an email thanking them for their participation in the initial data collection and invited them to participate in the Time 2 data collection scheduled for October 2014 (see Appendix I).

In late September, participation status was determined for the 154 Time 1 participants who had supplied their contact information. To determine whether or not these athletes were still active participants on their teams or had dropped out/graduated between the Spring of 2014 and Fall of 2014 competitive seasons, I cross-referenced the names of the Time 1 participants with the roster information provided on their team's website. Further confirmation of the participation status of the active and non-active athletes was achieved by contacting the head coach on each team and confirming

athletes' status with the most up-to-date roster supplied by the team's coach (see Appendix J).

At Time 2, the online survey was available 24 hours a day, seven days a week from October 3rd through November 3rd, 2014 (four weeks). Once athletes' status was confirmed, they were emailed a link to one of two surveys. Participants who were determined to be "active" (i.e., still participating) on their teams were emailed a link to a survey nearly identical to the one they had completed in March 2014 with the addition of one, open-ended question and the omission of demographic questions asked at Time 1 (see Appendix F). Athletes who were no longer active on their teams (e.g., dropped out or graduated) were emailed a different survey link consisting of only one, open-ended question (see Appendix G). To match the responses of participants' Time 1 data with their data at Time 2, the online survey asked athletes to supply their full names, institutions, and their email addresses. I cross-referenced the Time 2 participant names with the names of Time 1 survey participants and followed-up via email every seven days with athletes who had yet to re-take the survey (see Appendix K).

Of the 154 athletes who had supplied their contact information at Time 1, 63.0% ($n = 97$) were still active participants on their rowing teams at the Time 2 data collection and 37.0% ($n = 57$) were determined to be non-active. Of these athletes, 80.5% ($n = 124$) completed the survey at Time 2.

Data Analysis

Data from the Time 1 and Time 2 data collections were downloaded from the Qualtrics website into an SPSS data file. IBM SPSS statistical software was used for the statistical analyses of this study. Prior to conducting the main analyses, a preliminary

analysis of the psychometric properties of each quantitative measure was conducted, including determining the alpha coefficients of each scale. The means and standard deviations for all continuous variables and frequencies for all categorical variables were determined. Correlations among all independent and dependent variables were calculated and checked for multicollinearity.

The main analyses focused on addressing the study's five research questions. To answer Research Question 1: "Does athletes' status as a true novice account for differences in rowers' basic needs satisfaction, perceptions of autonomy-supportive coaching behaviors, or motivation for rowing?", 10, one-way between-groups analyses of variance were conducted to determine whether true novice status impacted athletes' psychosocial variables.

To address Research Question 2: "Does the type of coach an athlete primarily works with account for differences in rowers' basic needs satisfaction, perceptions of autonomy-supportive coaching behaviors, or motivation for rowing?", 10 independent-samples t-tests were conducted comparing the study's psychosocial variables with both categories of coach.

To answer Research Question 3: "To what extent do the psychosocial and social contextual factors predict rowers' motivation?", multiple linear regressions were completed. This method of analysis determined which of the psychosocial and contextual factors (i.e., predictor variables) contributed the most to explaining athletes' type of motivation (i.e., intrinsic motivation, extrinsic motivation, and amotivation [criterion variables]).

Consistent with previous studies that have utilized the Sport Motivation Scale (SMS), athletes' intrinsic motivation was measured as a multidimensional construct (i.e., tapping the three types of Intrinsic Motivation [IM]: IM to Know, IM to Accomplish, and IM to Experience Stimulation), but combined to form and analyze one intrinsic motivation subscale (e.g., Pelletier et al., 2001). Previous research examining athletes' continued participation in sport has found the various forms of extrinsic regulation (i.e., identified regulation, introjected regulation, external regulation) significantly predict persistence. In line with these findings, extrinsic motivation was measured and analyzed multidimensionally in the present study (e.g., Pelletier et al., 2001). Some researchers have examined amotivation from a multidimensional perspective by tapping the four constructs of Amotivation [AM]: AM because of helplessness beliefs, AM because of strategy beliefs, AM because of capacity beliefs, and AM because of effort beliefs. However, it is more commonly measured and analyzed unidimensionally (Pelletier, Dion, Tuson, & Green-Demers, 1999; Sarrazin et al., 2002). As such, athletes' amotivation for rowing in the present study was considered from a unidimensional perspective.

While some studies use the combined Self-Determination Index score (a summary motivational score [SDI]) as a measure of athletes' motivational orientation (Amorose & Anderson-Butcher, 2007), other studies warn against its consolidation into a global score:

Although it is convenient to use a summary motivational score, each of the five forms of regulation...is qualitatively different from the others and lumping them together does not allow us to examine their respective contributions over time...it would appear important to distinguish the different forms of regulation to obtain more refined understanding of motivation as well as its relationships with the social context and behavior. (Pelletier et al., 2001, p. 285)

Five behavioral regulations were considered in this study: (1) intrinsic motivation, (2) identified regulation, (3) introjected regulation, (4) external regulation, and (5)

amotivation. Because athletes may endorse more than one type of motivation at any time, it was predicted these regulations would more fully capture individuals' motivational profile (which includes the unique contributions of each regulation) and likelihood to persist/dropout versus a summarized Self-Determined Index score.

To address Research Question 4: "Does rowers' type of motivation at one time point predict their continued participation at a later time point?", a binary logistic regression analysis was conducted with persistence (status at Time 2 = yes or no) as the dichotomous dependent variable and the five types of motivation at Time 1 as the predictor variables. This analysis helped determine how well athletes' Time 1 type of motivation predicted their participation status at Time 2 (i.e., whether they were more or less likely to still be participating). A series of independent t-tests were also performed to differentiate between the Time 1 perceptions and motivations of persistent and dropout athletes at Time 2.

Finally, to address Research Question 5: "For rowers who have continued their participation in the sport, do their psychosocial factors change or stay the same across two competitive seasons?" a series of paired-sample t-tests (repeated measures) were completed. Athletes' competence, autonomy, relatedness, autonomy-supportive coaching behaviors, and motivation were measured at two different time points (i.e., two competitive seasons). These analyses identified any changes and/or stability in these variables over the course of two competitive seasons.

CHAPTER FOUR: RESULTS

Descriptive Statistics

Table 1 depicts the means, standard deviations, and reliabilities for all continuous variables ($N = 174$). The following series of statistical analyses are based on Pallant's (2013) recommendations. Reliability analyses of the study measures were conducted: Chronbach's alpha coefficient values of all scales and subscales were equal or above .70 (range = .70 - .94), suggesting adequate internal consistency of the measures. Item level analysis of skewness and kurtosis values indicate relatively normal distribution. Skewness and kurtosis of the means ranged from -1.09 to 1.19 and -.83 to 1.30, respectively, also suggesting normality of the distributions. Correlations among all variables were calculated and checked for multicollinearity; collinearity diagnostics revealed that no predictor variables were strongly related to each other ($< .70$).

Table 1. Means, Standard Deviations, and Reliabilities for Continuous Variables (N = 174)

<i>Variables</i>	<i>M</i>	<i>SD</i>	<i>α</i>
Competence	5.00 (7-point scale)	1.11	0.90
Autonomy	3.12 (5-point scale)	0.78	0.88
Teammate Relatedness	4.35 (5-point scale)	0.68	0.89
Coach Relatedness	4.09 (5-point scale)	0.79	0.93
Autonomy-Support	4.60 (7-point scale)	1.57	0.94
Intrinsic Motivation	4.93 (7-point scale)	1.12	0.93
Identified Regulation	4.80 (7-point scale)	1.22	0.70
Introjected Regulation	3.62 (7-point scale)	1.28	0.84
External Regulation	3.65 (7-point scale)	1.34	0.77
Amotivation	2.21 (7-point scale)	1.37	0.88

A mean competence value of 5.00 suggests athletes considered the statement “I am pretty skilled at rowing” to be *somewhat true*. Given that athletes’ perception of competence was measured on a 7-point Likert scale ranging from *not at all true* to *very true*, a value of 5.00 on this scale is considered relatively high. Athletes’ perceived autonomy was measured on a 5-point scale ranging from *not at all true for me* to *completely true for me*. An average value of 3.12 suggests most athletes felt they had a say in what they do, helped make decisions, and got to do things they wanted to do while rowing.

Average relatedness values (4.35 on a 5-point scale) reflected athletes’ strong feelings of connectedness to their teammates. Athletes reported *true for me* to *completely true for me* when considering how much their teammates cared about them. To a lesser degree, athletes reported feeling similarly connected to their coaches (4.09). On average, when presented with statements about whether their coaches provided choices and options, athletes perceived their coaches’ autonomy-supportive behaviors as 4.60 on a 7-

point Likert scale with four being *neutral* and seven being *strongly agree*. Finally, athletes reported progressively higher scores for the more self-determined motives for sport (i.e., intrinsic motivation and identified regulation) and lower scores for the less self-determined motives (i.e., introjected regulation, external regulation, and amotivation). When given statements questioning athletes' intrinsic motivation for rowing, responses corresponded moderately (4.93 on a 7-point scale) meaning athletes generally were intrinsically motivated to participate in the sport. Concerning athletes' amotivation, responses corresponded slightly (2.21 on a 7-point scale) suggesting rowers felt somewhat amotivated to participate in rowing.

Tables 2 and 3 comprise the frequencies and percentages for the true novice and type of coach categorical variables, respectively. More than half of the participants surveyed (70.1%) were true novices in their first year or had previously been a true novice on their rowing team, while 29.9% had previous rowing experience prior to starting college (see Table 2). More athletes (62.6%) reported working primarily with their head coach than with an assistant/J.V./novice coach (35.1%). Four athletes did not report which coach they work with most often (see Table 3).

Table 2. True Novice Frequencies and Percentages (N = 174)

<i>True Novice Variable</i>	<i>Frequency</i>	<i>Percentage</i>
True Novice in 1 st Year	47	27.0
True Novice Not in 1 st Year	75	43.1
Experienced Rower in 1 st Year	16	9.2
Experienced Rower Not in 1 st Year	36	20.7

Table 3. Type of Coach Frequencies and Percentages (N = 170)

<i>Type of Coach Variable</i>	<i>Frequency</i>	<i>Percentage</i>
Head Coach	109	62.6
Assistant, J.V., or Novice Coach	61	35.1
Did Not Report	4	2.3

Table 4 shows the correlations among the psychosocial and social-contextual measures. All correlations were in the expected directions: athletes' perception of their basic needs satisfaction and autonomy-supportive coaching behaviors were correlated with higher intrinsic motivation and identified regulation. Conversely, athletes who reported feeling greater external regulation or amotivation for rowing perceived a negative relationship with their basic psychological needs and the autonomy-supportive behaviors of their coach. Of note, athletes' status as a true novice (i.e., true novice in their first year, true novice not in their first year, experienced rower in their first year, and experienced rower not in their first year) was found to be significantly correlated with perceived competence in rowing, but not the other psychological needs of relatedness or autonomy. The type of coach athletes reported working with (i.e., head coach, assistant coach/J.V coach/novice coach) was significantly correlated with perceptions of autonomy, competence, and intrinsic motivation for the sport.

Table 4. Pearson Correlation Coefficients for Study Variables (N = 174)

<i>Variable</i>	<i>1.</i>	<i>2.</i>	<i>3.</i>	<i>4.</i>	<i>5.</i>	<i>6.</i>	<i>7.</i>	<i>8.</i>	<i>9.</i>	<i>10.</i>	<i>11.</i>	<i>12.</i>
1. Competence	1.00											
2. Autonomy	.31**	1.00										
3. Teammate Relatedness	.04	.28**	1.00									
4. Coach Relatedness	.24**	.52**	.35**	1.00								
5. Autonomy-Support	.19*	.60**	.20**	.69**	1.00							
6. Intrinsic Motivation	.27**	.48**	.21**	.45**	.39**	1.00						
7. Identified Regulation	.08	.32**	.47**	.21**	.25**	.59**	1.00					
8. Introjected Regulation	-.08	.15	.16*	.03	.07	.36**	.36**	1.00				
9. External Regulation	-.01	.01	.11	.01	.01	.26**	.42**	.61**	1.00			
10. Amotivation	-.28**	-.55**	-.17*	-.49**	-.49**	-.47**	-.19*	.11	.25**	1.00		
11. True Novice	.28**	.10	.12	-.06	-.14	.09	.13	.13	-.05	-.03	1.00	
12. Type of Coach	-.28**	-.18*	-.08	-.14	-.06	-.20*	-.10	-.18*	-.03	.11	-.32**	1.00

** Correlation is significant at the .01 level

* Correlation is significant at the .05 level

Research Question 1

Table 5 displays the means and standard deviations of the psychosocial variables when accounting for the four true novice categories of (1) true novice in their first year of participation, (2) true novices not in their first year, (3) experienced rowers in their first year, and (4) experienced rowers not in their first year of participation. These findings address Research Question 1, which focused on whether status as a true novice accounted for differences in athletes' basic needs satisfaction, perception of autonomy-supportive coaching behaviors, or motivation for rowing. Ten, one-way, between-groups analyses of variance were conducted to determine whether true novice status impacted the psychosocial study variables. Results revealed a statistically significant difference in first-year true novice perceptions of competence: $F(3, 170) = 7.06, p = .005$. Post-hoc comparisons using the Tukey HSD test indicated that the mean score for true novice athletes in their first year of participation ($M = 4.43, SD = 1.28$) was significantly lower than true novices not in their first year ($M = 5.15, SD = 1.00$) and than experienced rowers not in their first year of participation ($M = 5.43, SD = 0.85$).

The effect size, calculated using eta squared, was .11, suggesting the actual difference in mean scores between the groups was a medium-to-large effect size. Experienced rowers in their first year ($M = 5.01, SD = 1.00$) did not differ significantly from any other group of rowing athlete. Thus, when compared to their more experienced teammates, true novices in their first year differed significantly in their perception of ability in the sport. More alike than dissimilar, however, true novices differed significantly in only one psychosocial variable from their more experienced peers. All

other ANOVA analyses for needs satisfaction, types of motivation, and coaching behaviors were non-significant.

Table 5. Means and Standard Deviations for True Novice (N = 174)

	<i>True Novice 1st Year (n = 47)</i>		<i>True Novice Not 1st Year (n = 75)</i>		<i>Experienced Rower 1st Year (n = 16)</i>		<i>Experienced Rower Not 1st Year (n = 36)</i>		<i>Effect Size</i>
<i>Variable</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	η^2
Competence	4.43**	1.28	5.15**	1.00	5.01	1.00	5.43**	0.85	.11
Autonomy	2.96	0.76	3.20	0.74	2.88	0.97	3.27	0.76	.03
Teammate Relatedness	4.22	0.75	4.37	0.70	4.23	0.66	4.50	0.49	.02
Coach Relatedness	3.99	0.85	4.26	0.69	3.83	0.92	3.97	0.82	.04
Autonomy-Support	4.82	1.48	4.73	1.52	3.99	1.66	4.32	1.68	.03
Intrinsic Motivation	4.71	1.19	5.04	1.07	4.65	1.09	5.10	1.13	.03
Identified Regulation	4.61	1.37	4.81	1.17	4.56	1.14	5.13	1.09	.03
Introjected Regulation	3.45	1.38	3.50	1.51	3.55	1.75	4.00	1.59	.02
External Regulation	3.88	1.20	3.50	1.36	3.69	1.12	3.63	1.55	.01
Amotivation	2.38	1.34	2.06	1.31	2.53	1.32	2.16	1.56	.01

** Significant at the .005 level

Research Question 2

Table 6 compares the means and standard deviations for the psychosocial variables between the two categories of coach: (1) head coach and (2) assistant/J.V./novice coach. To answer Research Question 2, whether type of coach accounts for differences in rowers' basic needs satisfaction, autonomy-supportive coaching behaviors, or motivation, 10 independent-samples t-tests were conducted comparing both categories of coach. Significant differences were found in 4 of the 10 analyses. First, athletes who worked with their head coach reported significantly higher perceived competence than athletes who worked primarily with their assistant, J.V., or

novice coach: $t(168) = 3.52, p = .001$. The magnitude of the differences in the means (mean difference = .64, 95% *CI*: 0.28 to 1.00) was moderate (Cohen's $d = .54$). Second, athletes who worked with their head coach most often had significantly higher perceptions of autonomy: $t(168) = 2.32, p = .02$. The magnitude of the differences in the means (mean difference = .29, 95% *CI*: 0.04 to 0.53) was small (Cohen's $d = .36$). Third, compared to athletes who worked with their assistant, J.V., or novice coach, athletes who worked most often with their head coach were more intrinsically motivated: $t(168) = 2.60, p = .01$. The magnitude of the differences in the means (mean difference = .46, 95% *CI*: 0.11 to 0.81) was small (Cohen's $d = .40$). Finally, athletes who worked primarily with their head coach reported significantly higher scores on introjected regulation than their teammates: $t(168) = 2.30, p = .02$. The magnitude of the differences in the means (mean difference = .55, 95% *CI*: 0.08 to 1.02) was small (Cohen's $d = .35$). No significant differences were found among the remaining psychosocial variables when compared by type of coach.

Table 6. Means and Standard Deviations for Type of Coach (N = 170)

	<i>Head Coach (n = 109)</i>		<i>Assistant Coach/J.V. Coach/ Novice Coach (n = 61)</i>		<i>Effect Size</i>
<i>Variable</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>Cohen's d</i>
Competence	5.23**	0.98	4.58**	1.22	.54
Autonomy	3.22*	0.76	2.93*	0.78	.36
Teammate Relatedness	4.38	0.65	4.27	0.73	.16
Coach Relatedness	4.17	0.73	3.93	0.89	.28
Autonomy-Support	4.65	1.47	4.45	1.74	.12
Intrinsic Motivation	5.08*	1.01	4.62*	1.24	.40
Identified Regulation	4.88	1.15	4.64	1.31	.19
Introjected Regulation	3.79*	1.56	3.24*	1.38	.35
External Regulation	3.68	1.33	3.59	1.30	.06
Amotivation	2.11	1.42	2.43	1.28	.22

** Significant at the .005 level

* Significant at the .05 level

Research Question 3

To address Research Question 3, which examines the extent psychosocial factors influenced athletes' motivation for rowing, multivariate linear regression analyses were completed separately for the five dependent motivation variables. As presented in Table 7, regression analyses were significant for four of the five criterion variables: intrinsic motivation $F(7, 162) = 10.01, p < .001$, identified regulation $F(7, 162) = 8.77, p < .001$, introjected regulation $F(7, 162) = 2.57, p < .05$, and amotivation $F(7, 162) = 13.96, p < .001$. The regression analysis was non-significant for the external regulation criterion variable: $F(7, 162) = 0.47, p = .86$. Analyses revealed that psychosocial and social-contextual factors explained 30% of athletes' variance in intrinsic motivation (IM) ($R^2 = 0.30$), 28% of variance in identified regulation ($R^2 = 0.28$), 10% of variance in introjected

regulation ($R^2 = 0.10$), and 38% of variance in amotivation (AM) ($R^2 = 0.38$). Perceptions of autonomy ($B = 0.28, p < .002$) and coach relatedness ($B = 0.24, p < .014$) were significant and positive predictors of IM. Teammate relatedness ($B = 0.42, p < .005$) positively predicted athletes' identified regulation for rowing, while competence ($B = -0.19, p < .05$) and type of coach ($B = -0.54, p < .05$) negatively predicted athletes' introjected regulation for rowing. Autonomy ($B = -0.35, p < .001$) and coach relatedness ($B = -0.21, p < .05$) significantly and negatively predicted athletes' AM. Status as true novice was not found to significantly predict any type of motivation.

Table 7. Multiple Linear Regression Modeling for Prediction of Athlete Motivation ($N = 174$)

<i>Criterion: Intrinsic Motivation</i>		$R^2 = 0.30^{**}$
<i>Predictor Variable</i>	<i>B</i>	<i>p</i>
Competence	0.09	.230
Autonomy	0.28	.002
Teammate Relatedness	0.03	.677
Coach Relatedness	0.24	.014
Autonomy-Support	0.03	.762
True Novice	0.03	.728
Type of Coach	-0.08	.287
<i>Criterion: Identified Regulation</i>		$R^2 = 0.28^{**}$
<i>Predictor Variable</i>	<i>B</i>	<i>p</i>
Competence	-0.02	.839
Autonomy	0.16	.072
Teammate Relatedness	0.42	.000
Coach Relatedness	-0.14	.150
Autonomy-Support	0.18	.082
True Novice	0.08	.312
Type of Coach	-0.02	.769

* Significant at the .05 level

** Significant at the .005 level

Table 7. (continued)

<i>Criterion: Introjected Regulation</i>		$R^2 = 0.10^*$
<i>Predictor Variable</i>	<i>B</i>	<i>p</i>
Competence	-0.19	.025
Autonomy	0.14	.161
Teammate Relatedness	0.13	.122
Coach Relatedness	-0.11	.316
Autonomy-Support	0.08	.493
True Novice	0.10	.236
Type of Coach	-0.17	.036
<i>Criterion: External Regulation</i>		$R^2 = 0.02$
<i>Predictor Variable</i>	<i>B</i>	<i>p</i>
Competence	0.00	.997
Autonomy	-0.01	.963
Teammate Relatedness	0.14	.116
Coach Relatedness	-0.06	.616
Autonomy-Support	0.02	.901
True Novice	-0.08	.369
Type of Coach	-0.05	.527
<i>Criterion: Amotivation</i>		$R^2 = 0.38^{**}$
<i>Predictor Variable</i>	<i>B</i>	<i>p</i>
Competence	-0.11	.120
Autonomy	-0.35	.000
Teammate Relatedness	0.24	.725
Coach Relatedness	-0.21	.027
Autonomy-Support	-0.12	.235
True Novice	0.01	.928
Type of Coach	-0.01	.832

* Significant at the .05 level

** Significant at the .005 level

Participant Status at Time 2

Figure 3 illustrates how the participant sample from Time 1 to Time 2 changed as a function of the number of athletes that provided their contact information, how many athletes completed the survey at Time 2, and the number of non-active athletes at Time 2 that graduated, dropped out, or studied abroad. Research Question 4 sought to determine whether rowers' level of motivation at Time 1 predicted their participation status (i.e., active or non-active) at Time 2. To answer this question, rowers' status at Time 2 had to be determined, specifically, whether rowers were still active or had dropped out of the sport. All athletes confirmed as still active on their rowing teams at Time 2 ($N = 97$) comprised the "active" or "persistent" group. Athletes who were confirmed to be non-active at Time 2 *and* had completed the survey indicating they had dropped out of the sport ($N = 22$) (as opposed to graduating or studying abroad) comprised the "non-active" or "dropout" group. Statistical analyses performed to answer Research Question 4 included the 97 active participants and 22 dropouts for a total of 119 athletes. Research Question 5 examined whether psychosocial factors assessed over two competitive seasons changed over time. In the present study, only active athletes at Time 2 completed the version of survey that measured the psychosocial constructs (i.e., level of motivation, competence, autonomy, relatedness, and autonomy-supportive coaching behaviors). The total number of athletes who were active at Time 2 and completed the survey was 75. As such, statistical analyses performed to answer Research Question 5 included a sample of 75 athletes.

All active and non-active athletes at Time 2 ($N = 124$) responded to the open-ended question focused on why they were still participating or had dropped out. Many of

the athletes gave rich and passionate explanations for their participation behaviors. In total, athletes' responses encompassed 16 single-spaced pages of text. This large amount of data was significantly more than anticipated and a pleasant surprise. Within the time constraints of completing this thesis, it was not possible to carry out a formal qualitative analysis. However, the qualitative responses can provide meaningful information about participants' experiences and thus will be analyzed in a separate and forthcoming manuscript.

Even though the qualitative data was not formally analyzed, the responses from participants were useful to the present study in two ways. First, the responses were used to distinguish among non-active athletes who had graduated, those who were studying abroad, and athletes that had dropped out from the sport at Time 2. Second, a few select quotes from participants were included in the discussion sections for Research Questions 4 and 5 to support and colorfully illustrate participants' perspectives.

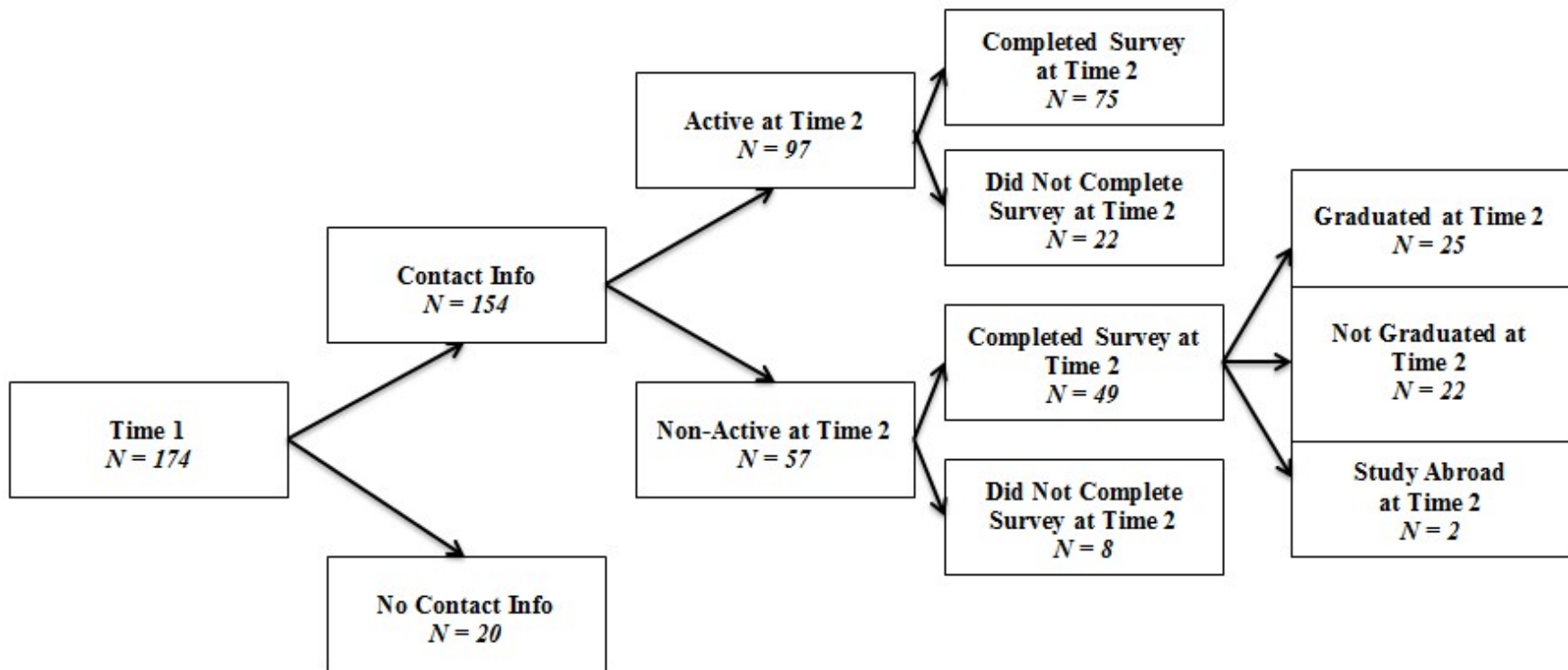


Figure 3. Participant Status at Time 1 and Time 2

Research Question 4

Preliminary Analyses

Table 8 displays the frequencies and percentages of true novice athletes who persisted and dropped out at Time 2. Of the 119 athletes at Time 1, 97 athletes were active at the Time 2 data collection and 22 had dropped out, for a total of 119 athletes. Of the dropout athletes, 10 athletes were true novices in their first year of participation, another 10 athletes were true novices not in their first year of participation, and two athletes were experienced rowers. The majority of persistent athletes were true novices not in their first year of participation ($n = 38$) and true novices in their first year in the sport ($n = 31$). The remaining 28.9% of persistent athletes ($n = 28$) were experienced rowers. Similarly, Table 9 shows the frequencies and percentages for the type of coach variable in relation to persistent and dropout athletes at Time 2. Over half of athletes that continued their participation ($n = 61$) worked primarily with their head coaches at the Time 1 data collection while the majority of dropout athletes worked primarily with their assistant, J.V., or novice coaches ($n = 13$).

Table 8. Frequencies and Percentages for the Persistent and Dropout Athletes for True Novice Variable at Time 1 ($N = 119$)

<i>Variables</i>	<i>Persistent Athletes ($n = 97$)</i>	<i>Dropout Athletes ($n = 22$)</i>
True Novice in 1 st Year	31 (32.0%)	10 (45.5%)
True Novice Not in 1 st Year	38 (39.2%)	10 (45.5%)
Experienced Rower in 1 st Year	13 (13.4%)	1 (4.5%)
Experienced Rower Not in 1 st Year	15 (15.5%)	1 (4.5%)

Table 9. Frequencies and Percentages for the Persistent and Dropout Athletes for Type of Coach Variable at Time 1 ($N = 119$)

<i>Variables</i>	<i>Persistent Athletes ($n = 97$)</i>	<i>Dropout Athletes ($n = 22$)</i>
Head Coach	61 (63.5%)	9 (40.9%)
Assistant, J.V., Novice Coach	35 (36.5%)	13 (59.1%)

Table 10 shows the means and standard deviations for the five motivational subscales as well as athletes' perceptions of needs satisfaction and coach autonomy-support. Mean differences between persistent and dropout groups were tested for significance. Consistent with theoretical predictions, persistent athletes were more intrinsically motivated, reported greater identified regulation, and perceived significantly higher satisfaction of nearly all of their basic needs and autonomy-support compared to dropout athletes. Conversely, rowers who had dropped out felt significantly more amotivated at Time 1 than athletes who continued participating. Means for introjected regulation, external regulation, and competence were not significantly different for persistent and dropout athletes.

Table 10. Persistent and Dropout Athletes' Motivation, Basic Needs, and Autonomy-Support (N = 119)

<i>Variables</i>	<i>Persistent Athletes (n = 97)</i>	<i>Dropout Athletes (n = 22)</i>	<i>t</i>
Intrinsic Motivation	5.08 (1.10)	4.29 (1.25)	2.97**
Identified Regulation	4.87 (1.20)	4.13 (1.17)	2.64*
Introjected Regulation	3.69 (1.50)	3.23 (1.70)	1.28
External Regulation	3.72 (1.34)	3.55 (1.29)	0.57
Amotivation	2.06 (1.23)	3.38 (1.57)	-3.70**
Competence	4.95 (1.13)	4.42 (1.42)	1.91
Autonomy	3.17 (0.80)	2.67 (0.82)	2.61*
Teammate Relatedness	4.40 (0.59)	3.92 (1.00)	2.20*
Coach Relatedness	4.21 (0.71)	3.53 (1.11)	2.72*
Autonomy-Support	4.79 (1.42)	3.57 (1.88)	2.88*

Note. Numbers in parentheses are standard deviations.

** Significant at the .005 level

* Significant at the .05 level

Main Analysis

Binary logistic regression was performed to assess the impact of rowers' types of motivation at Time 1 on their participation status at Time 2. The full model, which contained five independent variables (i.e., intrinsic motivation, identified, introjected, and external regulation, and amotivation), was statistically significant, $\chi^2 (5, N = 119) = 20.33, p < .005$. This indicated that the model was able to distinguish between athletes' participation status as either active or non-active at the Time 2 survey period. As depicted in Table 11, only amotivation at Time 1 made a unique, statistically significant contribution to the model, recording an odds ratio of 2.07 ($B = 0.73, p < .005$). This

indicated that for every unit increase in rowers' amotivation in Spring of 2014, those athletes were twice as likely to have dropped out in Fall of 2014. All other types of motivation were non-significant in predicting athletes' persistence or dropout at Time 2.

Table 11. Logistic Regression Predicting Time 2 Persistence/Dropout from Time 1 Motivation ($N = 119$)

<i>Variables</i>	<i>B</i>	<i>S.E.</i>	<i>Wald</i>	<i>df</i>	<i>p</i>	<i>Odds Ratio</i>	95% C.I. for Odds Ratio	
							Lower	Upper
Intrinsic Motivation	0.17	0.32	0.26	1	.61	1.18	0.63	2.23
Identified Motivation	-0.30	0.27	1.22	1	.27	0.74	0.44	1.26
Introjected Regulation	-0.28	0.23	1.42	1	.23	0.76	0.48	1.20
External Regulation	-0.07	0.27	0.07	1	.80	0.93	0.55	1.59
Amotivation	0.73	0.25	8.85	1	.00**	2.07	1.28	3.35

** Significant at the .005 level

Research Question 5

Preliminary Analyses

Table 12 displays the means, standard deviations, and reliabilities for the psychosocial constructs for continuing participants ($N = 75$) assessed at Time 2. Reliability analyses were carried out for the study measures: Chronbach's alpha coefficient values for the scales and subscales were equal to or above .70 (range = .70 - .94), indicating acceptable internal consistency of the measures. Skewness and kurtosis of the means ranged from -1.52 to 1.69 and -0.79 to 3.26, respectively, suggesting normality of the distributions.

Table 12. Means, Standard Deviations, and Reliabilities for Continued Participants at Time 2 ($N = 75$)

<i>Variables</i>	<i>M</i>	<i>SD</i>	<i>α</i>
Competence	5.18	1.02	.90
Autonomy	3.07	0.81	.89
Teammate Relatedness	4.44	0.63	.91
Coach Relatedness	4.07	0.88	.94
Autonomy-Support	4.59	1.53	.93
Intrinsic Motivation	5.06	1.05	.92
Identified Regulation	4.88	1.31	.77
Introjected Regulation	3.61	1.37	.75
External Regulation	3.71	1.21	.70
Amotivation	2.04	1.24	.89

The relationships between the psychosocial and social-contextual variables were measured using Pearson product-moment correlation coefficients as shown in Table 13. Consistent with Time 1 results, all correlations were in the expected directions, with perceptions of autonomy-support from coaches and the satisfaction of athletes' basic needs correlating with more self-determined forms of motivation. The opposite was true for athletes who reported feeling less self-determined motives for participation (i.e., introjected, external): a very small positive or negative correlation was found between athletes' introjected and external motives and amotivation and their perceived needs satisfaction and the autonomy-supportive behaviors of their coaches.

Table 13. Pearson Correlation Coefficients for Continued Participants at Time 2 (N = 75)

<i>Variable</i>	<i>1.</i>	<i>2.</i>	<i>3.</i>	<i>4.</i>	<i>5.</i>	<i>6.</i>	<i>7.</i>	<i>8.</i>	<i>9.</i>	<i>10.</i>
1. Competence	1.00									
2. Autonomy	.34**	1.00								
3. Teammate Relatedness	.16	.40**	1.00							
4. Coach Relatedness	.26*	.52**	.27*	1.00						
5. Autonomy-Support	.24*	.65**	.28*	.76**	1.00					
6. Intrinsic Motivation	.27*	.50**	.35**	.35**	.46**	1.00				
7. Identified Motivation	.13	.29*	.50**	.22	.35**	.57**	1.00			
8. Introjected Regulation	-.20	-.15	-.03	.05	.08	.15	.34**	1.00		
9. External Regulation	-.02	-.00	.14	.28*	.20	.22	.49**	.61**	1.00	
10. Amotivation	-.42**	-.56**	-.44*	-.55**	-.43**	-.42**	-.19	.11	.03	1.00

** Correlation is significant at the .01 level

* Correlation is significant at the .05 level

Main Analysis

Research Question 5 examined whether the psychosocial factors assessed over two competitive seasons (i.e., competence, autonomy, relatedness, autonomy-supportive coaching behaviors, and motivation) changed over time. Athletes who were active participants on their rowing teams at Time 2 ($N = 75$) completed the survey measures to assess whether these constructs changed or stayed the same. As shown in Table 14, from Time 1 to Time 2, paired sample t-tests indicated significant mean differences for 2 of the 10 constructs. Athletes experienced a statistically significant increase in perceived competence from Time 1 ($M = 4.98$, $SD = 1.14$) to Time 2 ($M = 5.18$, $SD = 1.02$), $t(74) = 2.04$, $p < .05$ (two-tailed) and a significant decrease in perceptions of coach relatedness from Time 1 ($M = 4.26$, $SD = 0.69$) to Time 2 ($M = 4.07$, $SD = 0.88$), $t(74) = -2.14$, $p < .05$ (two-tailed). Eta squared statistics for competence (.05) and coach relatedness (.06) indicated small to moderate effect sizes, indicating the magnitude of the difference was fairly modest between seasons. The remaining eight constructs showed no significant change in mean differences between seasons.

Table 14. Paired Samples T-Tests for Continued Participants between Time 1 and Time 2 ($N = 75$)

<i>Variables</i>	<i>Time 1 Mean</i>	<i>Time 2 Mean</i>	<i>t-value</i>	<i>p</i>
Competence	4.98	5.18	2.04	0.05*
Autonomy	3.18	3.07	-1.24	0.22
Teammate Relatedness	4.40	4.44	0.52	0.61
Coach Relatedness	4.26	4.07	-2.14	0.04*
Autonomy-Support	4.83	4.59	-1.57	0.12
Intrinsic Motivation	5.05	5.06	0.08	0.93
Identified Motivation	4.73	4.88	1.15	0.25
Introjected Regulation	3.59	3.61	0.16	0.87
External Regulation	3.60	3.71	0.97	0.33
Amotivation	2.00	2.04	0.31	0.76

* Significant at the .05 level

CHAPTER FIVE: DISCUSSION

The overall purpose of the present study was to better understand the motivation and psychosocial experiences of female collegiate rowers (including true novices) to help explain their persistence in sport. Research Question 1 investigated whether true novice rowers differed from their more experienced teammates. Research Question 2 sought to determine whether the type of coach athletes primarily worked with influenced their perceptions of autonomy-supportive coaching behaviors, basic needs satisfaction, and motivation for rowing. Research Question 3 examined the extent to which psychosocial and social-contextual factors (i.e., competence, autonomy, relatedness, autonomy-supportive coaching behaviors, status as a true novice athlete, and type of coach) predicted college rowers' motivation. Research Question 4 investigated whether rowers' level of motivation at one time point predicted their continued participation at a later time point. Finally, Research Question 5 examined whether athletes' psychosocial factors varied or stayed the same across two competitive seasons. The following sections are organized by research question, offering an in-depth discussion of this study's findings. Following a discussion of these findings, a consideration of the present study's limitations, practical implications for rowing coaches and teams, and areas for future research conclude the final section.

Research Question 1

The present findings related to Research Question 1 suggest that true novices' first year of participation in the sport represents a critical year of skill acquisition and

competence growth. When compared to both true novice athletes and experienced athletes not in their first years of participation, first-year, true novices reported feeling significantly less competent. This finding is consistent with previous research that characterizes inexperienced athletes in any sport as lesser-skilled and lacking in sport-specific competencies (e.g., Helsen & Starkes, 1999) and makes sense given these rowers have no previous experience in the sport.

Considering the mean score for competence among the first-year, true novice population by itself (close to a 5 on a scale from 1-7), however, suggests these athletes still consider themselves fairly competent in the sport, just not *as competent* as their teammates. Athletes' previous sport experience might help to explain true novices' perceptions of competence. Approximately 90% of athletes reported they had experience playing at least one competitive sport prior to college. Thus, true novices may have felt competent in rowing because they have an overall perception of general sport competence. In this way, athletes' perception of being generally competent in sport may have carried over such that they felt competent in a new sport even without prior experience.

Research Question 2

Findings from the present study suggest that the type of coach athletes primarily worked with (i.e., head coach, or assistant coach, J.V coach, or novice coach) was a significant predictor of athletes' perceived autonomy, competence, intrinsic motivation, and introjected regulation for rowing. Overall, the finding that the type of coach an athlete works with may differentially affect athletes' psychological variables is consistent with previous research. In her study of collegiate women's rowing coaches, Lopez (2012)

found that the roles and responsibilities for rowing coaches based on position varied greatly and the position a coach assumes may differ based on coaching experience and ability. Although limited research has been done that distinguishes between the type of coach an athlete works with, the present findings are in-line with studies that suggest coaches contribute differently to athletes' well-being (e.g., Rathwell et al., 2014; Robbins & Rosenfeld, 2001).

One explanation for the finding that athletes who worked primarily with their head coaches felt significantly more competent than athletes who worked most often with their assistant, J.V., or novice coach could be due to ability-grouping of athletes on a given team. Often, rowing teams divide the coaching responsibilities based on athlete competence and ability in the sport. Head coaches typically work with the more senior, experienced, or adept athletes on a given team and assistant, J.V., and novice coaches most often work with athletes who are in greater need of skill-acquisition and competence growth. This division of coaching attention could explain why athletes who worked most often with the head coach on their team perceived themselves as significantly more competent in the sport.

Because the present findings are correlational, athletes who worked primarily with their head coach may have reported feeling significantly more competent because of the skill of the coach. Assuming head coaches have more coaching experience than entry-level and assistant coaches, it could also follow that these coaches are more effective, which may promote higher perceptions of competence in athletes that work with head coaches. Thus, because athletes work primarily with their head coach are benefitting from greater coaching expertise they are more competent in the sport.

Comparing athletes' perceptions of autonomy by coach type is also interesting to consider. Athletes who worked primarily with their head coaches reported feeling significantly more autonomous than athletes who worked with coaches other than the head coach on their team. One possible explanation for this difference is that athletes who work primarily with their head coaches are also more competent (as was found in the present study) and are therefore more capable of training independently and may require less direction from their coaches. In contrast, athletes on a novice or J.V. team require significant contributions from the assistant, J.V., or novice coaching staff to learn and become proficient at the sport. It follows that athletes who work primarily with assistant, J.V., or novice coaches may feel less autonomous given their dependence on their coaches for training and skill-acquisition during this phase of athletes' rowing careers.

Research Question 3

Research Question 3 sought to determine whether psychosocial and social-contextual factors (i.e., competence, autonomy, relatedness, autonomy-supportive coaching behaviors, status as a true novice athlete, and type of coach) influenced athletes' motivation for the sport. To account for a more complete portrayal of athletes' motivation and to better reflect SDT's complement of behavioral regulations, five types of motivation were studied: (1) intrinsic motivation, (2) identified regulation, (3) introjected regulation, (4) external regulation, and (5) amotivation. A discussion will follow of the findings related to the factors that predicted each type of athlete motivation.

Psychosocial and Social-Contextual Factors Predicting Intrinsic Motivation

Results of the Time 1 data collection provided support for the theoretical predictions of SDT as they relate to athletes' intrinsic motivation for sport. The finding

that perceived autonomy was the strongest predictor of athletes' intrinsic motivation is consistent with SDT and previous studies that found significant relationships between autonomy and self-determined motives for sport as significant (e.g., Amorose & Anderson-Butcher, 2007; Sarrazin et al., 2002). Self-determination theorists Deci and Ryan (2000) posit that individuals' need to feel autonomous is one of the most fundamental psychological needs and thus, essential for optimal well-being and self-determined motivation. As the findings of the present study suggest, when an athlete perceives their behaviors as autonomous or freely-chosen, they are more intrinsically motivated to participate in sport and have a greater likelihood to persist. Collegiate rowers, like other athlete populations, reported that feeling a sense of volition was significant to their intrinsic motivation.

Results also suggest that athletes' perception of relatedness to their coaches was a significant predictor of their intrinsic motivation for rowing. In other words, when athletes felt a sense of connectedness to their coaches, they were more likely to participate in rowing for intrinsic reasons. This finding is in line with other studies that have also looked at coach relatedness. For example, in a longitudinal study examining need satisfaction and well-being among collegiate team sport athletes, coach relatedness as well as autonomy were found to be significant predictors of athletes' subjective vitality (Reinboth & Duda, 2006). Previous research examining perceptions of coach relatedness and burnout in sport showed an indirect relationship between athletes' perception of coach relatedness and burnout symptoms (Perreault, Gaudreau, Lapointe, & Lacroix, 2007). The coach-athlete relationship was also tested in Kipp and Weiss' (2013) study measuring adolescent gymnasts' perception of coach relatedness and positive affect. This

study found a significant, direct relationship between coach relatedness and athletes' positive affect in sport. Self-determination theory scholars Hagger and Chatzisarantis (2007) explain the importance of the coach-athlete relationship, suggesting that coaches are uniquely positioned to enhance athletes' perception of connectedness, "A strong, positive coach-athlete relationship based on caring, trust, and respect is important for the development of a sense of relatedness" (p. 227). Therefore, results from this study further support the importance of examining coach relatedness.

The finding that athletes' perception of competence was not a significant predictor of their intrinsic motivation is unexpected given that self-determination theory considers this need to be "essential for intrinsic motivation" (Deci & Ryan, 2000, p. 233). Although previous studies have had mixed findings when examining the relative strength of the basic needs in predicting athletes' intrinsic motivation for sport, rarely is a basic need a non-significant predictor of athletes' intrinsic motivation. For example, Standage and colleagues (2006) found competence in the physical education setting to be the strongest predictor of students' self-determined motivation, but nevertheless all three basic needs were significant positive predictors of autonomous motivation in physical education. Further, while Hollembeak and Amorose (2005) found teammate relatedness to be a stronger predictor of athletes' intrinsic motivation for sport than competence, all three needs were significant predictors of their intrinsic motivation. Thus, while previous research has found that the basic needs may vary in their predictive strength relative to athlete motivation, theory and research consistently support the assumption that competence, autonomy, and relatedness are all significant and important predictors of self-determined forms of motivation.

One possible explanation for the non-significance of competence in predicting athletes' intrinsic motivation could be a consequence of rowing's emergence as a sport that accommodates inexperienced athletes following the passage of Title IX. Title IX legal scholar Deborah Brake (2010) describes this phenomenon, "Women's rowing has been a popular sport for colleges to add precisely because it adds large numbers of women and does not require many years of prior experience" (p. 115). To compensate for athletes' lack of experience in the sport, many colleges and universities have established "learn-to-row" seasons in which inexperienced rowers learn the fundamentals of the sport. Following this initial period of basic skills acquisition, athletes are often assimilated into the overall program (e.g., varsity, junior varsity, "novice" teams) depending on their rowing ability, fitness, and/or potential to contribute to the overall success of the program. It may be that because the sport is often advertised as a "no-experience-necessary-opportunity" for interested women, athletes' motivations for pursuing the sport at the college level may be oriented toward actualizing autonomous goals and making friendships more so than attaining competence in the sport.

Psychosocial and Social-Contextual Factors Predicting Identified Regulation

In the present study, psychosocial and social-contextual factors explained 27% of the variance in athletes' identified regulation. Among these factors, only teammate relatedness was found to be a significant predictor of athletes' identified regulation. This finding is plausible given that two of the four questions athletes responded to on the Sport Motivation Scale (SMS) (Pelletier et al., 1995) involved friendships (i.e., "Because, in my opinion, it is one of the best ways to meet people" and "Because it is one of the best ways to maintain good relationships with my friends").

The finding that teammate relatedness is significantly predictive of athletes' identified regulation is also theoretically consistent with SDT. Second to integration, identified regulation is the most self-determined form of internalized extrinsic motivation and is characterized by athletes' recognition of the value of a behavior (e.g., participating in rowing) and its acceptance as part of their identity (Deci & Ryan, 2000). These behaviors are still extrinsically motivated because they are being carried out for instrumental reasons (e.g., to make friends) rather than for the enjoyment and satisfaction of the behavior itself. Given the more instrumental nature of this form of extrinsic regulation, it makes theoretical sense that connectedness to teammates would serve as an important predictor of identified regulation. One implication of this finding is that rowers who participate with identified motives, although still extrinsically motivated, are participating for reasons that are more self-determined in nature. According to SDT, more self-determined motives for participation will promote greater persistence in a behavior (Hagger & Chatzisarantis, 2007).

Psychosocial and Social-Contextual Factors Predicting Introjected Regulation

Psychosocial and social-contextual factors explained just 10% of the variance in athletes' introjected regulation. Athletes' perceptions of competence and type of coach were found to significantly and negatively predict introjected regulatory behaviors. The finding that perceived competence negatively predicted introjected regulation is consistent with self-determination theory given that this type of regulation is a more controlled form of extrinsic motivation. According to SDT and the continuum of self-determined motivation, when athletes perceive their basic needs to be met, they are more intrinsically motivated to participate in an activity. The present findings support this

assumption: rowers' perceptions of competence in the sport negatively predicted their introjected regulation. In other words, when rowers felt more skilled, they were less likely to be reliant on controlled forms of extrinsic regulation for their participation. The type of coach athletes primarily worked with also negatively influenced their introjected regulation. Interestingly, in Research Question 2, athletes who worked primarily with their head coach felt significantly more introjected regulation. These findings seem to point to the dynamic nature of introjected regulation and its inherent, although variable relationship with the type of coach an athlete works with.

Psychosocial and Social-Contextual Factors Predicting Amotivation

Consistent with the findings for athletes' intrinsic motivation, the same variables of autonomy and coach relatedness were also significantly related to athletes' amotivation for rowing. In the present study, athletes' perception of autonomy was negatively related to their amotivation. In other words, athletes who report feeling autonomous were less inclined to experience amotivation for the sport. This finding is consistent with Abramson, Seligman, and Teasdale's (1978) finding that amotivated individuals experience expectancies of uncontrollability. Furthermore, in their longitudinal study of competitive youth swimmers, Pelletier and colleagues (2001) found amotivation to be a strong, negative predictor of persistence in sport over time, whereas intrinsic and identified motivation were positively related to persistence.

Findings from this study also suggest athletes' perception of coach relatedness showed a significant, negative relationship with their amotivation for rowing. This relationship is in the expected direction given coach relatedness was also a significant, positive predictor of athletes' intrinsic motivation. Taken together, athletes who felt a

sense of volition and feelings of connectedness to their coach were more intrinsically motivated to row. Conversely, the same variables of autonomy and coach relatedness had a negative relationship with amotivation. This negative relationship meant that when athletes felt like they were controlled and did not get along with their coaches, they were less likely to want to participate in the sport.

Research Question 4

Research Question 4 examined whether psychosocial variables assessed at Time 1 predicted athletes' participation status (i.e., active or non-active) at Time 2. Regression analyses indicated that athletes' amotivation at Time 1 significantly predicted their dropout from the sport at Time 2. This finding is consistent with previous studies that have tested Vallerand's (1997) proposed model and predictions of self-determination theory (e.g., Pelletier et al., 2001; Sarrazin et al., 2002). In their prospective study examining persistence among competitive swimmers, Pelletier and colleagues (2001) found that athletes who were amotivated at Time 1 had the highest rate of dropout at both the Time 2 and Time 3 assessments (10 and 22 months later, respectively). Similarly, Sarrazin et al. (2002) found that female handballers who had dropped out of their sport evidenced higher levels of amotivation than athletes who had persisted in the sport following a 21-month period of time.

The finding that amotivation significantly predicted athletes' dropout from sport supports the self-determination theory postulate suggesting that attrition in sport may be a consequence of non-self-determined forms of motivation as well as amotivation (Sarrazin, Bioché, & Pelletier as cited in Hagger & Chatzisarantis, 2007). Conceptually, this finding is reasonable given that amotivated individuals are characterized as being

neither intrinsically nor extrinsically motivated. Pelletier and colleagues (1995) suggest when athletes experience this state, "...they no longer identify any good reasons for why they continue to train. Eventually they may even decide to stop practicing their sport" (p. 38). In the present study, rowers who reported feeling amotivated at Time 1 likely could no longer see any reason to continue participating in the sport. Qualitative responses from dropout athletes explaining why they discontinued their participation suggest a number of factors might have influenced their decision.

I felt extremely demoralized by the way my coach treated me. I felt that I put in my heart and soul to the team but was merely a piece of meat to my coach.

I never really felt like part of the team. Only in the last month of my two years of being on the team did I really start to connect with people. It was a great experience, but I'm glad I left. I'm so much happier now.

I had too much work academically to commit to rowing and schoolwork the way they both require. Most of my friends decided not to return this year and I didn't want to do it without them. I didn't feel like our coach created an environment that supported the team and we weren't trained well. I stuck it out for two frustrating seasons but I didn't feel like I could handle it for another year.

The various forms of extrinsic regulation did not significantly predict athletes' status at Time 2. Results of Sarrazin and colleagues' (2002) study found similar non-significance between dropout and persistent players when testing the subscales scores of introjected and external regulation. Thus, it would seem extremes of the self-determined continuum of motivation (i.e., intrinsic motivation, amotivation) are more reliable predictors of sport outcomes over time. The present findings are plausible given that intrinsic motivation and amotivation are the most and least self-determined forms of motivation, respectively, and therefore the most or least likely to predict behavioral outcomes in sport.

This study's findings do not, however, support the theoretical prediction that intrinsic motivation and more self-determined forms of regulation promote greater persistence in behavior (Sarrazin et al., 2001, as cited in Hagger & Chatzisarantis, 2007). Previous research has found both intrinsic motivation and identified regulation to be significant and positive predictors of athletes' persistence over time (e.g., Pelletier et al., 2001; Vallerand, 1997). However, neither identified regulation nor intrinsic motivation in the present study predicted athletes' persistence at Time 2. It would seem that amotivation was a more salient predictor of rowers' behavioral consequences from Time 1 to Time 2 than intrinsic motivation and more self-determined forms of behavior regulation. Previous studies examining athletes' behavioral persistence over time have cited the length of time between assessments as an important influence. Pelletier and colleagues (2001) found that introjected motivation predicted persistence over a short period of time (i.e., 10 months) but was associated with dropout after a longer period of time (i.e., 22 months). Perhaps in the present study, the six-month period of time that elapsed between Time 1 and Time 2 was too brief to test the predictive power of intrinsic motivation on behavioral persistence over time.

Research Question 5

Time 1 versus Time 2 data suggest that athletes' perception of their basic needs satisfaction in rowing does indeed change over time. However, the present findings suggest that overall, athletes' level of motivation, perceived needs satisfaction, and autonomy-support from coaches remain stable over the course of two competitive seasons. Of the 10 psychosocial constructs measured at Time 1 and Time 2, athletes' self-perceptions of competence and feelings of coach relatedness changed significantly.

Rowers reported feeling significant increases in competence from Time 1 to Time 2. This finding is somewhat expected from a theoretical standpoint, given that self-determination theory proposes that individuals are more likely to adopt activities when they feel efficacious or competent (Ryan & Deci, 2000). In the present study, at Time 2 only active rowers' perceptions of competence, autonomy, relatedness, autonomy-supportive coaching behaviors, and motivation were assessed a second time. Thus, it could be that athletes who persisted may have done so in part due to their increased perceptions of competence in the sport. Significant increases in persistent athletes' perceived competence over time is in-line with previous research; Sarrazin et al. (2002) found that persistent athletes evidenced significantly greater perceptions of all three basic needs compared to athletes that had dropped out of sport.

An important factor to consider when explaining the significance of rowers' competence over time is the type of athletes that comprised the Time 1 and Time 2 samples. Over two thirds of persistent athletes reported they were either true novices in their first year of participation or in their 2nd-, 3rd-, or 4th-years of participation in the sport. Significant increases in athlete competence over two competitive seasons suggests the importance of athletes' "learn to row" efforts in their first year and ongoing efforts by coaches to teach the sport in subsequent years to ensure athletes' long-term participation.

The second significant finding from the paired samples t-tests was athletes' perception of coach relatedness over time. Interestingly, rowers reported feeling significant decreases in their connectedness to their coaches from Time 1 to Time 2. One possible explanation for the decrease in coach relatedness across seasons could be attributed to the six-month period of time between the Time 1 and Time 2 survey periods.

NCAA limits on teams' playing seasons ensures rowing athletes do not train with their coaches and teams during the summer "off-season." As such, between survey periods athletes in the present study had spent at least a couple of months (depending on their teams' NCAA division, post-season length, etc.) away from their team and coaches. It may be that athletes felt less connected to their coaches for the simple reason they had not seen or trained with them for some time.

Overall, the stability of the psychosocial needs is not surprising given that athletes were not present on their teams for a significant period of time between survey periods. In order to see a significant change in rowers' needs satisfaction, motivation, or coach autonomy-support between Time 1 and Time 2, it is hypothesized athletes would need to be actively training and competing on their teams during that time or surveyed after more time had elapsed. Stability of the psychosocial variables after a short period of time (and absence from the sport entirely) provide support for SDT and the reliability of the measures used to test the constructs of basic needs satisfaction, autonomy-support, and motivation in the sport setting.

Limitations and Future Research

While this study's findings provided support for the theoretical predictions of self-determination theory as well as Vallerand's (1997) proposed motivational sequence, some limitations exist (Ryan & Deci, 2000; Vallerand, 1997). One, this study addressed the limitations posed by previous cross-sectional studies in the field by utilizing a longitudinal design. However, the time between Time 1 and Time 2 in the present study (i.e., six months) may not have been long enough to predict rowers' persistence. In previous longitudinal research examining behavioral persistence in sport (e.g., Pelletier et

al., 2001), a six-month period of time between assessments is considered quite short. Pelletier and colleagues (2001) defined 10 months as a relatively short period of time between assessments and 22 months as relatively longer; in their study, both intrinsic motivation and amotivation at Time 1 significantly predicted persistence and dropout 10 months later. If the time between the Time 1 and Time 2 survey periods were lengthened to 10 months or a year, intrinsic motivation at Time 1 would have predicted (longer-term) continued participation in the sport rather than just feelings of amotivation at Time 1. Future research should test these predictions of rowers' persistence or dropout after a longer period of time.

Second, amotivation was measured unidimensionally in the present study and was found to be a significant predictor of athletes' dropout. However, findings may differ had amotivation been measured and analyzed as a multidimensional construct. Pelletier and colleagues (1999) proposed that individuals' loss of motivation develops for a variety of reasons including beliefs about helplessness, ineffective strategies, capacity-ability beliefs, and capacity-effort beliefs. Similar to intrinsic and extrinsic motivation, athletes may possess different types of amotivation, each of which may differentially contribute to their dropout. Given the significance of amotivation in predicting athletes' dropout, future research may consider the multiple reasons *why* rowers feel a loss of motivation and gain a more accurate picture of why athletes may drop out of sport.

A third limitation of the present study may have been the extent to which the coach-athlete relationship was examined. In the present study, the coach-athlete relationship was assessed using a measure of coach relatedness (i.e., *I get along with my coaches* and *I really like my coaches*). Jowett (2001), however, proposes that the coach-

athlete relationship is much more complex, involving a consideration of athletes' and coaches' emotions, cognitions, and behaviors. As such, athlete reports of whether they *like* or *get along* with their coaches may limit the full scope and depth of the coach-athlete relationship. Jowett and other researchers have operationalized this relationship to include the constructs of *closeness*, *co-orientation*, and *complementarity* (Jowett & Cockerill, 2002; Jowett & Poczwardowski, 2007). These interpersonal constructs characterize coach-athlete dyads that are compatible, effective at communicating, and promote greater understanding (Jowett & Cockerill, 2002; Jowett & Poczwardowski, 2007). Given the significance of coach relatedness in predicting motivational and behavioral outcomes in the present study, future research might extend these findings to examine the quality and depth of the coach-athlete relationship and the interpersonal constructs of closeness, co-orientation, and complementarity in the context of collegiate rowing.

A fourth and final limitation is that only the quantitative data collected in the present study was analyzed. Although athletes' open-ended responses were used to determine non-active athletes' status at Time 2 (i.e., dropped out, graduated, or studied abroad) and a few select quotes were included in the discussion, there was no formal qualitative analysis of this data as recommended by qualitative methodologists. For example, an inductive content analysis could be used to identify meaning units and emergent themes from the data that represent the perspectives of participants. Such qualitative results would complement the quantitative analyses already completed and strengthen the validity of the study's ability to accurately depict female rowers' experiences and decisions about whether to continue participating. A formal analysis of

the qualitative data collected in this study will be completed and presented in a separate and forthcoming manuscript.

Practical Implications

The present findings have important implications for coaches as well as university and college rowing teams that sponsor the sport at the college level. In particular, coaches might find the results related to true novice athletes especially informative. This athlete group in their first year of participation felt significantly less competent than their peers. Although first-year, true novices still felt generally quite competent in the sport, their perceived ability set them apart from their more highly-skilled, competent teammates. And while the present findings do not show perceived ability to be an important predictor of athletes' level of motivation or continued participation behaviors in the sport, it does single out competence as an important need that first-year, true novice athletes should acquire if they continue to row. The finding that athletes' competence across seasons increased significantly is further evidence of the first year of participation in the sport as representing a critical year of skill acquisition and competence growth.

Some of the unique aspects of the sport of rowing have been discussed, one being the "learn-to-row" season or period of time teams often devote to teaching the sport to new athletes at the start of their rowing careers. However, a consideration that is often neglected when colleges and universities start a rowing program and recruit true novice athletes to participate in the sport is how to fully accommodate their needs. Programs may conflate making a roster spot available for these athletes with mobilizing all of the necessary resources these athletes need to be successful in their first year. Teams may not have the infrastructure in place (e.g., adequate boathouse or practice site; sufficient

transportation to practice site or boathouse; ample boats, oars, barges, coaching motor boats, or rowing ergometers, etc.) or skilled coaching staff available to assist athletes in learning the sport quickly and well. Often teams will recruit and bring onto the team large masses of willing, true novice athletes but fail to provide the kind of learning opportunity athletes may need to acquire sport-specific competence early on in their rowing careers. As a result, many teams experience significant dropout.

With empirical evidence to support the uniqueness of true novices in their first-year of participation and the importance of competence as a need that distinguishes them among their peers, universities and teams should consider them worthy of special consideration and greater accommodation in the sport. The current practice of recruiting many, accommodating few, and leaving many athletes who “fail to make the cut” or “who can’t hack it” out to dry is not in the best interest of this athlete population or the many college teams who seek to expand their rosters and remain compliant with Title IX.

An overall take-away for coaches and administrators in the sport is the importance of basic needs satisfaction more generally. As evidenced in the present study, the satisfaction of athletes’ basic needs of competence, autonomy, and relatedness were highly important and significant predictors for almost every type of athlete motivation. Further, perceived basic needs satisfaction and coach autonomy-support significantly influenced athletes’ long-term participation in the sport. These findings, although well recognized in the current literature as important antecedents of athlete behavior, are not commonly understood or considered among coaches or administrators in the sport of rowing. Basic psychological needs satisfaction and coach autonomy-support seem to matter and rowing coaches, athletics administrators, and rowing organizations should

make note. Rowing coaching education courses (i.e., USRowing Levels 1-3) would be wise to offer information to new and experienced coaches on the psychosocial aspects of athletes' participation aside from information on running a well-organized program, teaching rowing technique, training methods, physiology, and rigging. Athletics administrators should offer training for coaches on best practices in coaching and the importance of needs satisfaction and autonomy-support to promote athlete well-being. Coaches should seek out strategies to promote athlete motivation and retention as often as they research more mainstream coaching materials; this information is equally important to their everyday coaching practice as information on technique and training. After all, if coaches do not have athletes to train, no amount of training physiology and rowing technique will ensure their prosperity.

Finally, coaches as important social influences was another finding from the present study and one that has real-world implications. The type of coach an athlete works with was correlated with athletes' perceptions of competence, autonomy, intrinsic motivation, and introjected regulation in the sport. While these correlations can be explained in different ways, the take-away for coaches is that athletes are perceiving their needs satisfaction and motivation differently based on the type of coach they primarily work with. Whether this is a function of logistics, ability-grouping, or other factors, it may be a starting point for conversations about the compatibility of coaching styles on a given team and whether J.V., assistant, novice, and head coaches are offering cohesive coaching practices. For example, if teams are finding they experience significant attrition each season, it would behoove them to take a closer look at the type of coaching styles coaches employ. Are some coaches more controlling and others more autonomy-

supportive? Do athletes who work with one coach experience greater frustration of their basic needs than athletes who work with a different coach? If coaches are having difficulties understanding one another and working together, a discussion of their coaching philosophies and priorities for athletes may be in order. Research would suggest coaches and athletes may benefit from understanding the motivational climate established on their teams as a means of promoting greater needs satisfaction and stemming dropout (Sarrazin et al, 2002). Further, athletics administrators should be aware of the context in which coaches operate to ensure program goals align with the overall values of the athletics department and mission of the university.

Conclusion

If college rowing teams truly want to ensure female athletes' prosperity in the sport, the current practice of recruiting many, accommodating few, and leaving behind the athletes who "who can't hack it" is not in the best interest of the athletes or the teams who want to expand their rosters to remain compliant with Title IX. This study sheds light on a little-researched athlete population and offers insight on how to *retain* athletes in the sport. Being truly "compliant" with the legislation means ensuring rowers' long-term participation and ultimately helping to satisfy the larger goals and spirit of Title IX.

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APPENDIX A

Qualtrics Time 1 Athlete Survey

Q1 Greetings! My name is Audrey Coon and I am a graduate student at Boise State University in the Department of Kinesiology. I am conducting a research study to better understand the experiences of women rowers at the varsity, college/university level. You are being asked to complete this survey because you are a female rower.

Your participation is voluntary. The survey will take approximately 15 minutes or less to complete. You must be at least 18 years old to take this survey.

This study involves no foreseeable serious risks. I ask that you try to answer all questions; however, if there are any items that make you uncomfortable or that you would prefer to skip, please leave the answer blank. The information you share on this survey will remain confidential and will not be shared with your coaches or teammates.

You will be asked to include your name, email address, and the name of your institution because I would like to follow up with you in the fall of 2014. At that time, I will contact you to ask if you would like to complete the survey again as part of a longitudinal study design. You do not have to participate in the follow-up survey if you complete the survey now.

If you have any questions or concerns feel free to contact Audrey or her faculty advisor:

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If you have questions about your rights as a research participant, you may contact the Boise State University Institutional Review Board (IRB), which is concerned with the protection of volunteers in research projects. You may reach the board office between 8:00 AM and 5:00 PM, Monday through Friday, by calling (208) 426-5401 or by writing: Institutional Review Board, Office of Research Compliance, Boise State University, 1910 University Dr., Boise, ID 83725-1138.

If you would prefer not to participate, please do not fill out a survey.

If you consent to participate, please complete the survey.

good relationships with my friends. (24)							
Because I like the feeling of being totally immersed in the activity. (25)	☐	☐	☐	☐	☐	☐	☐
Because I must do sports regularly. (26)	☐	☐	☐	☐	☐	☐	☐
For the pleasure of discovering new performance strategies. (27)	☐	☐	☐	☐	☐	☐	☐
I often ask myself; I can't seem to achieve the goals that I set for myself. (28)	☐	☐	☐	☐	☐	☐	☐

Q3 Instructions: Athletes vary in how connected they feel with their teammates and coaches. **Please select the response that best reflects how you feel while participating in rowing.**

Q4 I get along with my teammates.

- ☐ Not at all true for me (1)
- ☐ Not true for me (2)
- ☐ Sort of true for me (3)
- ☐ True for me (4)
- ☐ Completely true for me (5)

Q5 My teammates are pretty friendly towards me.

- ☐ Not at all true for me (1)
- ☐ Not true for me (2)
- ☐ Sort of true for me (3)
- ☐ True for me (4)
- ☐ Completely true for me (5)

Q6 I consider my teammates to be my friends.

- ☐ Not at all true for me (1)
- ☐ Not true for me (2)
- ☐ Sort of true for me (3)
- ☐ True for me (4)
- ☐ Completely true for me (5)

Q7 My teammates care about me.

- ☐ Not at all true for me (1)
- ☐ Not true for me (2)
- ☐ Sort of true for me (3)
- ☐ True for me (4)
- ☐ Completely true for me (5)

Q8 I get along with my coaches.

- ☐ Not at all true for me (1)
- ☐ Not true for me (2)
- ☐ Sort of true for me (3)
- ☐ True for me (4)
- ☐ Completely true for me (5)

Q9 I really like my coaches.

- ☐ Not at all true for me (1)
- ☐ Not true for me (2)
- ☐ Sort of true for me (3)
- ☐ True for me (4)
- ☐ Completely true for me (5)

Q10 My coaches care about me.

- ☐ Not at all true for me (1)
- ☐ Not true for me (2)
- ☐ Sort of true for me (3)
- ☐ True for me (4)
- ☐ Completely true for me (5)

Q11 My coaches are generally pretty friendly towards me.

- ☐ Not at all true for me (1)
- ☐ Not true for me (2)
- ☐ Sort of true for me (3)
- ☐ True for me (4)
- ☐ Completely true for me (5)

Q12 Which coach/coaches do you work with most often?

- ☐ Head Varsity Coach (1)
- ☐ Assistant Coach/J.V. Coach/Novice Coach (2)

things. (6)							
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Q14 Please mark the response that best reflects how you feel about the amount of choice or control you have when it comes to participating in rowing.

Q15 I have a say in what I do when participating in rowing.

- ☐ Not at all true for me (1)
- ☐ Not true for me (2)
- ☐ Sort of true for me (3)
- ☐ True for me (4)
- ☐ Completely true for me (5)

Q16 I feel forced to do things in rowing, even when I don't really want to do them.

- ☐ Not at all true for me (1)
- ☐ Not true for me (2)
- ☐ Sort of true for me (3)
- ☐ True for me (4)
- ☐ Completely true for me (5)

Q17 I help decide what I do when participating in rowing.

- ☐ Not at all true for me (1)
- ☐ Not true for me (2)
- ☐ Sort of true for me (3)
- ☐ True for me (4)
- ☐ Completely true for me (5)

Q18 I get to do the things I want to do when participating in rowing.

- ☐ Not at all true for me (1)
- ☐ Not true for me (2)
- ☐ Sort of true for me (3)
- ☐ True for me (4)
- ☐ Completely true for me (5)

Q19 I do not have a say in what I do when participating in rowing.

- ☐ Not at all true for me (1)
- ☐ Not true for me (2)
- ☐ Sort of true for me (3)
- ☐ True for me (4)
- ☐ Completely true for me (5)

Q20 I do not get to make decisions about what I do when I am participating in rowing.

- ☐ Not at all true for me (1)
☐ Not true for me (2)
☐ Sort of true for me (3)
☐ True for me (4)
☐ Completely true for me (5)

Q21 Select the response that best reflects how you feel about your ability in rowing.

	Not at all true		Somewhat true			Very true	
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)
I think I am pretty good at rowing. (1)	☐	☐	☐	☐	☐	☐	☐
I am satisfied with my rowing performance. (2)	☐	☐	☐	☐	☐	☐	☐
After rowing for a while, I feel pretty competent. (3)	☐	☐	☐	☐	☐	☐	☐
I am pretty skilled at rowing. (4)	☐	☐	☐	☐	☐	☐	☐
I don't row very well. (5)	☐	☐	☐	☐	☐	☐	☐

Q22 Please enter your full name:

Q23 Please enter your email address:

Q24 Please enter the name of your college/university:

Q25 What is your birthdate?

Q26 Ethnicity/Race (Check all that apply)

- ☐ Asian (1)
- ☐ Black, non-Hispanic (2)
- ☐ Hispanic (3)
- ☐ Middle Eastern (4)
- ☐ Native American or Alaska Native (5)
- ☐ Pacific Islander (6)
- ☐ White, non-Hispanic (7)
- ☐ Other (8) _____
- ☐ Prefer not to answer (9)

Q27 A "true novice" is a first year collegiate rower with no previous rowing experience. Are you/were you a "true novice" on this rowing team?

- ☐ Yes (1)
- ☐ No (2)

Q28 (If participant answered "No") Prior to college, how many years of rowing experience did you have?

(years drop-down menu)

Q29 Were you an athlete on a college club rowing team before joining this team?

- ☐ Yes (1)
- ☐ No (2)

Q30 Were you a transfer student on another rowing team before joining this team?

- ☐ Yes (1)
- ☐ No (2)

Q31 Do you spend the majority of your time as a coxswain or rower on this team?

- ☐ Coxswain (1)
- ☐ Rower (2)

Q32 Select your current year of varsity rowing eligibility:

- ☐ Redshirt (1)
- ☐ 1st (2)
- ☐ 2nd (3)
- ☐ 3rd (4)
- ☐ 4th (5)
- ☐ Other (please explain): (6) _____

Q33 Select your current year in school:

- ☐ Freshman (1)
- ☐ Sophomore (2)
- ☐ Junior (3)
- ☐ Senior (4)
- ☐ Graduate Student (5)

Q34 What is your current athletic scholarship status?

- ☐ Full scholarship (1)
- ☐ Partial scholarship totaling more than half of tuition, room, and board (2)
- ☐ Partial scholarship totaling half of tuition, room, and board (3)
- ☐ Partial scholarship totaling less than half of tuition, room, and board (4)
- ☐ No scholarship (5)

Q35 Do you currently participate in another varsity sport? In other words, are you a dual-sport athlete?

- ☐ Yes (1)
- ☐ No (2)

Q36 Did you participate in sports before college?

- ☐ Yes (1)
- ☐ No (2)

Q37 (If participant answered “Yes”) Which sports did you participate in before college and how many years did you participate?

- Sport (1)
- Years experience (2)
- Sport (3)
- Years experience (4)
- Sport (5)
- Years experience (6)
- Sport (7)
- Years experience (8)
- Sport (9)
- Years experience (10)
- Sport (11)
- Years experience (12)
- Sport (13)
- Years experience (14)

Q38 Select the likelihood that you will you be returning to this team in the Fall of 2014:

- ☐ Very Unlikely (1)
- ☐ Unlikely (2)
- ☐ Somewhat Unlikely (3)
- ☐ Undecided (4)
- ☐ Somewhat Likely (5)
- ☐ Likely (6)
- ☐ Very Likely (7)

Q39 Thank you so much for your participation in this study!

APPENDIX B

Time 1 Boise State University IRB Approval



DIVISION OF RESEARCH & ECONOMIC DEVELOPMENT
Office of Research Compliance
Institutional Review Board
humansubjects@boisestate.edu | (phone) 208.426.5401 | MS 1138

DATE: **March 3, 2014**

TO: Audrey Coon (PI)
Nicole Bolter (Co-PI)

FROM: Office of Research Compliance
Institutional Review Board (IRB)

SUBJECT: IRB Notification of Exemption
Project Title: *Persistence in Novice Women Rowers*

The Boise State University ORC has reviewed your protocol application and has determined that your research is exempt from further IRB review and supervision under 45 CFR 46.101(b).

Review Type: Exempt, Category #2	Date of Approval: March 3, 2014
Exemption Approval Number: 103-SB14-028	

This exemption covers any research and data collected under your protocol as of the date of approval indicated above, unless terminated in writing by the principal investigator or the Boise State University IRB. All amendments or changes (including personnel changes) to your approved protocol **must** be brought to the attention of the Office of Research for review and approval before they occur, as these modifications may change your exempt status. Complete and submit a **MODIFICATION FORM** indicating any changes to your project.

Annual renewals are not required for exempt protocols. When the research project is completed, please notify our office by submitting a **FINAL REPORT FORM**. The exempt status expires when the research project is completed (closed) or when the review category changes as described above.

All relevant forms are available online. If you have any questions or concerns, please contact the Office of Research Compliance, 208-426-5401 or humansubjects@boisestate.edu.

Thank you and good luck with your research.

Office of Research Compliance

APPENDIX C

Coach Recruiting Phone Script

Hi! My name is Audrey Coon and I am a graduate student in the Department of Kinesiology at Boise State University. Is this a good time to chat? I'd like to talk with you briefly about a study I'm conducting with women rowers across the country.

Let me tell you a little bit about myself- for the past two years, I worked as the Assistant Women's Rowing Coach at the University of Portland and am a former rower of Western Washington University. I am contacting you because I'd like to invite your athletes to participate in my research study.

The purpose of my study is to better understand the experiences of the female rower. This study will look at the possible factors that predict athletes' motivation in sport. My findings will contribute to the knowledge base about rowing athletes at the collegiate level. My hope is this research will help ensure rowers of the future have the opportunity to succeed in the sport of rowing at the college level.

As I mentioned, I am contacting you because I would like to survey the athletes on your team. I am hopeful they may be interested in completing an online survey about their experience. The survey should take about 10 minutes and may be taken at the convenience of the participant. **The survey will be available March 14th and closes on April 1st, 2014.**

If you're interested in participating, I will follow-up with you with an email and an attachment that can be forwarded to your athletes. The attachment you send to your athletes will have the survey linked embedded, so they can follow the link and complete survey.

If you have any questions regarding my study, please contact me via email at audreycoon@u.boisestate.edu or by phone at (971) 400-0348. Thank you!

APPENDIX D

Coach Recruiting Email Script

Dear Coach _____,

I hope this finds you well. My name is Audrey Coon and I am a graduate student in the Department of Kinesiology at Boise State University. For the past two years, I worked as the Assistant Women's Rowing Coach at the University of Portland and am a former rower of Western Washington University. I am writing you to invite your athletes to participate in my research study. The following paragraphs include the purpose of my study as well as a description of what your athletes will be asked to do if they choose to participate.

The purpose of my study is to better understand the experiences of the female rower. This study will look at the possible factors that predict athletes' motivation and their persistence in sport. My findings will contribute to the knowledge base about rowing athletes at the collegiate level. My hope is that this research will help ensure rowers of the future have the opportunity to succeed in the sport of rowing at the college level.

I am contacting you because I would like to survey the athletes on your team. I am hopeful they may be interested in completing an online survey about their experience. The survey should take about 10 minutes and may be taken at the convenience of the participant. **The survey will become available March 14th and closes on April 1st, 2014.**

Attached to this email is a .pdf that can be forwarded to your athletes. In addition to describing the details of the study, it includes a link to the online survey. If you have any questions regarding my study, please contact me via email at audreycoon@u.boisestate.edu or by phone at (971) 400-0348.

Thank you for your time,

Audrey Coon

APPENDIX E

Athlete Cover Letter



BOISE STATE UNIVERSITY

Greetings!

My name is Audrey Coon and I am a graduate student in the Department of Kinesiology at Boise State University. For the past two years, I worked as the Assistant Women's Rowing Coach at the University of Portland and am a former 4-year rower of Western Washington University.

I asked your head coach to forward this letter to you because I want to invite you to **participate in an online survey and get your perspective as a female rower**. You will be asked questions about your experiences as a collegiate athlete in the sport of rowing. The survey is voluntary and only takes about 10 minutes to complete. The information you share on this survey will remain confidential and will not be shared with your coaches or teammates.

You will be asked to include your name, email address, and the name of your institution because I would like to follow up with you in the fall of 2014. At that time, I will contact you to ask if you would like to complete the survey again as part of a longitudinal study design. You do not have to participate in the follow-up survey if you complete the survey now. **You must be at least 18 years old to take this survey.**

If you are interested in taking the survey, please select on the link below to begin:

https://boisestate.az1.qualtrics.com/SE/?SID=SV_cYYJ9FiYFVoklk9

I greatly appreciate your help with my project and thank you for sharing your thoughts! If you have any questions regarding my study, please contact me via email at audreycoon@u.boisestate.edu or by phone at (971) 400-0348.

Sincerely,

APPENDIX F

Qualtrics Time 2 Active Athlete Survey

Q1 Greetings! My name is Audrey Coon and I am a graduate student at Boise State University in the Department of Kinesiology. I am conducting a research study to better understand the experiences of women rowers at the varsity, college/university level. You are being asked to complete this survey because you are a female rower.

Your participation is voluntary. The survey will take approximately 10 minutes or less to complete. You must be at least 18 years old to take this survey.

This study involves no foreseeable serious risks. I ask that you try to answer all questions; however, if there are any items that make you uncomfortable or that you would prefer to skip, please leave the answer blank. The information you share on this survey will remain confidential and will not be shared with your coaches or teammates.

You will be asked to include your name, email address, and the name of your institution in order to pair your responses on the first survey, with your responses on this survey.

If you have any questions or concerns feel free to contact Audrey or her faculty advisor:

**Audrey Coon
Graduate Student and Research Assistant
Boise State University
Department of Kinesiology
Phone: (971) 400-0348
Email: audreycoon@u.boisestate.edu**

**Nicole D. Bolter, Ph.D.
Assistant Professor
Boise State University
Department of Kinesiology
Phone: (208) 426-5418
Email: nicolebolter@boisestate.edu**

If you have questions about your rights as a research participant, you may contact the Boise State University Institutional Review Board (IRB), which is concerned with the protection of volunteers in research projects. You may reach the board office between 8:00 AM and 5:00 PM, Monday through Friday, by calling (208) 426-5401 or by writing: Institutional Review Board, Office of Research Compliance, Boise State University, 1910 University Dr., Boise, ID 83725-1138.

If you would prefer not to participate, please do not fill out a survey.

If you consent to participate, please complete the survey.

Q2 We are interested in the reasons why you decided to return to your rowing team this year. We recognize that athletes continue participation for a wide variety of reasons. In the space provided, can you elaborate on why you decided to continue rowing?

Corresponds
exactly

[illegible]

good relationships with my friends. (24)							
Because I like the feeling of being totally immersed in the activity. (25)	○	○	○	○	○	○	○
Because I must do sports regularly. (26)	○	○	○	○	○	○	○
For the pleasure of discovering new performance strategies. (27)	○	○	○	○	○	○	○
I often ask myself; I can't seem to achieve the goals that I set for myself. (28)	○	○	○	○	○	○	○

Q4 Instructions: Athletes vary in how connected they feel with their teammates and coaches. **Please select the response that best reflects how you feel while participating in rowing.**

Q5 I get along with my teammates.

- ☐ Not at all true for me (1)
- ☐ Not true for me (2)
- ☐ Sort of true for me (3)
- ☐ True for me (4)
- ☐ Completely true for me (5)

Q6 My teammates are pretty friendly towards me.

- ☐ Not at all true for me (1)
- ☐ Not true for me (2)
- ☐ Sort of true for me (3)
- ☐ True for me (4)
- ☐ Completely true for me (5)

Q7 I consider my teammates to be my friends.

- ☐ Not at all true for me (1)
- ☐ Not true for me (2)
- ☐ Sort of true for me (3)
- ☐ True for me (4)
- ☐ Completely true for me (5)

Q8 My teammates care about me.

- ☐ Not at all true for me (1)
- ☐ Not true for me (2)
- ☐ Sort of true for me (3)
- ☐ True for me (4)
- ☐ Completely true for me (5)

Q9 I get along with my coaches.

- ☐ Not at all true for me (1)
- ☐ Not true for me (2)
- ☐ Sort of true for me (3)
- ☐ True for me (4)
- ☐ Completely true for me (5)

Q10 I really like my coaches.

- ☐ Not at all true for me (1)
- ☐ Not true for me (2)
- ☐ Sort of true for me (3)
- ☐ True for me (4)
- ☐ Completely true for me (5)

Q11 My coaches care about me.

- ☐ Not at all true for me (1)
- ☐ Not true for me (2)
- ☐ Sort of true for me (3)
- ☐ True for me (4)
- ☐ Completely true for me (5)

Q12 My coaches are generally pretty friendly towards me.

- ☐ Not at all true for me (1)
- ☐ Not true for me (2)
- ☐ Sort of true for me (3)
- ☐ True for me (4)
- ☐ Completely true for me (5)

Q13 Which coach/coaches do you work with most often?

- ☐ Head Varsity Coach (1)
- ☐ Assistant Coach/J.V. Coach/Novice Coach (2)

things. (6)							
-------------	--	--	--	--	--	--	--

Q15 Please mark the response that best reflects how you feel about the amount of choice or control you have when it comes to participating in rowing.

Q16 I have a say in what I do when participating in rowing.

- ☐ Not at all true for me (1)
- ☐ Not true for me (2)
- ☐ Sort of true for me (3)
- ☐ True for me (4)
- ☐ Completely true for me (5)

Q17 I feel forced to do things in rowing, even when I don't really want to do them.

- ☐ Not at all true for me (1)
- ☐ Not true for me (2)
- ☐ Sort of true for me (3)
- ☐ True for me (4)
- ☐ Completely true for me (5)

Q18 I help decide what I do when participating in rowing.

- ☐ Not at all true for me (1)
- ☐ Not true for me (2)
- ☐ Sort of true for me (3)
- ☐ True for me (4)
- ☐ Completely true for me (5)

Q19 I get to do the things I want to do when participating in rowing.

- ☐ Not at all true for me (1)
- ☐ Not true for me (2)
- ☐ Sort of true for me (3)
- ☐ True for me (4)
- ☐ Completely true for me (5)

Q20 I do not have a say in what I do when participating in rowing.

- ☐ Not at all true for me (1)
- ☐ Not true for me (2)
- ☐ Sort of true for me (3)
- ☐ True for me (4)
- ☐ Completely true for me (5)

Q21 I do not get to make decisions about what I do when I am participating in rowing.

- ☐ Not at all true for me (1)
☐ Not true for me (2)
☐ Sort of true for me (3)
☐ True for me (4)
☐ Completely true for me (5)

Q22 Select the response that best reflects how you feel about your ability in rowing.

	Not at all true		Somewhat true			Very true	
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)
I think I am pretty good at rowing. (1)	☐	☐	☐	☐	☐	☐	☐
I am satisfied with my rowing performance. (2)	☐	☐	☐	☐	☐	☐	☐
After rowing for a while, I feel pretty competent. (3)	☐	☐	☐	☐	☐	☐	☐
I am pretty skilled at rowing. (4)	☐	☐	☐	☐	☐	☐	☐
I don't row very well. (5)	☐	☐	☐	☐	☐	☐	☐

Q23 Please enter your full name:

Q24 Please enter your email address:

Q25 Please enter the name of your college/university:

Q26 Select the likelihood that you will you be returning to this team in the Fall of 2015:

- ☐ Very Unlikely (1)
- ☐ Unlikely (2)
- ☐ Somewhat Unlikely (3)
- ☐ Undecided (4)
- ☐ Somewhat Likely (5)
- ☐ Likely (6)
- ☐ Very Likely (7)

Q27 Thank you so much for your participation in this study!

APPENDIX G

Qualtrics Time 2 Non-Active Athlete Survey

Q1 Greetings! My name is Audrey Coon and I am a graduate student at Boise State University in the Department of Kinesiology. I am conducting a research study to better understand the experiences of women rowers at the varsity, college/university level. You are being asked to complete this survey because you are a female rower.

Your participation is voluntary. The survey will take approximately 3 minutes or less to complete. You must be at least 18 years old to take this survey.

This study involves no foreseeable serious risks. I ask that you try to answer all questions; however, if there are any items that make you uncomfortable or that you would prefer to skip, please leave the answer blank. The information you share on this survey will remain confidential and will not be shared with your coaches or teammates.

You will be asked to include your name, email address, and the name of your institution in order to pair your responses on the first survey, with your responses on this survey.

If you have any questions or concerns feel free to contact Audrey or her faculty advisor:

**Audrey Coon
Graduate Student and Research Assistant
Boise State University
Department of Kinesiology
Phone: (971) 400-0348
Email: audreycoon@u.boisestate.edu**

**Nicole D. Bolter, Ph.D.
Assistant Professor
Boise State University
Department of Kinesiology
Phone: (208) 426-5418
Email: nicolebolter@boisestate.edu**

If you have questions about your rights as a research participant, you may contact the Boise State University Institutional Review Board (IRB), which is concerned with the protection of volunteers in research projects. You may reach the board office between 8:00 AM and 5:00 PM, Monday through Friday, by calling (208) 426-5401 or by writing: Institutional Review Board, Office of Research Compliance, Boise State University, 1910 University Dr., Boise, ID 83725-1138.

If you would prefer not to participate, please do not fill out a survey.

If you consent to participate, please complete the survey.

Q2 We are interested in the reasons why you decided not to return to your rowing team this year. We recognize that athletes discontinue participation for a wide variety of reasons. In the space provided, can you elaborate on why you decided not to continue rowing?

Q3 Please enter your full name:

Q4 Please enter your email address:

Q5 Please enter the name of your college/university:

Q6 Thank you so much for your participation in this study!

APPENDIX H

Time 2 Boise State University IRB Approval



BOISE STATE UNIVERSITY
RESEARCH AND ECONOMIC DEVELOPMENT

Date: August 01, 2014

To: Audrey Coon

cc: Nicole Bolter

From: Office of Research Compliance (ORC)

Subject: SB-IRB Notification of Approval for Modification - 103-SB14-028
Persistence in Novice Women Rowers

The Boise State University ORC has reviewed and approved the proposed modifications to your exempt protocol application.

Protocol Number: 103-SB14-028

Approved: 8/1/2014

Submission Received: 7/30/2014

Review: Exempt

Your research is still exempt from further IRB review and supervision under 45 CFR 46.101(b). This exemption covers any research and data collected under your protocol as of the date of approval indicated above, unless terminated in writing by you, the Principal Investigator, or the Boise State University IRB. All amendments or changes (including personnel changes) to your approved protocol must be brought to the attention of the Office of Research Compliance for review and approval before they occur, as these modifications may change your exempt status. Complete and submit a Modification Form indicating any changes to your project.

All forms are available on the ORC website at <http://goo.gl/D2FYTV>

Please direct any questions or concerns to ORC at 426-5401 or humansubjects@boisestate.edu.

Thank you and good luck with your research.

Office of Research Compliance

APPENDIX I

Athlete Thank You Email

Hi (First name of athlete),

I hope you're having a great summer! My name is Audrey Coon and I am a Master's student at Boise State University. In March of this year, you completed an online survey as part of my thesis project researching college women rowers.

I wanted to send you a quick follow-up email to say thank you for your help! I really appreciate you taking the time to complete the survey. Your participation in this project enables me to continue my research in this area and helps to ensure women rowers like you have positive experiences as college athletes.

In October 2014, I'm hopeful that you'll be interested in taking the survey again as part of the "follow-up" portion of my project. I will ask you the same questions as before along with a space to include any of your own thoughts/insights. My goal is to have 100% of the athletes who completed the survey the first time, complete it the second time. You don't need to do anything now - I will send you another email at the beginning of October to invite you to take the survey again. I would be so grateful if you'd consider participating again!

Thank you again. I look forward to connecting again in October.

Sincerely,

Audrey Coon

APPENDIX J

Athlete Status Confirmation Email to Coaches

Dear Coach _____,

My name is Audrey Coon and I am a graduate student in the Department of Kinesiology at Boise State University. I hope your fall season is off to a great start! In March of 2014, you graciously forwarded the athletes on your spring roster an email from me inviting them to participate in an online survey designed to better understand the experiences of the female rower. This initial data collection was a huge success! Thank you for your help in recruiting athletes to complete that survey!

I am in the second phase of my data collection and am hopeful you might send me your most updated version of your entire team roster (everyone on your novice, varsity, J.V. rosters). This information is meant to enable me to match the athletes' participation status this season with their participation status in March of 2014.

Thank you so much for your continued assistance with this project! I look forward to sharing my findings with you at the completion of my study.

If you have any questions regarding my study, please contact me via email at audreycoon@u.boisestate.edu or by phone at (971) 400-0348.

Thank you for your time,

Audrey Coon

APPENDIX K

Email Reminder to Athletes

Hi (First name of athlete),

I hope you're continuing to have a great semester! Again, my name is Audrey Coon and I am a Master's student at Boise State University. Thank you once again for completing my online survey in March asking about your perspective as a female collegiate rower!

I sent you a link to the survey last week and I wanted to be sure you didn't encounter any technical difficulties. Is there anything I can help you with? If not, this is just a quick reminder that the second survey period is open and will close shortly. Below is the link to the survey for your convenience.

Thank you again for taking the survey one final time. I am so grateful for your help with my thesis research project.

Gratefully,

Audrey Coon