

SPORT-CONFIDENCE AND COACH EXPECTANCY SOURCES IN INTERCOLLEGIATE
ICE HOCKEY

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Sport-Confidence and Coach Expectancy Sources in Intercollegiate Ice Hockey

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Abstract
of
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by
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The information meaningful to coaches during player assessments and the types of experiences that contribute to athletes' confidence are not as well studied in ice hockey as in other sports. The primary purpose of this investigation was to determine what sources of expectancy information are salient to collegiate ice hockey coaches. A secondary purpose was to identify the experiences that contribute to sport-confidence in collegiate ice hockey players. Thirty two coaches and 16 athletes in NCAA ice hockey programs participated in this study. Results indicated that there is congruence between the information used by ice hockey coaches of different roles and competitive levels when evaluating athletes. It was observed that coaches rate psychological factors highest when evaluating athletes. The experiences meaningful to ice hockey players' sport-confidence were accessed and the ordering of sources was compared between positions. A sport psychology consultant working within ice hockey can better understand coach behavior by knowing what player characteristics are meaningful to a coach when evaluating athletes. Additionally, a consultant can know what information an athlete taps in his or her personal life for reassurance of self-efficacy in sport. Future research employing interview techniques can identify sport-specific sources of evaluative information relevant to ice hockey coaches and the experiences particularly meaningful to hockey players' confidence in

sport. This study provides some groundwork and direction for further investigation of the expectancy information and sport-confidence sources relevant within specific sports.

Dedication

This study is dedicated to my family, loved ones, and Alexandra Johnson. Without their unconditional love, support, understanding, and selfless caring this work and my graduate degree would not have been possible.

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I would like to acknowledge the effort, time, attention, understanding, and ‘push’ given to me by Dr. Gloria Solomon. A good coach gives a lot of him or herself to develop a player and is not timid about correcting an athlete’s game play as much as is necessary and reasonable to ensure that player reaches his or her full potential. Dr. Solomon did this for me and was understanding to the challenges I faced in academia and my personal life. As a result I was pushed to grow as a student, researcher, and person, a good study was developed, and a well written piece of research was produced.

I would also like to acknowledge the professors on my committee, Dr. Phil Esposito and Dr. Dan Southard. Both professors were supportive and constructive committee members. More importantly they willingly helped me as frequently as was necessary to truly understand course materials and be a successful student. Further, both Dr. Southard and Esposito were always available to help apply my learning as a coach. I cannot thank the both of thank you enough.

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CHAPTER 1

Introduction

Poor athletic performance can be blamed on a multitude of factors such as bad officiating, weather conditions, or overall lack of physical skill. The performance expectations of a coach have a psychological impact on the athlete. When an athlete performs in front of the coaching staff, the staff forms expectations about that athlete's future performances. Thus, a coach's expectation affects athlete performance. For example, if a goaltender is expected to perform poorly, his save percentage may decline, reflecting and confirming that expectation. Researchers identified information head and assistant coaches utilize when forming expectations of athletes in team sports such as soccer, volleyball, baseball and basketball (Solomon & Rhea, 2008). Ice hockey players and coaches had minimal representation in the subject pool and are not well represented in the expectancy literature. Extrapolating the results of previous expectancy research to an understudied population is unwise without first determining whether hockey coaches prioritize the same information as head and assistant coaches of other team sports.

Many elite goalie coaches have spent their athletic careers as goaltenders and understand the physical requirements and mindset necessary to play goalie effectively. The mental demands of the position are best summarized by former NHL goalie Ken Dryden:

Because the demands on a goalie are mostly mental, it means that for a goalie, the biggest enemy is himself. Not a puck, not an opponent, not a quirk of size or style. Him. The stress and anxiety he feels when he plays...[is] in constant ebb and flow, but never disappearing. The successful goalie understands these neuroses, accepts them, and puts them under control. The unsuccessful goalie is distracted by them, his mind in knots, his body quickly following (Dryden, 2003, p. 138).

The influence of mental factors, like stress and anxiety, on players is made apparent by the quote from this five-time Vezina Trophy winner and Stanley Cup champion. Confidence, a mental factor, becomes increasingly important as the skill level of play increases (Woodman & Hardy, 2003). The relationship between confidence and level of play, plus the mental demands of ice hockey might make psychological qualities as well as physical skills important to a hockey coach during performance assessments.

There is no research on the sources of information used by ice hockey coaches when forming expectations of their athletes. The results of this investigation will explore how ice hockey coaches prioritize sources of expectancy information. It will be determined whether there are within staff differences in the sources of evaluative information salient to head and assistant coaches. The aim of this project is to determine what impression cues are highly prioritized by ice hockey coaches when forming expectations of collegiate ice hockey players.

Statement of Purpose

This investigation has five purposes. The primary purpose of this investigation is to determine what expectancy information is salient to collegiate ice hockey coaches. The second purpose is to test for differences in the use of expectancy information by head and assistant ice hockey coaches. A third purpose of this investigation is to determine whether differences exist in the sources of expectancy information salient to Division I and Division III coaches. A fourth purpose of this study is to test the sources of sport-confidence salient to collegiate ice hockey players. A fifth purpose is to determine the salience of sources of sport-confidence by player position.

Significance of Research

The results of this investigation will fill a gap in the expectancy literature by including

ice hockey players and coaches. The expectancy sources used by hockey coaches forming expectations of athlete performance will be identified. This project will determine what expectancy sources head and assistant coaches prioritize during player evaluations. The findings will also determine what evaluative criteria are most salient to Division I and Division III coaches. If the information prioritized by hockey coaches contrasts with previous research, it may imply something about the sport is unique. Hockey athletes have had minimal representation in the sport-confidence literature. Sources of sport-confidence salient to collegiate ice hockey players will be identified. A better understanding of what a coach looks for in a player will allow service delivery by sport psychology professionals to be more sport-specific. The practitioner will be able to communicate to an athlete what qualities coaches value in a player and, in turn, have a better understanding of scouting and rostering decisions made by hockey coaches.

Definition of Terms

Researchers and practitioners have developed a number of terms to describe the psychological phenomenon observed in the field of sport psychology. The research guiding this project makes frequent use of some language specific to the field. The following terms appear in this thesis and must be defined:

1. Competitive orientation – how an individual interprets success. Interpretations of success are based on the achievement of an outcome or the successful execution of a process, or a combination of both (Vealey, 1986).
2. Defenseman – an athlete fulfilling a position in ice hockey primarily responsible with disrupting the opposing team's plays to prevent scoring.
3. Expectancy Source –. The personal, physical or psychological characteristics of an athlete

perceptible to others (Solomon & Rhea, 2008). Expectancy source and ‘impression cue’ are used interchangeably in this study.

4. Forward – an athlete fulfilling one of three offensive positions in ice hockey – center, right wing, left wing – with the primary responsibility of scoring goals.
5. Goalie – an athlete fulfilling a specialized position in ice hockey with the objective of defending the team’s goal, preventing the opposing team from scoring points.
6. Goalie Coach – a coach who is specifically designated to working with goaltenders.
7. Physical Ability – the possession of characteristics such as coordination, strength, speed, reaction time, agility, and athleticism (Solomon, 2008b).
8. Self-Efficacy – the situation-specific belief about the likelihood of success at achieving a particular outcome despite or with the help of internal and external factors (Bandura, 1977, 1984). Self-efficacy and ‘self-confidence’ are used interchangeably in this study.
9. Sport-Confidence-Trait – “...belief that an athlete possesses about his or her ability to be successful in sport in general” (Callow & Hardy, 2001, p. 2).
10. Sport-Confidence-State – “...belief that an athlete possesses about his or her ability to be successful...in specific competitions” (Callow & Hardy, 2001, p. 2).
11. Sources of Sport-Confidence – Nine types of information drawn from when evaluating self-efficacy in sport settings (Vealey, Hayashi, Garner-Holman, & Giacobbi, 1998).
 - a. *Coach’s Leadership* is a source of sport-confidence gathered from faith in a coach’s leadership and decision-making ability.
 - b. *Demonstration of Ability* occurs when an athlete shows athletic prowess or outdoes an opponent.
 - c. *Environmental Comfort* contributes to sport-confidence through an athlete feeling

- secure or at ease in a competitive setting.
- d. *Mastery* contributes to sport-confidence when an athlete increases or perfects a personal skill.
 - e. *Physical/Mental Preparation* is being in a peak physical and mental performance state before competition.
 - f. *Physical Self-Presentation* encompasses the perceptions an athlete has about his or her own body and beliefs about how one's body looks to others.
 - g. *Situational Favorableness* provides confidence when an athlete feels luck, calls, breaks or pre-game rituals have the game going in his or her favor.
 - h. *Social Support* is the perceived support an athlete receives from *significant* others, like coaches, teammates, peers and family.
 - i. *Vicarious Experience* is derived from watching the successful performance of a significant other or model.

Limitations

The design of this project is subject to limitations on account of imperfect recall, timing, and changes in sport performance following off-season training. If coaches cannot reflect on the information sources used when assessing players then the accuracy of this study will be limited. Some hockey coaches in the sample are volunteers whose status or commitment to the team may differ from a paid, full-time coach.

Delimitations

Collegiate ice hockey players, goalies, and coaches are largely overlooked in the expectancy literature. Sampling all collegiate ice hockey teams allows for the possibility of a larger response rate than from a group of randomly selected teams. This project sampled all

NCAA, NCAA-affiliated male (Division I and III) and female (National Collegiate and Division III) ice hockey teams. The results of this study will represent NCAA collegiate ice hockey programs in the United States.

Assumptions

This study predominantly relies on the cooperation of each participant and the fit of each measure to the population. Two assumptions are made in executing this investigation. First, athletes and coaches will understand and provide honest responses to the two questionnaires: Solomon Expectancy Sources Scale (SESS) and the Sources of Sport-Confidence Questionnaire (SSCQ). Second, ice hockey coaches use sources of information identifiable by the SESS to assess athlete ability.

Hypotheses

Previous publications in the areas of confidence and expectancy guided the development of the following hypothesis:

1. There will be a significant difference in the sources of information used by head and assistant collegiate ice hockey coaches to assess athlete ability.

Additional questions along the same line of inquiry were developed. However, empirical evidence in the ice hockey literature does not exist to create further hypotheses on this topic. As such, the limited study of the sources of information salient to ice hockey coaches merited two exploratory questions:

1. What sources of expectancy information are salient to collegiate ice hockey coaches?
2. Is there a significant difference in the sources of information Division I and Division III coaches use to assess athlete ability?

Speculations about the nature of sport-confidence in ice hockey lead to the formation of

additional research questions. However, this line of inquiry was not substantiated by previous empirical research. Thus, the limited study of sources of sport-confidence salient to ice hockey coaches and players necessitated two exploratory questions:

1. What sources of sport-confidence are salient to ice hockey players?
2. What sources of sport-confidence are salient to each player position?

CHAPTER 2

Review of Literature

Forming expectations and predicting future performance is part of the job of a coach. When selecting a player and determining his or her role as a starter or back-up player, hockey coaches base their decisions on information gathered about the athlete. However, assistant coaches spend the most one-on-one time with players. Research indicates head and assistant coaches base evaluations of athlete ability predominantly on psychological and physical impression cues, respectively (Solomon, 2001a, 2001b, 2002a, 2002b). Knowing what head versus assistant coaches weigh when evaluating players facilitates communication within the coaching staff and allows greater understanding of roster decisions. This review details research on the presence and impact of expectancy effects in the athletic environment. Furthermore, confidence is examined as a factor in athletic performance and as a psychological impression cue relevant to research on coach expectations.

Conception of the Self-Fulfilling Prophecy

Unvoiced thoughts and subtle behaviors have the power to shape the behaviors of others through a phenomenon operationalized in the late 1940's. Merton (1948) was the first to define the self-fulfilling prophecy. An excerpt from his essay titled *Self-Fulfilling Prophecy* defines the phenomenon. "The self-fulfilling prophecy is, in the beginning, a *false* definition of a situation evoking a new behavior, which makes the originally false conception come *true*" (Merton, 1948, p. 195). This means that preconceived notions one person holds about another are somehow communicated and have the power to shape behavior. When actions mirror expectations, those original assumptions are confirmed. How a self-fulfilling prophecy begins and its end result is stated in the quotation, but Merton's essay does not provide empirical proof or etiological

evidence of the phenomenon.

Later research sought to determine how self-fulfilling prophecies are formed through investigating social interactions. When an individual enters a social situation, memory and observable information (i.e. attractiveness, gender, race) are used to help predict the outcome of the social exchange (Chen & Bargh, 1997; Jones, 1977; Miller & Turnbull, 1986; Skrypnik & Snyder, 1982). Predictions about the outcome of a social exchange are based on information gleaned from others present. The assumptions made about others engaging in a social interaction contribute to the likelihood of the predicted outcome coming true (Buscombe, Greenlees, Holder, Thelwell, & Rimmer, 2006). Initial assumptions are communicated in subtle ways and play a role in producing the behaviors an individual expects from another. Public schools provided a unique venue to test the influence of self-fulfilling prophecies on behavior and performance. This environment allowed researchers to examine how teacher expectations affect student aptitude and achievement. Rosenthal and Jacobson's (1968) groundbreaking study went outside of the laboratory to discover the existence and power of self-fulfilling prophecies in classroom settings.

Self-Fulfilling Prophecy in Education

A teacher influences the academic development of many individuals at one time. Whether teachers propagate self-fulfilling prophecies that affect the academic progress or abilities of students was investigated by Rosenthal and Jacobson (1968) in their classic work, *Pygmalion in the Classroom*. The investigation tapped 1st through 6th grade classrooms to determine whether teachers' expectations of student ability could affect actual academic performance.

The targeted schools were in low- to middle-income neighborhoods in the South San Francisco school district. Students in each school were given an intelligence quotient (I.Q.) test. Teachers were told some students were 'bloomers,' who would show substantial I.Q. score

increases by the end of the year. All students in grades 1-6 were randomly selected and divided into either a control or experimental group. The experimental group was labeled 'late bloomers.' Testing of the students at the end of the academic year showed the 'late bloomer' group improved significantly in I.Q. (12 points) over the control group (8 points). Compared to the late bloomers at higher grade levels, first and second graders accounted for the greatest amount of variability in the results.

It was suspected that teachers with little information to use in forming expectations were the most susceptible to expectancy effects. This is because early education teachers have minimal academic or behavioral records on children entering grade school, providing less information for forming expectations. During the academic year, teachers unintentionally treated late bloomers differently than the control groups. Late bloomers received more challenging material and higher frequencies of feedback on schoolwork. Additional opportunities and time to respond to the teacher, as well as greater attention, support and encouragement in the classroom were afforded to the late bloomers.

Later research shows self-fulfilling prophecies have an enduring impact on students with learning disabilities (Clark, 1997), of low socio-economic status (Rist, 1970), or an ethnic background (Boer, Bosker, & van der Werf, 2010). Further, intervention strategies exist which are targeted at reducing the effects of teacher expectations in early education classrooms (Good & Nichols, 2001; Hughes, 2010). Another arena where children are exposed to distinct teaching methods is that of physical education. To determine whether a self-fulfilling prophecy manifests in this context, researchers designed methods to study the gymnasium environment (Macdonald, 1990; Martinek, 1981; Tabb, 2005; Trouilloud, Sarrazin, Martinek, & Guillet, 2002).

Self-Fulfilling Prophecy in Physical Education

Physical education classrooms are a unique environment and place demands on a different knowledge base and skill set than academic classes. Students need to execute physical skills like running, jumping and climbing to participate in everyday activities as opposed to demonstrating academic ability through reading or mathematics. Activities will frequently be performed in groups and can be goal-oriented requiring sharing. Field research showed physical education classes can foster socioemotional growth through the presentation of situations that require moral decision-making, such as sharing equipment or play time (Solomon, 2007).

However, physical education courses are like academic classes in that they are leader-driven and graded by participation, performance, or improvement. Expectancy research was extended to the gymnasium to determine if self-fulfilling prophecies exist and function in the same way as in classrooms. Results indicate that teacher expectations in physical education classes influence and predict student physical ability (Macdonald, 1990; Trouilloud et al., 2002). That is, preconceived notions that a physical educator holds about the physical aptitude of a student influence class performance.

Regardless of a student's initial perceived physical ability, teacher expectations play a mediating role in student perceptions of physical ability late in the academic year. One study indicated that a significant amount of variance in student grades was attributable to the effects of self-fulfilling prophecies. Physical educator expectations of student ability were not fully accurate, which had an effect on student performance and eventually final grades (Trouilloud et al., 2002). As an example, underestimating a student could influence the child to perform worse in class and result in a lower final grade than what he or she is otherwise capable of earning. How well students were able to perform to meet the demands of physical education classes was

only partially attributable to the grade outcomes. In part, the ability of students to develop and execute physical skills in the gymnasium was influenced by teacher expectations, thus effecting final grades. The power of teacher expectations undeniably impacts student performance and achievement in physical education settings (Trouilloud et al., 2002). In physical education classes, expectations are informed by student characteristics that are not related to physical skills, such as attractiveness, race, and gender (Macdonald, 1990; Martinek, 1981; Tabb, 2005).

In an ideal classroom setting, an educator would expect each student to improve regardless of pre-existing abilities or physical traits. Attractive children are expected to perform better and be more socially apt compared to their less attractive counterparts (Martinek, 1981). Educators who are able to overcome language barriers are less likely to hold negative views and expectations of non-English-speaking students (Tabb, 2005). Males in physical education classes were anticipated to perform better than their female classmates (Macdonald, 1980). Unspoken or unrealized biases of a physical educator influence the initial assessment of a student. Biases can be overcome with increased teacher awareness and education (Macdonald, 1980; Martinek, 1981; Tabb, 2005).

Physical education classes provide students the opportunity to learn better coordination, physical skills and the basics of sports in a low-pressure context. Athletes regularly train to possess and later use physical skills and strategy in a highly structured, rule-based competitive setting under varying degrees of pressure. Despite the differences from a traditional academic setting, athletes are still pupils under the tutelage of an instructor (or instructors) and are susceptible to the power of coach expectations.

The Expectancy Cycle

The potential effects coach expectations have on player performance are demonstrated by

a four-step cycle (Horn, Lox, & Labrador, 2010; Solomon, 2001a). In step one, a coach generates expectations of player ability and performance for the season. The expectations are based on impression cues, specific pieces of information about an individual integrated to form a global assessment of a player (Greenlees, Leyland, Thelwell, & Filby, 2008). Impression cues pertaining to athletes' personal (i.e. age, height, weight, gender), performance (i.e. power, agility, coordination, balance, past performance) and psychological (i.e. confidence, anxiety, motivation, goal-orientation) characteristics are utilized in forming expectations about performance (Horn et al., 2010; Solomon, 2001a; Weiss & Amorose, 2008). Information gathered during step one of the expectancy cycle influences the way a coach behaves toward an athlete. This is because the coach has collected enough information to form an opinion and make a prediction about the future performances and behavior of a given athlete.

The second step occurs when coach expectations affect behavior toward an athlete. Whether an athlete is classified as high- or low-expectancy influences the type and quantity of feedback that player receives. For example, high-expectancy interscholastic student-athletes receive more praise and instruction than low-expectancy teammates (Stephens & Wilson, 2007). Rosenthal (1974) identified factors that mediate the influence of Step 2 of the expectancy cycle. The components of Rosenthal's four factor theory are climate, input, output, and feedback. The socioemotional environment a coach creates through nonverbal interactions with an athlete is referred to as climate. If the athlete receives frowns and looks of disapproval, the environment becomes more negative and the player will dread exchanges with the coach. Input can be described as the amount and challenge of material, such as skating drills or off-ice practice, the coach gives the player. Output refers to the opportunities a coach allows an athlete to give verbal or nonverbal responses. For example, a coach asks for feedback about an on-ice drill and allows

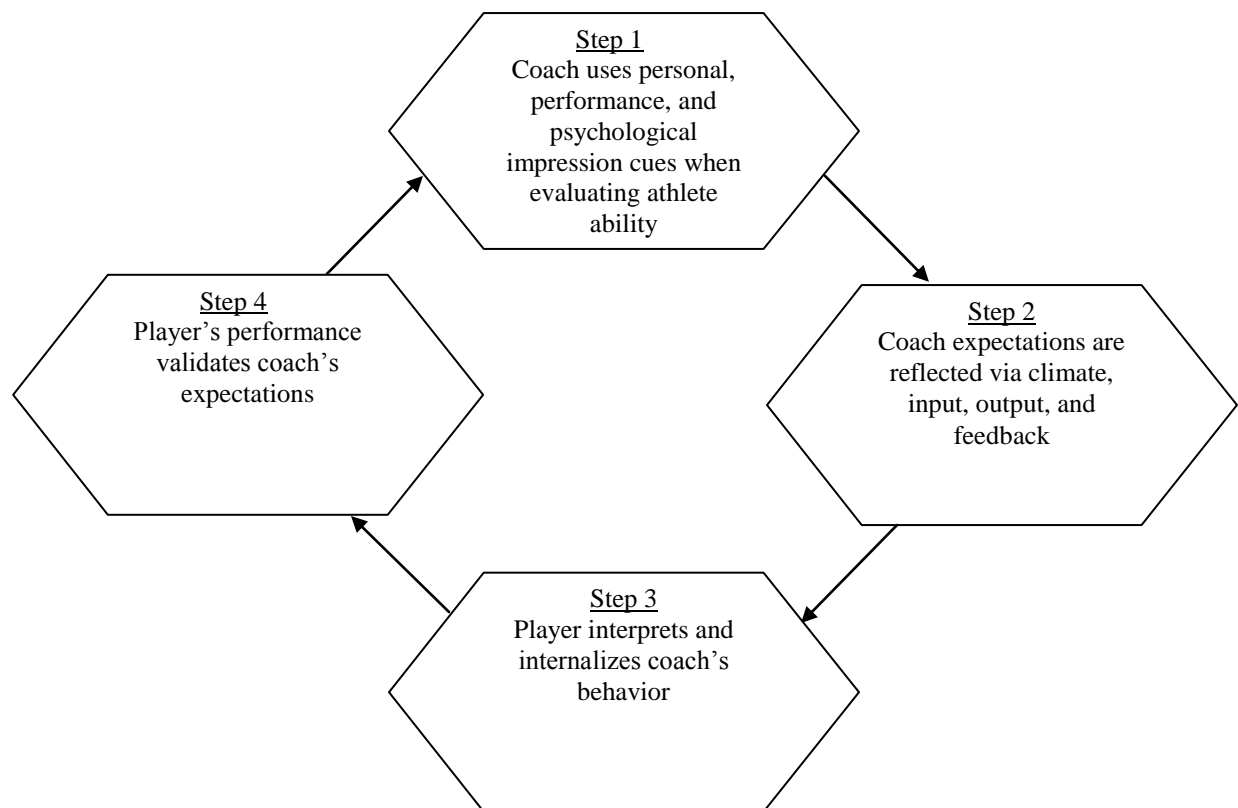
enough time for a response. The type and quantity of verbal information given to an athlete following game or practice performances is termed feedback (Rosenthal, 1974). Much of the expectancy research assesses the dyadic interactions between coaches and athletes. After expectations are formed in step one and acted on by the coach during step two, the player responds to coach behavior.

During the third step, the athlete will interpret and internalize the coach's actions to the point that game performance is affected (Horn, 1984; Horn et al., 2010). Based on the coach's behavior, the athlete will form an assumption about his or her own ability to perform. By step three, the initial assumptions a coach makes about a specific player and the resulting feedback that athlete receives will ultimately have affected his or her behavior and sport performance. Cognitions have the power to affect performance, as demonstrated by the next stage of the expectancy cycle.

At the fourth step, disparities between actual athlete performance and coach expectations are reconciled. The athlete's behavior conforms to and validates the coach's expectations (Horn, 1984). The cycle self-perpetuates at the fourth step, because the coach believes, rightly or wrongly, that he or she is a good judge of athlete ability (Becker & Solomon, 2005; Solomon, 2008a). At the culmination of the fourth step, the expectancy cycle begins again (Figure 1). Previous research focused on Step 2 of the expectancy cycle, identifying, quantifying and analyzing type and frequency of feedback athletes receive from coaches (Allen & Howe, 1998; Horn, 1984; Rosenthal, 1974; Solomon, DiMarco, Ohlson, & Reece, 1998; Solomon & Kosmitzki, 1996; Solomon, Striegel, Eliot, Heon, Maas, & Wayda, 1996; Stephens & Wilson, 2007). Identifying what information sets one athlete apart from another on the basis of expectations aids researchers in designing targeted coach interventions.

The information relevant to forming expectations of athletic performance needs to be identified. This will allow a better understanding of what information drawn on by coaches during Step 1 of the expectancy cycle is predictive of success. Solomon and corroborating researchers developed a significant body of work that shed light on the impression cues salient to head and assistant coaches when evaluating athletes (Becker & Solomon, 2005; Solomon, 2001a, 2001b, 2002a, 2002b, 2008b, 2010; Solomon & Lobinger, 2011; Solomon & Rhea, 2008). Coaches draw on a variety of athlete characteristics in forming expectations of sport performance. A primary focus of this project is identifying and measuring the information collegiate hockey coaches use during Step 1 of the expectancy cycle.

Figure 1. The expectancy cycle applied in coaching.



(Horn et al. 2010; Solomon, 2001a)

Expectancy Effects in Sport

In the context of sport, the coaching staff forms expectations about player performance and development. A coach must judge whether an athlete will be a productive member of the team and if that player's personality will blend well with the coaching style of the staff and characteristics of his or her team. The impression an athlete makes on the coach directly affects the style and frequency of interactions between player and coach throughout the season. Research shows that high school, junior college, college, and elite head coaches, regardless of experience, gender, or sport type give different feedback to high-expectation versus low-expectation athletes (Sinclair & Vealey, 1989; Solomon, 2010; Solomon, DiMarco, et al., 1998; Solomon, Golden, Ciapponi, & Martin, 1998; Solomon & Kosmitzki, 1996; Solomon et al., 1996). The kind of feedback given differs between coach types. Assistant coach feedback was less mistake-contingent, more focused on encouraging and reinforcing player behaviors, and did not differ between high- and low-expectancy players as compared to feedback from the head coach (Solomon et al., 1996). However, differences in coach feedback are ambiguous in youth sport settings (Horn, 1984; Rejeski, Darracott, & Hutslar, 1979; Solomon, 2008a). Disparities in the type (instruction and praise) and quantity of feedback youth athletes received did not consistently mirror findings in high schools and at higher competitive levels (Solomon, 2008a). Coaches providing equivocal amounts of praise and instruction to youth athletes showed that the amount and type of feedback is independent of athlete ability. This may be due to lower-level athletes requiring more instruction and praise in attempting skill acquisition or mastery than more experienced players.

From high school to elite levels of competition, disparities in the treatment of athletes are observable through coach feedback. A high-expectancy athlete is differentiated from a low-

expectancy athlete by the type and quality of feedback provided by the head coach (Horn, 1984; Solomon & Kosmitzki, 1996; Solomon et al., 1996). A study of expectancy effects in youth sports showed coach-athlete interactions differ between high- and low-expectancy athletes (Stephen & Wilson, 2007). High-expectancy players perceived they received more time with coaches as well as greater privileges and trust. Athletes who coaches expect poor performance from believed they experienced more admonishment, were afforded less time to master drills, and feelings of inferiority (Stephen & Wilson, 2007).

In an investigation targeting youth softball, it was discovered that an athlete subject to high coach expectations receives more effective and positive instruction (Horn, 1984). This disparity in the type of feedback afforded high-expectancy athletes occurred most during game situations. The low-expectancy youth softball athletes experienced higher frequencies of feedback in the form of technical instruction and mistake-contingent feedback as well as praise for successful execution of sports skills (Horn, 1984). The treatment and privileges afforded high- and low-expectancy athletes differ at the high school level as well (Stephens & Wilson, 2007).

Depending on coaches' expectations, high school athletes were found to receive different treatment in the form of feedback and privileges. More praise and instruction is given to high-expectancy interscholastic athletes. High school coaches also give greater privileges and trust to high-expectancy athletes (Stephens & Wilson, 2007). In high school, high-expectancy athletes are expected to meet or exceed coach effort and performance expectations during the season. Whether expectations are met by the end of the season or not, coaches of high school teams perceive greater improvement and harder work from high-expectancy players (Wilson, Cushion, & Stevens, 2006). Athletes subject to low expectations have a definitively different experience.

Low-expectancy athletes are distinguishable by the quantity and type of feedback given by the coach at the high school, collegiate, and elite level (Solomon, Golden et al., 1998; Wilson et al., 2006). However, a similarity in coach feedback exists in collegiate and high school sports in that a high-expectancy athlete is given more corrective instruction in practice, as well as encouragement to work on sport skills outside of practice (Solomon, DiMarco et al., 1998; Stephens & Wilson, 2007). Typically, low-expectancy high school and college athletes receive more admonishment and less praise or instruction (Solomon, DiMarco et al., 1998; Wilson et al., 2006). The quantity of certain types of feedback differs by competitive level. Researchers have observed that low-expectancy high school athletes receive more criticism and less enthusiastic responses during games regarding overall work rate and skill (Wilson et al., 2006). The feedback given to low- or high-expectancy athletes is not consistently different when comparing head and assistant coaches who have more or less than 10 years of experience (Solomon, DiMarco et al., 1998).

In summary, high-expectancy athletes from high school, collegiate, and elite levels get better and more frequent feedback than their low-expectancy counterparts from both head and assistant coaches. Low-expectancy athletes receive more criticism and less quality feedback (Solomon, DiMarco et al., 1998; Solomon, Golden et al., 1998; Wilson et al., 2006).

Expectations of game performance are formed through a coach observing the characteristics of each player

Sources of Expectancy Information

Expectancy research investigating the information coaches draw upon during player assessments stated that personal and performance impression cues are the dominant information used during Step 1 of the expectancy cycle in sport (Horn, Lox, & Labrador, 2010). These two

categories of player characteristics were believed to encompass the information relevant to a coach when forming expectations of an athlete. Performance (e.g., effort in practice, practice behaviors, past performance, skill tests) and personal (e.g., gender, ethnicity, age, physical attractiveness) cues were believed to influence coach behavior toward an athlete, leading to the second step of the expectancy cycle (Martinek, Crowe, & Rejeski, 1982). One researcher noted that the original presentation of the four-step cycle assumed coaches drew from two sources of information when assessing athletes and posited that psychological information is relevant as well (Solomon, 2001a). This demonstrated the need to identify what expectancy sources are utilized by coaches when evaluating players and expand on research on Step 1 of the cycle.

A study incorporating expectancy and confidence measures was developed to assess coaches' use of personal, performance, and psychological impression information (Solomon, 2001a). Utilizing the Expectancy Rating Scale (ERS) and Trait Sport Confidence Inventory (TSCI) coaches' use of physical and psychological information was assessed. The only psychological impression cue measured was confidence. As an expectancy source, confidence was shown to be used in combination with physical impression information in predicting athletic performance (Solomon, 2001a). This meant coaches employ multiple sources of expectancy information when evaluating players. Further, confidence was the only impression cue used by collegiate head coaches that is predictive of actual athletic performance (Solomon, 2001a, 2002a). This study and its follow-up incontrovertibly demonstrated that coaches employ psychological impression information in player assessments. Since confidence was the only psychological cue tested, additional research was necessary to identify what other psychological expectancy sources are utilized by coaches. This allowed for the creation of a tool to capture the sources used by sport coaches

The Solomon Expectancy Sources Scale (SESS; Solomon, 2008; Appendix C) is a measure used to assess the sources of expectancy information coaches use when evaluating athletes. Pilot work for the original SESS gathered qualitative data from 18 Division I head coach interviews (Solomon & Rhea, 2008). Twelve interview questions were generated and follow-up questions were included as needed to clarify or prompt more complete responses to interview items. The interview data elicited 332 quotes collapsed into 56 categories based on content. Coach responses were organized by content into 17 thematically-based groups and further condensed into six dimensions of expectancy information. Three of the dimensions were pre-existing in expectancy theory (performance, personal, psychological) and three additional categories (cognitive, mistakes, knowledge from others) emerged as a result of the analyses and logical grouping of coach responses (Solomon & Rhea, 2008). These data were employed during the initiation of a three-phase follow-up investigation purposed at instrument construction and resulting in the development of the SESS (Solomon, 2008). In the first phase, a database of all Division I head and assistant coaches (N=11,518) was created. From this database, a random sample of 250 coaches was invited to take the SESS which originally consisted of 45 items generated from the interview data (Solomon & Rhea, 2008). Of the coaches invited to participate, 41 percent (n=100) returned usable questionnaires. Of the 100 coaches, one was an ice hockey coach. The survey responses were grouped by content and revealed six factors coaches use to assess athlete ability: Coachability (13 items), Physical Ability (5 items), Mental Toughness (5 items), Maturity (4 items), Positive Self Beliefs (6 items), and Work Ethic (4 items). Following analysis and the organization of six logical groups of expectancy information eight items (skill testing, previous performance, performance in drills, academic standing, other coaches' opinions, other athletes' opinions, assuming athletes improve, and knowing I can

change athlete) were eliminated because they did not definitively fit into a factor.

Phase two polled all coaches from the six Division I schools in Northern California (n=260). Of the coaches sampled, 82 respondents returned usable questionnaires (32%). The data from Phase 2 were analyzed and compared to the results from Phase 1. Between Phases one and two, the 37 items on the original questionnaire that loaded into six factors (Coachability, Physical Ability, Mental Toughness, Maturity, Positive Self-Beliefs, and Work Ethic) were reduced to 34. The remaining items were grouped under six factors for the third leg of the study. In Phase 3, 250 head and assistant coaches were again randomly selected from the database of Division I coaches. From the 250 coaches invited to participate, 92 (37%) returned usable questionnaires, including one ice hockey coach. The data underwent factor analyses to reveal that four factors account for the information coaches use when evaluating players (Coachability, Team Player, Physical Ability, Maturity) and was finalized as a 30-item questionnaire named the Solomon Expectancy Sources Scale (Solomon, 2008).

The SESS in Research

The final iteration of the Solomon Expectancy Sources Scale was applied successfully on multiple coach populations to assess the type of information utilized during player evaluations. Prior to publication of the instrument in 2008, the SESS was applied in thesis research on the sources of expectancy information used by more (career win percentage above 60%) and less (career win percentage at or below 50%) successful DI head basketball coaches. While the importance of expectancy sources did not differ significantly between coach groups, individual SESS item ratings showed a trend in the impression cues salient to head coaches of varying levels of success. Successful coaches rated psychological factors higher than player physical characteristics during evaluations of athlete ability (Becker & Solomon, 2005). This means that

while coaches at varying levels of career success did not find different sources of information salient during player evaluations, some expectancy sources were more important than others. Further investigation was needed to identify what expectancy information was employed during player assessments by coaches at different competitive levels.

In the three phases of development of the SESS, Division I collegiate head and assistant coaches were studied to identify player characteristics meaningful during athlete evaluations. Studies following the publication of the Solomon Expectancy Sources Scale have sampled DI coaches of various sports and included junior college head and assistant track and field coaches (Solomon et al., 2012; Solomon & Lobinger, 2011). These investigations served to validate the SESS and shed light on the valuation of expectancy sources in varied athletic settings.

A study investigating the sources of expectancy information utilized by DI coaches of basketball (a team sport) and golf (an individual sport) showed Physical Ability and Coachability were prioritized .31 and .24 higher by basketball coaches (Solomon et al., 2012). While the samples of basketball (n=34) and golf (n=59) coaches were small and statistical findings must be taken with caution, results demonstrated that coaches of different sports value some expectancy sources over others. Across the Division I and junior college competitive levels, regardless of sport type, psychological expectancy sources are rated highest during player evaluations (Becker & Solomon, 2005; Solomon, 2001a, 2002b, 2010; Solomon et al., 2012; Solomon & Lobinger, 2011). Although coaches of team and individual sports rated expectancy sources differently, it is clear that psychological impression information is valued over physical. Up to this point the SESS was not tested internationally. A study comparing U.S. and German-trained coaches tested the utility of the SESS cross-culturally and ascertained whether evaluative criteria employed by U.S. and non-U.S. coaches differed (Solomon & Lobinger, 2011).

Just as academic institutions and certifying bodies in the United States train individuals in the coaching profession, organizations and academies exist in Germany to provide skills and education to current and future coaches. The relevance of SESS items and factors were tested on NCAA Division I and German head and assistant coaches across multiple sports. Findings pertaining to coach nationality illustrated that American coaches rated the four SESS factors higher than their German counterparts (Solomon & Lobinger, 2011). This indicated the SESS may not capture all of the expectancy sources relevant to German coaches. Both groups of coaches prioritized the four factors of the SESS in the same order, further supporting the assertion that athletes' psychological qualities are more salient to than physical characteristics (Becker & Solomon, 2005; Solomon, 2001a, 2002b, 2010; Solomon et al., 2012; Solomon & Lobinger, 2011). Since the prioritization of expectancy information was compared by coach status, gender, nationality, and sport type in previous work, follow-up research further applied the SESS and examined unstudied coach characteristics influencing the salience of expectancy sources.

Linking research on optimism and business success to the sport environment, one study found that coaches rated higher in optimism by their athletes were perceived to be more effective as a coach (Becker, Solomon, & Cameron, 2010; Seligman & Schulman, 1986). Coaches tend to rate themselves high in optimism and those coaches who actually are optimistic rate Coachability as more important than their pessimistic counterparts (Solomon et al., 2012). The results showed personality characteristics may impact the salience of impression information to coaches and further verified the utility of the SESS in multiple NCAA DI sports.

Through limited use with American populations, the Solomon Expectancy Sources Scale has proven to be a reliable tool for identifying the expectancy sources used by U.S. coaches

(Becker & Solomon, 2005; Solomon, 2008a, 2008b, 2010). Since ice hockey represented a small percentage of the total respondents across all three phases of SESS development, this investigation will further demonstrate the robustness of the tool. Of the 274 coaches sampled during the development of the SESS, two ice hockey coaches were selected. It is also attributable to random selection being less likely due to the lesser number of collegiate ice hockey teams in the United States as compared to more numerous baseball, basketball, and football programs. Although the SESS was not utilized with hockey teams at the exclusion of other sports, its validation through two studies at the collegiate level makes the Solomon Expectancy Sources Scale an ideal instrument (Solomon, 2008b, 2010). Employing the SESS in this investigation will validate its effectiveness with hockey populations. The development of the SESS facilitates the empirical study of Step One of the expectancy cycle in ice hockey and other sports.

Impression Information and Performance Prediction

When forming expectations of an athlete's performance, a coach evaluates specific individual qualities. Psychological, personal and performance impression cues are used by coaches forming expectations of athletes (Horn et al., 2010; Martinek et al., 1982; Solomon, 2001a). Through the refinement of qualitative data, the SESS studies reinforced previous research that collegiate coaches find performance and psychological traits relevant when forming expectations of athletes (Solomon, 2008b; Solomon & Rhea, 2008). When evaluating athletes, head coaches referenced psychological qualities more frequently than physical ones. Confidence is a critical psychological impression cue utilized by coaches in forming expectations about sport performance (Solomon, 2001a, 2002a). As an impression cue valued by head coaches, confidence was shown to be predictive of athletic performance (Solomon, 2001a; 2002a). Albert Bandura's (1977) seminal work in self-efficacy laid the foundation for later theorists to study

how athletes acquire or build confidence. Studies in self-efficacy led to the development of psychometric measures for assessing confidence in athletes and a theory of confidence specific to sport.

Confidence in Sport

The concept of confidence receives attention in sports when an athlete makes a spectacular play in a high-pressure situation or chokes at a critical moment. For some athletes, confidence is a daily struggle and fluctuates depending on the situation. A two-time Olympic medalist in the 200 meter backstroke likely experiences different levels of confidence during qualifying rounds compared to a final event. In order to study how confidence interacts with performance in any sport situation, the term confidence needed an operational definition. As part of a larger theoretical framework, Bandura operationalized and described this abstract psychological quality.

Early Work in Confidence

Under the umbrella of social learning theory, self-efficacy research laid the groundwork for investigating confidence in sport in two major ways. First, self-efficacy was conceptualized and defined. Second, the sources of information that contribute to self-efficacy were identified.

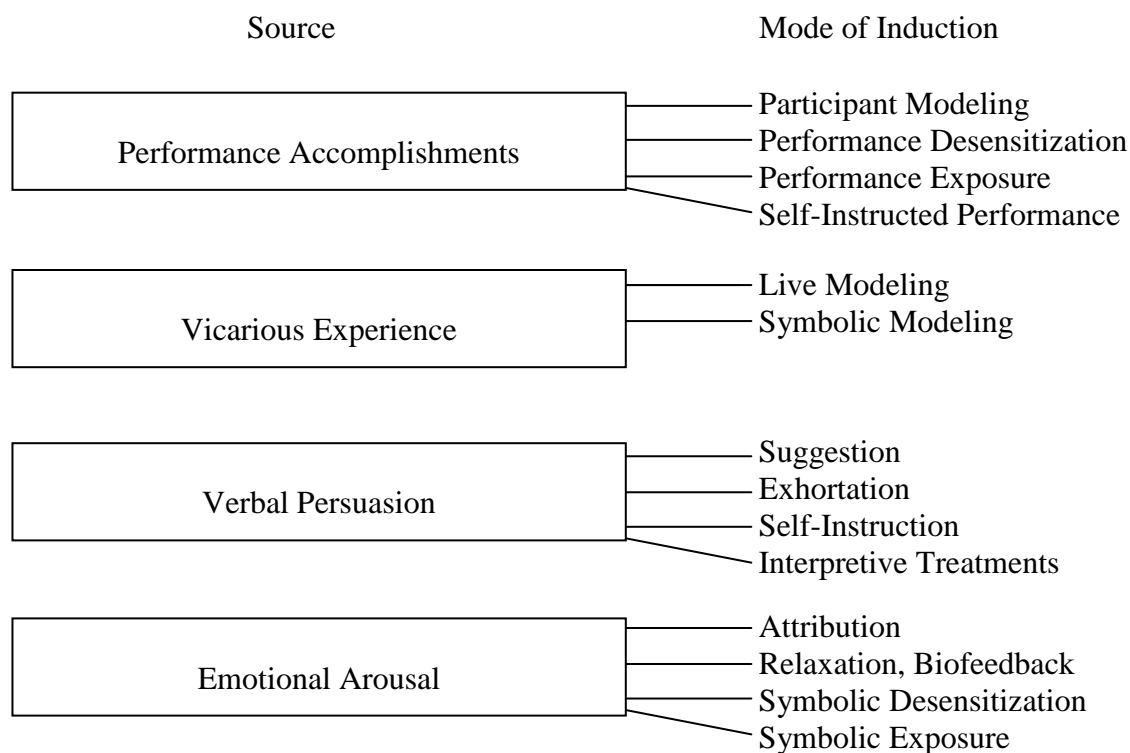
Bandura proposed social learning theory in 1971, followed by an extension (1977) of that work which described self-efficacy. The theory states that frameworks for new behaviors are learned via observations of others (Bandura, 1971). Newly learned frameworks for behavior will be attempted at a later time and corrected or refined in response to performance-based feedback (Bandura, 1977). The concept of self-efficacy was integrated with social learning theory to describe the level of belief an individual has in his or her ability to plan and execute a behavior successfully. How efficacious a person feels toward accomplishing a given task is partially

determined by the relative contribution of four sources of information (Figure 2). Each of these sources (performance accomplishments, vicarious experience, verbal persuasion, and emotional arousal) houses experiences identified in previous research targeted at the treatment of phobic behaviors via increasing self-efficacy (Bandura, 1977).

Sources of Information for Evaluating Confidence

The four sources of efficacy (mastery experiences, vicarious experiences, verbal persuasion, physiological arousal) provide information necessary to evaluate the likelihood of success in a particular situation. According to Bandura (1977), mastery experiences are past experiences of successful performances. A mastery experience better enhances self-efficacy when an individual perceives success came from skill and effort rather than external factors such as luck or outside assistance (Bandura, 1997; Margolis & McCabe, 2006). When an individual

Figure 2. Sources of Self-Efficacy Information



(Bandura, 1977)

watches another person perform a behavior successfully, the witnessed behavior serves as a guide for future action and is termed a vicarious experience. These types of experiences are the second most effective source of self-efficacy information and are buttressed by watching like models (age, sex, skill) complete a similar task successfully. As with observing a like model, watching a task with similar demands and situational factors completed successfully provides a more effective vicarious experience (Margolis & McCabe, 2006; Weiss, McCullagh, Smith, & Berlant, 1998). Verbal persuasion is information orally communicated to an individual with the purpose of building confidence. This source of sport-confidence is enhanced when the encouragement and the people offering encouragement are believable, trusted and credible (Bandura, 1977; Margolis & McCabe, 2006). Physiological arousal as a source of self-efficacy information depends predominantly on the individual's interpretation of arousal. Viewing arousal as manageable and attributable to situational factors produces higher self-efficacy (Bandura, 1977). Identifying these four types of information (mastery experiences, vicarious experiences, verbal persuasion and physiological arousal) as contributing to feelings of self-efficacy shows confidence is modulated by sources internal and external to the individual.

Bandura's (1977) extension of social learning theory provided concepts that could be adopted and modified for confidence research in sport. Vealey's (1986) dissertation work attempted to explain the role of confidence in sport and identify the sources of confidence athletes find most salient. Bandura's work on self-efficacy and the four sources of efficacy information acted as a guiding framework for research describing confidence specific to athletes.

Sport-Confidence Model

Within the framework of social cognitive theory, Bandura proposed the concept of situation-specific confidence (Bandura, 1977). The notion that confidence is context-specific

provides reason to explore how confidence is defined and evaluated in different environments. Sports provided an avenue for new confidence research.

Vealey (1986) presented a theoretical framework describing confidence in sports and the experiences that contribute to athletes' feelings of confidence. This incarnation of the Sport-Confidence Model borrowed from Bandura's (1977), Harter's (1978) and Nicholls' (1979) work in conceptualizing and justifying a new framework for describing and predicting self-efficacy in sport. The sport-confidence model was refined and supported by subsequent research and serves as the theoretical basis for investigating confidence in the present study (Vealey, 1986, 1988; Vealey & Chase, 2008). Sport-confidence is an athlete's belief in his or her own ability to succeed in sport (Vealey, 1986). Since this investigation is grounded in sports, a definition of confidence specific to athletes is most appropriate. The concept can be applied in any sport or game situation to describe an athlete's level of confidence at a given moment (Feltz, 2007). Sport-confidence fluctuates throughout a game; there is not one level of sport-confidence for hockey power plays and another for shootouts.

Vealey's initial work on sport-confidence spurred further research into confidence in athletics. It also provides a term for confidence that is applicable to any sport-specific behavior affected by an athlete's self perceptions. Continued research by Vealey (1988) revealed a need to adopt situational and personality factors that moderate sport-confidence.

Additions to the Sport-Confidence Model

The original model proposed by Vealey (1986) was expanded to account for findings related to sport-confidence. Changes were made to accommodate interpretations of success, how confident an athlete feels at a given moment, and confidence as a personality trait. An athlete's level of confidence at any time during competition was believed to be due to the interaction of

personality traits and perceptions of success. Inspired by Nicholls' (1979) work on how people interpret success, Vealey (1988) acknowledged athletes may have different interpretations of success, or competitive orientation. In the sport-confidence model, competitive orientation is a construct that refers to what an athlete strives for or defines as success. For example, an athlete who views success as effective execution of sports skills is said to have a performance orientation. An athlete who views success as winning or beating an opponent has an outcome orientation (Nicholls, 1979; Vealey, 1988). Competitive orientation is one of two stable athlete characteristics that influence confidence at-the-moment. Sport-confidence-trait (SC-trait) is a stable personal characteristic representing an athlete's disposition of confidence. The interaction of competitive orientation and SC-trait were theorized to predict sport-confidence-state (SC-state). SC-state is the level of confidence an athlete possesses at a given time and is less stable than competitive orientation and SC-trait (Vealey, 1988). However, research shows SC-state does not predict performance as well as SC-trait (Vealey & Chase, 2008). SC-trait is based on stable, controllable sources of confidence (e.g. past experiences, demonstrations of ability) more so than SC-state, which is drawn from uncontrollable sources (e.g. breaks from officials, environment). Due to its stability and link to stable sources of confidence salient to athletes, SC-trait is a better predictor of performance than SC-state (Vealey & Chase, 2008; Vealey, Hayashi, Garner-Holman, & Giacobbi, 1998).

A revision of the Sport-Confidence Model by Vealey and Knight (2002) changed the confidence-at-the-moment (SC-state) and confidence disposition (SC-trait) paradigm in theory and instrumentation. Confidence is viewed as a feeling fluctuating along a continuum and over time, rather than the result of separate, interacting personal qualities (Bandura, 1977; Vealey & Chase, 2008). SC-trait and SC-state are no longer independently defined components of sport-

confidence. Both sport-confidence-state and -trait are incorporated into the operational definition of sport-confidence to acknowledge that SC fluctuates over time and can be impacted by situational factors (Vealey & Chase, 2008).

Since SC-trait is no longer believed to interact with competitive orientation, its role has changed in the SC model. Competitive orientation is instead considered demographic information describing personality characteristics the same way age, sex, and gender describes the physical qualities of a person (Vealey & Chase, 2008). Defining SC in this way accounts for Bandura's (1997) self-efficacy theory stating confidence is a dynamic property and not a trait. In the sport-confidence model, sport-confidence is viewed as a construct that must be assessed temporally (confidence now, over the season, or across the past year). Vealey (1986) recognized that sport-confidence is not spontaneously generated, that feelings of SC must come from an athlete's experiences. In social cognitive theory, self-efficacy is derived from real experiences. The life events or experiences that build self-efficacy beliefs were categorized into one of nine sources of information. Vealey adapted Bandura's (1977) sources of self-efficacy information and applied them to the context of sport.

Sources of Information for Evaluating Sport-Confidence

Sport-confidence is fed by four sources of information: performance accomplishment, vicarious experiences, social persuasion and physiological arousal. These four sources of self-efficacy information are based on Bandura's (1977) work. The behaviors or circumstances contributing to each source of information reflect an athlete's real-life experiences. For example, performance accomplishments are derived from successful execution of sport skills, winning, demonstration of athletic ability and past successes in sport. This construct differs from mastery experiences in social learning theory. The difference arises, because performance

accomplishments include winning and encompass skill execution and demonstration of ability under 'past successful performance.' Vicarious experiences, social persuasion and physiological arousal are altered in similar ways and are shown to be sources of confidence for athletes (Law & Hall, 2009; Vealey, 1986). Physiological arousal in the SC model accounts for autonomic arousal (anxiety and arousal) in self-efficacy theory (Bandura, 1997). However, the sport-confidence model is broadened to include fitness, fatigue, and pain (Vealey, 1986). Bandura's work in self-efficacy theory provided the groundwork for identifying what fuels athlete confidence. Vealey's research validates the sources of sport-confidence borrowed from Bandura (1997) and identifies additional sources relevant to sport.

Confidence Instrumentation

Prior to the development of the Sources of Sport Confidence Questionnaire (SSCQ; Vealey et al., 1998), a standardized and validated tool for assessing self-efficacy in sport and physical activity did not exist. Among the tools for identifying sources of athlete confidence, the SSCQ has proven to be the best validated tool for measuring how athletes assess ability to perform in sports (Feltz & Lirgg, 2001). Since levels of self-efficacy vary by situation, it is Bandura's (2006) belief a one-size-fits-all tool is unable to gauge self-efficacy for every situation. This is grounded in the assumption that certain tasks are different enough that a single standardized scale cannot adequately capture self-efficacy in every possible task. Instead, Bandura and others suggest scales for each general area of behavior should be developed, like sport, weight management, or elementary school math (Bandura, 2006; McAuley & Gill, 1983; Ryckman, Robbins, Thornton, & Cantrell, 1982). In order to perform replicable empirical research, a standardized, valid, and reliable instrument is necessary. Measures for assessing self-efficacy in athletes and exercisers exist.

Alternative Measures for Self-Efficacy in Sport

The Physical Self-Efficacy Scale (PSE) was developed to be a general measure of self-efficacy in sport and physical activity (Ryckman et al., 1982). While the PSE has been validated in sport settings (Bandura, 2006; Feltz & Lirgg, 2001), some research indicates the instrument lacks construct validity and serves as a better measure of self-concept (Feltz & Chase, 1998; Maddux & Meier, 1995). This is because the items were not developed in a goal-striving context such as sport (Feltz & Lirgg, 2001). Consequently, the questionnaire pertains more to an athlete's perceptions of his or her own physical abilities and capacity to demonstrate sport skills than to feelings concerning actual game performance. The study sampled depressed non-athletes, but nonetheless raises concerns about the validity of the PSE in mentally healthy athletic populations (Feltz & Lirgg, 2001). One tool better illustrates what is meaningful to an athlete's appraisal of his or her own ability to perform in practices or games. Since a situation-specific scale is favorable for measuring self-efficacy, the SSCQ is ideal. The scale is based on Bandura's research and includes sources of confidence validated across sport type and skill levels (Adegbesan, 2010; Vealey et al., 1998).

Refining Sport-Confidence Theory

Changes to the four sources of sport-confidence were made during the development of the Sources of Sport-Confidence Questionnaire. The contents of performance accomplishments, verbal persuasion and physiological arousal were divided among eight new subscales. Of the original four sources of sport-confidence inspired by Bandura, vicarious experiences remained predominantly the same and retained its name. In total, five additional sources of information were identified and included in the sport-confidence model during the construction of the SSCQ (Vealey et al., 1998). Each source included in the final nine SSCQ subscales is part of the sport-

confidence model.

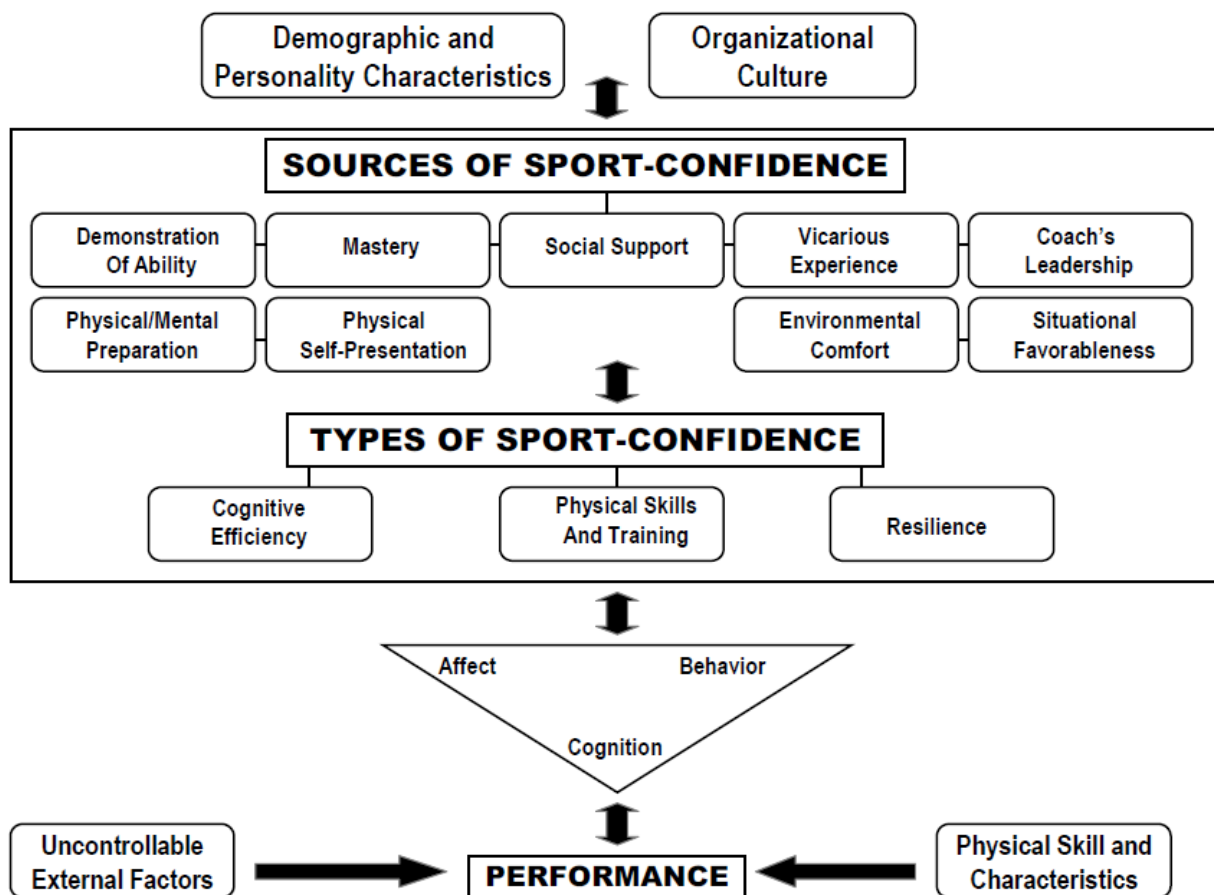
Sport efficacy beliefs can be drawn from any combination of sources, but some are more salient than others. For instance, a basketball player sinking a challenging shot (mastery) provides more information pertaining to actual performance and stronger feelings of confidence about shooting ability than feeling lucky (situational favorableness). Following the final phase of SSCQ development, the sources of sport-confidence important to athletes were ranked from highest to lowest according to athletes' item ratings. In descending order of importance, the sources are: mastery, demonstration of ability, physical/mental preparation, physical self-presentation, social support, coach's leadership, vicarious experience, environmental comfort, and situational favorableness (Vealey et al., 1998).

The contributions of the nine sources of confidence information to sport-confidence are explained via the SC model (see *Figure 3*). A combination of personality characteristics, like competitive orientation, and social factors impacts which of the nine sources of sport-confidence are most salient to an athlete (Magyar & Duda, 2000; Vealey & Chase, 2008). For example, athletes who are focused on skill execution are more likely to draw from sources of sport-confidence like mastery and physical/mental preparation. The relative contribution of each source of sport-confidence salient to an athlete creates an overall sense of confidence in sports settings. Other theorists have contributed to the sport-confidence model.

Hays and colleagues (2009, 2010) proposed additional sources of sport-confidence and a method of assessing athlete confidence in a more individualized way. An alternative method of assessment was developed to provide practitioners with an approach to accessing what experiences an athlete draws on for confidence and what, specifically, an athlete is confident about. Through self-report an athlete creates a confidence profile by rating the relevance of each

source of sport-confidence to his or her performance. Some evidence supports the effectiveness of confidence profiling as an intervention technique bridging the gap between theory and practice (Hays, Maynard, Thomas, & Bawden, 2009; Hays, Thomas, Butt, & Maynard, 2010). However, confidence profiling and Hays' additional sources are not as well studied or widely validated as Vealey's SSCQ and sources of sport-confidence (Chase, Feltz, & Lirgg, 2003). The SSCQ was utilized in determining the importance of sources of sport-confidence by athletes of multiple team and individual sports at the DI and DIII levels of play. The overall highest rated SC source was social support and was followed in order of importance by mastery, physical/mental preparation, coaches' leadership, and demonstration of ability (Machida et al.,

Figure 3. The Sport-Confidence Model



(Vealey & Chase, 2008).

2012). Given that the majority of these Division I and III athletes were female, the SSCQ development studies indicated gender could be a contributing factor to the high rating of social support (Vealey et al., 1998). Self-efficacy research suggests the strongest sources of confidence information are enactive mastery experiences and times when an individual can remember performing successfully (Bandura, 1997). Studies in sport-confidence similarly suggest that past successes like mastery, physical/mental preparation, and demonstration of ability are among the most salient SC sources for athletes (Machida et al., 2012; Vealey et al., 1998). Personal successes in practices and game situations and feelings of preparedness for competitions appear to rate highly among the experiences that contribute to feelings of confidence in sport. The study by Machida and colleagues (2012) demonstrated the ability of the SSCQ to access the information meaningful to sport-confidence for collegiate athletes at the highest and lowest levels of NCAA play.

As the first empirical study investigating sport-confidence and confidence restoration with injured athletes, players from DI, II, and III conferences were studied while undergoing physical rehabilitation programs with their teams' athletic trainers (Magyar & Duda, 2000). Players were assessed at three time points (two days after the beginning, midpoint, and end) during their rehabilitation. Across all three time points trainers' leadership and environmental comfort were the most emphasized by athletes, while confidence restoration progressively increased over time (Magyar & Duda, 2000). This demonstrated the importance of the athletic trainer and the training context to athletes and demonstrated that as players recovered sport-confidence regarding the ability to return to play improved. Given the context, it is possible athletes coping with injury and pursuing rehabilitation prioritize sources of sport-confidence relevant to the environment and their leadership differently than uninjured athletes at the same

levels of play (Demaine & Short, 2007; Machida et al., 2012; Vealey et al., 1998). Although sources of sport-confidence inform practitioners and coaches of experiences that contribute to athlete confidence, the role of confidence in actual game performance is well studied.

Confidence and Competitive Level

An effective meta-analysis can reveal overarching themes and insights across the existing body of work on a given subject. A review of 48 articles investigated the link between cognitive anxiety, self-confidence, and performance in individual and team sport athletes across different levels of play (Woodman & Hardy, 2003). Although none of the articles included in the meta-analysis sampled ice hockey players, the findings demonstrated a relationship between confidence and performance. The majority of studies (76%) reviewed in the meta-analysis found a positive relationship between self-confidence and performance (Woodman & Hardy, 2003). Additionally, results indicated that the importance of confidence to sport performance varies by the caliber of the athlete.

This meta-analysis demonstrated that confidence is linked to performance and is a primary concern for athletes participating in national and international competitions (high-standard athletes). Athletes who compete in state or regional competitions (low-standard athletes) are purported to be less affected by fluctuations in confidence. Low-standard athletes have a broader array of factors that can impact game play, diluting the effects of confidence. One such factor is an athlete possessing little experience in pressure situations. Additionally, lacking automaticity of sport skills (less of a concern for high-level performers) divides attention between skill execution and responding to stimuli in the game (Hardy, Mullen, & Jones, 1996). Outside influences are a result of less controlled personal environments and experience ‘controlling the uncontrollables’ (Woodman & Hardy, 2003).

The results of the meta-analysis should not be taken to mean that confidence is unimportant to non-elite athletes. Confidence is linked to performance in athletes at non-elite levels (Hays et al., 2009; Vealey & Chase, 2008; Woodman & Hardy, 2003). However, changes in confidence and its effect on performance may not be as observable in non-elite athletes, because of the interaction of other life stressors or ‘uncontrollables’. Athletes of all ability levels need confidence to cope with the stressors of competition and play as effectively in-game as during a practice. Taking this information into account, the importance of confidence to athletic performance would be difficult for coaches to overlook when evaluating or preparing an athlete for competition.

Salience of Confidence in Sport

Although confidence building should be incorporated into a conditioning regimen or practice program, coaches have concerns about integrating sport psychology consultants (SPC) into the team and practice environment (Weinberg & Gould, 2010; Zakrajsek, Steinfeldt, Bodey, Martin, & Zizzi, 2013). Despite the impact of confidence on athletic outcomes and coaches’ recognition that mental skills are learnable and important to sport performance many coaches do not intend to enlist the aid of SPCs (Zakrajsek, Martin, & Zizzi, 2011). Concerns about being undermined, the consultant taking on a coaching role, and players developing a dependency on sport psychology services are potential barriers to admittance into an athletic program or department (Zakrajsek et al., 2013). Athletes, especially those who are young, male, or participate in contact sports, may feel working with a sport psychology consultant carries a social stigma (Martin, 2005). This is unfortunate given that a SPC can help an athlete foster confidence which facilitates good performance and strengthens an athlete’s beliefs in the potential for athletic success (Gould, Greenleaf, Chung, & Guinan, 2002a, 2002b; Levy, Nicholls, & Polman,

2009; Vealey et al., 1998; Woodman & Hardy, 2003). Olympic coaches understand the importance of confidence in high-stakes competition.

U.S. coaches at the Atlanta and Nagano Olympics perceived that on the day of competition, confidence is significant to both athlete performance and beliefs about whether medaling is a possibility (Gould et al., 2002a). Olympians from the same games believed confidence had a direct impact in successful performances (Gould et al., 2002b). The importance of confidence in elite and collegiate sport is clear when athletes or teams with similar skill and conditioning compete. This means, hypothetically speaking, two athletes equally matched in physical skills and fitness will not perform to the same level if one athlete is more confident than the other (Gould et al., 2002a; Gould et al., 2002b). An athlete with high confidence is more likely to perform better and have greater consistency across multiple competitions. The confidence-performance relationship is an important aspect of successful game play.

A meta-analysis suggests confidence has a positive, moderate-strength correlation with sport performance (Woodman & Hardy, 2003). This means that feelings of confidence influence an athlete's game play. Though self-efficacy is not the sole determinant of competition outcome, confidence is a significant factor in athletic performance (Vealey & Chase, 2008; Woodman & Hardy, 2003). Congruent with Vealey's theory, athletes' self-reports suggest successful game play is facilitated by the influence of sport-confidence on athlete affect, cognition, and behavior (Hays et al., 2009). Confidence plays an important role in performance and in athletes' beliefs about the likelihood of success. When an athlete behaves in a way that makes physical talent or self-confidence apparent, a coach observes the behavior and forms expectations about the player's future success.

Confidence as an Expectancy Source

Coaches often observe athlete behavior and deem it characteristic of that athlete's personality or abilities. Non-verbal behaviors expressed through body language, like posture and gestures, tells a coach how confident or dominant an athlete feels at a given moment (Furley, Dicks, & Memmert, 2012). For example, a coach witnesses a freshman receiver miss a touchdown pass in practice and the athlete loses his temper. The coach then assumes the athlete is hotheaded and that his temper will get in the way of game performance, causing frequent errors during the season. Once the coach forms an expectation based on information about an athlete, the first step of the expectancy cycle has started.

Step one of the expectancy cycle is fed by coach expectations about player performance. Head coaches use performance, personal, and psychological impression cues when forming expectations of athlete ability (Solomon, 2001a). Confidence is one of many psychological impression cues utilized by coaches and is an item housed in the maturity factor of the SESS (Solomon, 2008b). Head coaches regarded confidence as a salient source of information for evaluating athletes (Solomon, 2001a, 2002a). A study of Division I head coaches determined whether performance or psychological impression cues were predictive of athlete performance. Between performance and confidence, the psychological impression cue, confidence was shown to be predictive of athlete performance (Solomon, 2001a). The SESS was used in later expectancy research to determine the salience of other psychological impression cues to head coaches (Solomon, 2008a, 2010; Solomon & Lobinger, 2011). A series of follow-up studies evaluated the importance of confidence and physical ability as impression cues by assistant coaches.

Physical Ability as an Expectancy Source

An assistant coach generally spends more one-on-one time with athletes than the head coach. Since assistant coaches have a unique perspective, Solomon (2001b, 2002b) believed that the impression cues utilized by assistant coaches merited study. Similar to the head coach studies (Solomon, 2001a, 2002a), Division I athletic teams were surveyed to evaluate the use of two impression cues, physical ability and confidence, by assistant coaches. It was determined that assistant coaches prioritize physical ability over confidence in forming expectations of athlete ability (Solomon, 2001b). Physical impression cues employed by assistant coaches were found to be predictive of actual athlete performance. A follow-up study that employed a multiple regression procedure was able to replicate ($p=.056$) the findings (Solomon, 2002b). Whether head or assistant coaches evaluate positions within the same sport differently requires further study.

Several sports were sampled in the assistant coach studies (Solomon, 2001b, 2002b). While multiple sports were included, the findings for each sport were not compared against one another. Whether the valuation of expectancy information used by coaches varies from one sport to another or between player positions was not a topic of interest in that line of research. Ice hockey is not as well represented in expectancy research as more popular sports (e.g., football and basketball). It remains to be determined if findings on assistant coaches are generalizable to hockey. Ice hockey and the expectancy sources used in evaluating each position has not been a central theme of assistant coach research.

Summary of the Literature

Head coaches consider an athlete's psychological characteristics, like confidence, when forming expectations of athletic ability. Assistant coaches prioritize athletic ability over

psychological characteristics, showing within staff differences in the valuation of the qualities of an athlete. It is important to identify whether this difference exists in understudied sports to either identify a population as ‘special’ or validate the findings in previous research. While meaningful to coaches, confidence has importance to athletes as it has an effect on an athlete’s perceptions of his or her own ability to be successful in sport. It is important to know where an athlete draws confidence from in order to build confidence in athletic settings. As the level of game play increases the role of confidence becomes increasingly important and is shown to be related to sport performance.

Conclusion

Confidence and expectancy effects are psychological phenomena that have the power to impact athlete performance. There is little investigation into the sources of expectancy information used by ice hockey coaches or the sources of confidence salient to ice hockey players. The analyses conducted enabled the identification of evaluative and self-evaluative information meaningful to coaches and players, respectively.

CHAPTER 3

Methodology

The primary goal of this investigation is to assess whether the sources of expectancy information salient to head and assistant coaches differ. A secondary goal of this project was to determine what impression cues ice hockey coaches use when forming expectations of collegiate ice hockey players. The third goal was to determine what sources of expectancy information are salient to DI and III ice hockey coaches when assessing athletes. A fourth goal was to identify the sources of sport-confidence drawn on by collegiate ice hockey players. The final goal of this project was to identify what sources of sport-confidence are salient to hockey athletes of each player position. Specific methodologies were employed to answer the hypotheses and research questions guiding this investigation. This chapter details the methodology employed in data collection for this project, including: subjects, measures, procedures, and design.

Subjects

Completion of this project required the participation of collegiate ice hockey athletes and coaches. The populations sampled were Division I (DI) and Division III (DIII) ice hockey teams. DI teams men's (n=8) and women's coaches (n=11) composed approximately 59% of the sample. Both head (n=4) and assistant (n=15) coaches in Division I hockey contributed to the data. DIII men's (n=8) and women's (n=5) hockey teams were approximately 41% of the sample. Head (n=7) and assistant (n=6) coaches from DIII hockey programs provided data. Investigation of two levels of college ice hockey allowed for the examination of between-level differences. The athlete sample was composed entirely of DIII men's (n=2) and women's (n=14) players. Athletes were labeled as either offense (n=8), defense (n=6), or goaltenders (n=2) through self-report. This allowed for within-level differences in sources of sport-confidence between player positions

Table 1

Description of Coach Participants

Demographics	Frequencies
Gender:	
Female	6
Male	26
Ethnicity:	
Caucasian	32
Coach Role:	
Head	11
DI Men's	0
DI Women's	4
DIII Men's	1
DIII Women's	6
Assistant	21
DI Men's	8
DI Women's	7
DIII Men's	5
DIII Women's	1
Gender of Team:	
Female	16
Male	16
Competitive Level:	
Division I	19
Division III	13
Highest Level as Player:	
Midget Major	2
Collegiate	16
Minor-League Professional	9
Professional	5

Demographics		Frequencies			
Position Played at Highest Level:					
Forward					13
Defense					13
Goalie					6
Demographic Information					
Age:	n	Min	Max	Mean	Standard Deviation
	19	26	56	36.47	8.051
Years of Coaching Experience:	n	Min	Max	Mean	Standard Deviation
	27	1	35	10.52	7.986
Years of Playing Experience:	n	Min	Max	Mean	Standard Deviation
	25	8	40	18.44	7.355

to be examined. Table 1 contains demographic information for the coach sample and Table 2 displays the background information for athletes.

Table 2

Description of Athlete Participants

Demographics					
Gender:					
					13
					3
Ethnicity:					
					14
					1
					1
Competitive Level:					
					13
Demographic Information					
Age:	n	Min	Max	Mean	Standard Deviation
	12	18	23	20.58	1.832
Years of Playing Experience:	n	Min	Max	Mean	Standard Deviation
	8	8	18	13.30	3.622

Measures

To gather data for this project, four measures were required. The measures utilized collected coach and athlete demographic information, assistant coach expectations, and sources of athlete confidence. A demographic questionnaire gathered background information deemed relevant to the study. The Solomon Expectancy Sources Scale (SESS; Solomon, 2008) was administered to evaluate the sources of information coaches used to form expectations about athlete ability. To determine where an athlete draws his or her confidence from, the Sources of

Sport-Confidence Questionnaire (SSCQ; Vealey et al., 1998) was employed.

Demographic Information

Two questionnaires were developed to gather data pertaining to the backgrounds of each group of participants. Athlete and coach demographic information was collected (Appendix A, B). Coaches received a questionnaire to record age, gender, ethnicity, years spent coaching collegiate athletes, current institution, years at current institution, win percentage at current institution, level of collegiate play currently coaching, player positions currently coaching, position played in hockey, and highest level of game play achieved while playing hockey. Athletes were issued a questionnaire to collect information on age, gender, ethnicity, current institution, years at current institution, years spent playing hockey, and highest level of game play achieved while playing hockey.

Solomon Expectancy Sources Scale (SESS)

The Solomon Expectancy Sources Scale (Solomon, 2008; Appendix C) was used to identify the sources of information a coach prioritizes when forming expectations of athlete ability. Altogether 30 items loaded into four factors deemed salient when rating athlete ability (Coachability, Team Player, Physical Ability, Maturity). The qualities an athlete possesses as a member of the coach-athlete relationship are related to Coachability (willingness to learn, willingness to listen, respect). The direction and intensity of work ethic and relatedness to the team are aspects of Team Player (team chemistry, role acceptance, communication). Maturity (ability to use good strategy, making complete assessments, athletic experience) is associated with experience and the ability to reason and rationalize in a sports setting. The only non-mental factor is Physical Ability (speed, coordination, agility), which houses impression cues related to athleticism. The items in each factor are rated along a 7-point Likert scale with values ranging

from 1 “very strongly disagree” to 7 “very strongly agree.” The four factors (Coachability [.93], Team Player [.86], Physical Ability [.86], Maturity [.79]) have adequate internal consistency shown by alpha coefficients ranging from .79 to .93 and through psychometric testing is proven to be a valid tool (Solomon, 2008b).

Sources of Sport-Confidence Questionnaire (SSCQ)

The Sources of Sport-Confidence Questionnaire (Vealey, Hayashi, Garner-Holman, & Giacobbi, 1998; Appendix D) was used to assess the sources of sport-confidence relevant to collegiate ice hockey athletes. Nine sources of sport-confidence are tapped by the questionnaire (mastery, demonstration of ability, mental and physical preparation, physical self-representation, social support, vicarious experience, environmental comfort, situational favorableness, and coach’s leadership). Each item on the questionnaire corresponds to a single source of sport-confidence. For example, the importance of coach’s leadership to an athlete’s confidence is determined through Likert scale ratings of items like, “I gain self-confidence in my sport when I know my coach is a good leader.” The ratings of importance range along a scale of 1 “not at all important” to 7 “of highest importance.” The SSCQ was shown to have content and construct validity through pilot work on high school and collegiate athletes (Vealey et al., 1998). Therefore, the instrument shows adequate validity for use in this project. Successful use of the questionnaire on collegiate populations, including ice hockey, provides evidence that the tool is adequately reliable (Machida, Marie Ward, & Vealey, 2012; Vealey et al., 1998).

Procedures

Approval to proceed into the data collection phase of this project was sought from the University Institutional Review Board (Appendix E). A database of coach contact information was constructed and saved on a password-protected computer in a locked room in the Sport

Psychology Lab. Once permission was granted, e-mails were written and sent to each coach in the database. Coaches received an electronic letter of intent and consent form (Appendix F, Appendix G). Each coach was asked to supply the e-mail addresses of their athletes. When a coach read the consent forms in the e-mail invitation, the participant was able to follow a link contained in the body of the message to access the survey materials online. Coaches were given two weeks from the date of the initial e-mail to fill out the survey materials. Participants who chose to follow the link were directed to the *Qualtrics* website, where the demographic questionnaire and SESS was hosted. Before beginning the surveys, each participant was reminded that participation was voluntary and could be terminated at any time with no penalty. At the completion of both measures, participants were thanked for their cooperation and asked if they would like a copy of the study results following completion. One week after the initial electronic invitations were sent, a follow-up e-mail was sent to all coaches. This second e-mail thanked coaches who have participated and reminded subjects who have not yet completed the questionnaires to please do so (Appendix H). Each individual's completed questionnaires contained no identifying information to maintain confidentiality and anonymity.

The athletes' e-mail addresses provided by coaches were saved on a password protected computer in a locked room on campus. Athletes received a letter of intent and consent form via e-mail (Appendix I, Appendix J). After an athlete had read the consent forms in the e-mail invitation, the participant was able to follow a link contained in the body of the message to access the survey materials online. Players were given two weeks from the date of the initial e-mail to fill out the survey materials. Participants who chose to follow the link were directed to the *Qualtrics* website, where the demographic questionnaire and SSCQ was hosted. Before beginning the surveys, each participant was reminded that participation was voluntary and could

be terminated at any time with no penalty. After the completion of both measures, participants were thanked for their cooperation and asked if they would like a copy of the study results. One week after the initial electronic invitations were sent, a follow-up e-mail was sent to all athletes. This second e-mail thanked those who had participated and reminded subjects who had not yet completed the questionnaires to please do so (Appendix K). Each individual's completed questionnaires contained no identifying information to maintain confidentiality.

Design

Once all questionnaires were returned, statistical procedures were employed to test each of the hypotheses and answer the exploratory questions. The procedures were executed as described in the following section.

The hypothesis posited that differences exist in the sources of information used by head and assistant collegiate ice hockey coaches to assess athlete ability. To answer the hypothesis, means for head ($n=11$) and assistant ($n=21$) coach ratings of each of the 30 items on the Solomon Expectancy Sources Scale (SESS; Solomon, 2008) were compared. Values for the four factors of the SESS (Coachability, Team Player, Physical Ability, Maturity) were tabulated for each coach based on responses to the 30 items on the measure. A series of four independent samples t-tests were performed. Coach type (head, assistant) was the independent variable and the dependent variables were the four factors of the SESS.

The first exploratory question asked what sources of expectancy information are salient to collegiate ice hockey coaches. This question was answered through tabulating mean responses from all coaches ($n=32$) to each of the 30 items on the SESS. The data produced was a descriptive overview of the expectancy sources important to hockey coaches.

The second exploratory question was posed to determine whether there are differences in

the sources of information Division I and Division III coaches use to assess athlete ability. To address the second exploratory question mean values for Division I (n=19) and Division III (n=13) coach responses were calculated for the 30 items of the SESS. These values were grouped and used to tabulate means for the four factors of the SESS. Four independent samples t-tests were performed. The independent variable was level of play (Division I, Division III) and the dependent variables were the four factors of the SESS.

The third exploratory question sought to identify what sources of sport-confidence are salient to ice hockey players. To answer the third exploratory question, athlete responses to the Sources of Sport-Confidence Questionnaire (SSCQ; Vealey, 1998) were used to calculate mean values for Division III athlete (n=16) ratings of the nine factors of the SSCQ (mastery, demonstration of ability, physical/mental preparation, physical self-representation, social support, vicarious experience, environmental comfort, situational favorableness, and coach's leadership). This question was answered through tabulating mean responses from all players (n=16) to each of the 41 items on the SSCQ. The data produced was a descriptive overview of the sources of sport-confidence salient to Division III collegiate ice hockey players. No analyses were conducted due to the small sample size.

A fourth exploratory question was created to address what sources of sport-confidence are salient to each player position. In order to assess mean SSCQ factor ratings by player position, athletes were divided into three groups (offense, defense, goalie). Player position was simplified from actual position in hockey (center, right wing, left wing, right defense, left defense, goalie) to offense (n=8), defense (n=6), and goalie (n=2). Scores were tabulated from responses to each of the 41 SSCQ items and reported by player position. The data produced was a descriptive overview of the sources of sport-confidence salient to Division III collegiate ice

hockey players of different positions. No analyses were conducted due to the small sample size.

Summary

The principal purpose of this project was to determine the sources of information ice hockey coaches use when assessing athlete ability. Identifying the sources of confidence most salient to collegiate hockey players was also a goal of this investigation. The sample consisted of 19 NCAA Division I and 13 Division III hockey coaches as well as 16 DIII athletes participated in this study. Three measures were employed in acquiring coach and athlete data. One hypothesis was generated from previous research and four exploratory questions were posed due to a lack of an empirical foundation for these questions. The hypothesis and two of the exploratory questions were statistically tested through comparisons of means via independent samples t-tests. Outcomes of these analyses are presented in the following section.

CHAPTER 4

Results

Altogether the sample was composed of 32 ice hockey coaches representing NCAA Division I and III schools and 16 Division III hockey athletes from programs within the United States. Data collected from coaches (n=32) was used to distinguish between the sources of information utilized by head (n=11) versus assistant (n=21) collegiate ice hockey coaches when assessing athlete ability (hypothesis). Coach responses were pooled to determine what evaluative information was salient to collegiate hockey coaches (exploratory question 1). In order to evaluate between-level differences, the sources of information salient to Division I and Division III coaches were compared (exploratory question 2). The data collected from Division III athletes (n=16) was used to assess what sources of confidence are salient to collegiate ice hockey players (exploratory question 3). Data gathered pertaining to the sources of sport-confidence of ice hockey athletes is subdivided and reported on by player positions (exploratory question 4).

Head and Assistant Coach Valuation of Expectancy Sources

Determining the sources of expectancy information salient to head versus assistant collegiate ice hockey coaches was the second purpose of this investigation. Head coaches (n=11) were designated as any coaches with a job title containing 'head' (head coach, associate head coach). Assistant coaches (n=21) were operationalized as any non-head coach working with athletes on the ice (assistant coach, volunteer assistant, goalie coach, volunteer goalie coach). It was hypothesized that there would be a significant difference in the sources of information used by head and assistant collegiate ice hockey coaches to assess athlete ability. Mean values for the four factors of the Solomon Expectancy Sources Scale (SESS) were reported by coach type (head, assistant).

To test the hypothesized differences in mean scores between head and assistant coaches on the four factors of the SESS a series of four independent samples t-tests were performed. The independent variable was coach type (head, assistant) and the dependent variables were the four factors of the SESS (Coachability, Team Player, Physical Ability, Maturity). Results of the analyses indicated no significant differences between the sources of information head and assistant ice hockey coaches employ when assessing athletes. The hypothesis was rejected, indicating that head and assistant coaches do not differ by use of evaluative information when assessing collegiate ice hockey players. Table 3 displays the results of the statistical analyses.

Although not statistically significant, variability between SESS factor rankings by head and assistant coaches are observable. Head coaches rated Coachability and Team Player highest among expectancy sources, while Physical Ability fell in the relative middle, and Maturity was the lowest ranked factor on the SESS. Coachability was the top rated expectancy source by assistant coaches as well. Both Physical Ability and Maturity wereranked lowest by assistants. This means the SESS items related to receptivity to coaching are highly valued among both head and assistant coaches. Overall, it appears that items pertaining to Maturity and Physical Ability are among the least salient to ice hockey coaches of both coaching roles.

Table 3

T-test Results Between Head and Assistant Coaches on SESS Factors

Factor	Head Coaches		Assistant Coaches		Significance
	Mean	(S)	Mean	(S)	p-values
Coachability	5.33	1.580	5.64	1.588	.610
Team Player	5.32	1.453	5.38	1.476	.917
Physical Ability	5.13	1.332	5.13	1.379	.998
Maturity	4.99	1.496	5.19	1.407	.712

Sources of Evaluation

The main objective of this project was determining the sources of evaluative information NCAA Division I and III coaches utilize when assessing athlete ability. Exploratory question one was posed to determine what sources of expectancy information collegiate ice hockey coaches (n=32) use when evaluating athletes. Answering this question required that coaches complete the Solomon Expectancy Sources Scale (SESS; Solomon, 2008), rating the importance of each item along a 7-point Likert scale (1=Very Strongly Disagree, 7=Very Strongly Agree). SESS mean item ratings were calculated to determine the importance of each item to coach assessments of athlete ability. Findings for exploratory question one indicate the 10 highest rated items are personal or psychological sources of information. Athletes' physical characteristics are not among the top 33% of factors reported. Individual responses to each item were used to calculate mean scores for each factor (Coachability, Team Player, Physical Ability, Maturity) on the SESS. Displayed in Table 4 are the means and standard deviations for the 30 items on the SESS.

Means and standard deviations pertaining to the four SESS factors are reported in Table 5. Item-specific findings are further observable in the resulting order of the four factors of the SESS. The factors housing non-physical Solomon Expectancy Sources Scale items, like Coachability and Team Player, are rated above Physical Ability.

Expectancy Sources at Different Competitive Levels

Addressing the third purpose of this investigation required examination of the SESS factors salient to coaches at different competitive levels. To test this purpose an exploratory question was posed to determine whether Division I (n=19) and Division III (n=13) collegiate ice hockey coaches used different evaluative criteria when assessing athlete ability. Coaches were categorized by competitive level coached during the 2012-2013 season and divided into Division

Table 4

Individual Items Ratings by Ice Hockey Coaches on the SESS

Item	Mean	Standard Deviation
Hard Worker	5.94	1.740
Love of Sport	5.91	1.729
Respect	5.78	1.809
Competitive Demeanor	5.75	1.704
Willingness to Learn	5.75	1.626
Honesty	5.75	1.646
Receptivity	5.72	1.631
Trust	5.71	1.755
Willingness to Listen	5.69	1.615
Leadership Qualities	5.66	1.658
Athleticism	5.53	1.646
Integrity	5.41	1.794
Self-Discipline	5.38	1.519
Courage	5.38	1.621
Speed	5.38	1.601
Confidence Level	5.25	1.391
Handling Pressure	5.22	1.581
Mental Maturity	5.22	1.601
Team Chemistry	5.19	1.655
Athletic Experience	5.13	1.522
Agility	5.09	1.376
Role Acceptance	5.06	1.480
Strength	5.06	1.413
Communication	5.00	1.666
Concentration	4.94	1.703
Good Strategy	4.94	1.703
Coordination	4.91	1.400
Complete Assessments	4.84	1.463
High Aspirations	4.81	1.424
Reaction Time	4.81	1.376

I (Division I men's, National Collegiate women's) and Division III (Division III men's, Division III women's) teams.

To test whether differences in mean scores of Division I and III coaches on the four factors of the SESS exists a series of four independent samples t-tests were performed. The

Table 5

SESS Factor Means and Standard Deviations of Ice Hockey Coaches

Factor	n	Mean	Standard Deviation
Coachability	32	5.53	1.567
Team Player	32	5.36	1.445
Physical Ability	32	5.13	1.341
Maturity	32	5.12	1.418

independent variable was competitive level (Division I, Division III) and the dependent variables were the four factors of the SESS (Coachability, Team Player, Physical Ability, Maturity). The analyses indicated no significant differences in the sources of expectancy information employed by Division I and III ice hockey coaches. This indicated coaches at the DI and DIII level base assessments of athlete ability on similar sources of information. Table 6 displays the results of these analyses.

While not statistically significant, there is variability in the SESS factor ratings of DI and III coaches. Mean ratings of Team Player and Physical Ability appear to be of moderate importance to DI coaches. Coachability was the highest rated and Maturity the lowest rated SESS factors by Division I ice hockey coaches. DIII coach rated items related to Coachability and Team Player highest, Physical Ability was a middle-ranked factor, and the mean for Maturity was the lowest. Athlete characteristics related to Coachability appear to be meaningful to coaches at the DI and DIII levels, while information housed in Maturity may be considered least important when compared against other SESS factors.

Sources of Sport-Confidence Salient to Division III Athletes

The fourth purpose of this study was determining the sources of sport-confidence salient to collegiate ice hockey athletes. In order to address this purpose athlete responses to the Sources

Table 6

T-test Results Between DI and DIII Coaches on SESS Factors

Factor	Division I		Division III		Significance
	Mean	(S)	Mean	(S)	p-values
Coachability	5.48	1.565	5.60	1.630	.838
Team Player	5.24	1.478	5.54	1.434	.567
Physical Ability	5.21	1.341	5.11	1.527	.676
Maturity	5.12	1.381	5.01	1.386	.983

of Sport-Confidence Questionnaire (SSCQ; Vealey, Hayashi, Garner-Holman, & Giacobbi, 1998) were used to tabulate mean values for the nine sources of sport-confidence (mastery, demonstration of ability, physical/mental preparation, physical self-presentation, social support, vicarious experience, environmental comfort, situational favorableness, and coach's leadership). In answering the fourth exploratory question results indicate the four highest rated SC sources to DIII ice hockey athletes included in this study are social support, physical/mental preparation, coach's leadership, and mastery. In Table 7 the mean scores for Division III ice hockey athlete sources of sport-confidence are reported.

Hockey players rated social support highest among the nine sources of sport-confidence. Social support, physical/mental preparation, coach's leadership, and mastery were the highest ranked SC sources. The middle-ranked factors were vicarious experiences, demonstration of ability, and environmental comfort. Ice hockey athletes' lowest rated SSCQ factors were situational favorableness and physical self-presentation. Experiences related to personal performance and the support of significant others rank higher than sources like self-image and perceptions of luck.

Sources of Sport-Confidence by Player Position

A fifth purpose of this investigation was to determine the sources of sport-

Table 7

SSCQ Factor Means and Standard Deviations of Division III Ice Hockey Players

Factor	n	Mean	Standard Deviation
Social Support	16	6.08	.593
Physical/Mental Preparation	16	5.77	.576
Coach's Leadership	16	5.75	.690
Mastery	16	5.71	.512
Vicarious Experience	16	4.93	.619
Demonstration of Ability	16	4.83	1.114
Environmental Comfort	16	4.45	.945
Situational Favorableness	16	3.75	.836
Physical Self-Presentation	16	3.66	1.088

confidence salient to different player positions. Reports of athletes' positions (center, right wing, left wing, right defense, left defense, goalie) were logically condensed into three categories (offense, defense, goalie). An exploratory question was posed to determine whether the sources of information athletes draw on for sport-confidence varied between offense (n=8), defense (n=6), and goaltenders (n=2). Athlete responses to the Sources of Sport-Confidence Questionnaire were combined by position and group means for each source of sport-confidence (mastery, demonstration of ability, physical/mental preparation, physical self-representation, support, vicarious experience, environmental comfort, situational favorableness, and coach's leadership) were calculated.

Results pertaining to exploratory question four indicate DIII ice hockey athletes across three player positions rate and rank certain SSCQ factors differently. The rankings and inclusion of some SC sources in the top four rated sources of sport-confidence differ between offense, defense, and goalies. The means for each of the sources of sport-confidence by player position are listed in Table 8. No analyses were conducted due to the small sample size. The accuracy of

any meaningful statistical tests would be jeopardized by the small number of respondents.

Offensive and defensive players rated social support higher than any other SC source. Goaltenders ranked coach's leadership as the highest among the nine sources of sport-confidence. The highest overall rated SSCQ factors for offense and defense were social support, physical/mental preparation, mastery, and coach's leadership. For goaltenders, the top ranked factors were coach's leadership, social support, and demonstration of ability. The middle ranked SC sources by offense and defensive players were vicarious experiences, demonstration of ability, and environmental comfort. Goalies ranked physical/mental preparation, mastery, and vicarious experiences as the middle valued SSCQ factors. Situational favorableness and physical self-presentation were rated among the lowest sources of sport-confidence by all three positions. Goaltenders also rated environmental comfort among the lowest SC sources. While the top-rated SC source for skaters was Social Support, goaltenders ranked coach's leadership highest.

The following table was created for ease in comparing how SSCQ sources are rated between player positions. The mean values are replaced by the rankings of each factor on the SSCQ. For example, the table indicates that social support is ranked 1st by offense and defense, but 2nd by goalies. Table 9 compares the mean rankings of the SSCQ factors by player position.

Summary

No support was observed for the hypothesis or two of the exploratory questions during this investigation. Two of the exploratory questions were generated with the intent of gathering descriptive data on coaches and athletes. No significant differences were observed between the sources of expectancy information relied upon by head and assistant coaches. Collegiate head and assistant ice hockey coaches use the same information when making assessments of hockey players. All coaches rated athlete characteristics along a scale from highest to lowest importance.

Table 8

SSCQ Factor Means and Standard Deviations by Player Position

Offense			
Factors	n	Mean	Standard Deviation
Social Support	8	6.07	.649
Physical/Mental Preparation	8	5.90	.691
Mastery	8	5.86	.424
Coach's Leadership	8	5.75	.520
Vicarious Experience	8	5.21	.478
Demonstration of Ability	8	4.94	1.011
Environmental Comfort	8	4.40	.885
Situational Favorableness	8	3.50	.801
Physical Self-Presentation	8	3.41	.750
Defense			
Factor	n	Mean	Standard Deviation
Social Support	6	5.94	.602
Physical/Mental Preparation	6	5.52	.439
Mastery	6	5.50	.654
Coach's Leadership	6	5.46	.776
Environmental Comfort	6	4.70	1.029
Vicarious Experience	6	4.40	.357
Demonstration of Ability	6	4.20	.946
Situational Favorableness	6	3.91	.970
Physical Self-Presentation	6	3.61	1.103
Goalie			
Factor	n	Mean	Standard Deviation
Coach's Leadership	2	6.60	.565
Social Support	2	6.50	.235
Demonstration of Ability	2	6.30	.424
Physical/Mental Preparation	2	6.00	.235
Mastery	2	5.80	.282
Vicarious Experience	2	5.40	.848
Physical Self-Presentation	2	4.83	2.121
Situational Favorableness	2	4.25	.353
Environmental Comfort	2	3.87	1.237

While the results did not reflect notable differences between factors, coaches of varying roles or across levels of play it should be noted that psychological player characteristics were those rated highest. The findings could be attributable to congruence in how head and assistant college ice hockey coaches evaluate athletes. Between coaches at the highest and lowest levels of NCAA play, no significant differences were observed in the sources of information employed. At the DI and DIII level ice hockey coaches employ the same evaluative information when forming expectations of players. Congruence in the evaluative criteria used by each group of coaches compared during the course of this investigation could also be attributed to small sample size.

The sources of sport-confidence salient to collegiate ice hockey players of different positions were reported using descriptive statistics. The information most salient to sport-specific feelings of efficacy appears to vary between player positions, but the findings were merely observations as statistical testing was not advisable. Findings are presented and interpreted in the next section through comparisons to previous research on expectancy theory and sport-confidence.

Table 9

Mean Rankings of SSCQ Factors by Player Position

Factor	Offense	Defense	Goaltenders
Mastery	3	3	5
Demonstration of Ability	6	7	3
Mental and Physical Preparation	2	2	4
Physical Self-Presentation	9	9	7
Social Support	1	1	2
Vicarious Experience	5	6	6
Environmental Comfort	7	5	9
Situational Favorableness	8	8	8
Coach's Leadership	4	4	1

CHAPTER 5

Discussion

The expectancy cycle assumes that information one person acquires about another is used to generate expectations which somehow affect the other's behaviors. In a sport setting the cycle could begin when a coach evaluates an athlete based on some combination of personal, performance, and psychological characteristics. These qualities are pieces of real or perceived information called impression cues and are the building blocks for expectations.

The principal aim of this investigation was identifying the sources of expectancy information salient to collegiate head and assistant ice hockey coaches. From this objective one hypothesis and two exploratory questions were developed and analyzed by mean comparisons using independent samples t-tests and ranking the raw data. The final sample was composed of ice hockey coaches at the Division I (n=19) and III (n=13) level and Division III athletes (n=16). In order to fulfill the purposes of this study coaches completed the Solomon Expectancy Sources Scale (SESS; Solomon, 2008) and athletes completed the Sources of Sport-Confidence Questionnaire (SSCQ; Vealey, Hayashi, Garner-Holman, & Giaccobi, 1998).

Head and Assistant Coach Valuation of Expectancy Sources

The primary purpose of this project was identifying the sources of expectancy information salient to head versus assistant collegiate ice hockey coaches. Head coaches were identified by job titles containing 'head' (head coach, associate head coach). Assistant coaches were designated as any non-head coaches working with athletes on the ice (assistant coach, volunteer assistant coach, goalie coach, volunteer goalie coach). The hypothesis posited that a significant difference exists in the sources of information used by head and assistant collegiate ice hockey coaches to assess athlete ability. Based on the statistical results, the hypothesis was

rejected. Head and assistant coaches rely on similar sources of information when evaluating ice hockey athletes. Assistant coaches rated three of four SESS factors .06 to .20 higher than head coaches, while ratings of Physical Ability were equivalent between coach groups. German assistant coaches rated all SESS factors higher than head coaches, possibly due to the different roles and responsibilities of heads and assistants (Solomon & Lobinger, 2011).

Although non-significant, the highest rated factor by head and assistant coaches was Coachability. This is similar to findings comparing the valuation of expectancy sources by head and assistant junior college track and field coaches. Coaches at the junior college level in both coaching roles rated Coachability highest among expectancy sources, but similarly showed no statistically meaningful difference in factor ratings (Solomon, 2010). This may mean coaches value qualities associated with receptivity to coaching but not at the exclusion of other player characteristics. Additionally, Team Player was rated highly by heads while the same factor was ranked in the relative middle of the four SESS factors by assistant coaches. The responsibilities of a head coach related to building a functional, cooperative team may make athlete qualities related to being a team player of greater importance to a head coach than to an assistant. Both head and assistant coaches ranked Physical Ability and Maturity lowest among SESS factors. The importance of being coachable and an effective team member appears to be of greater importance than a player's physical characteristics or ability to reason and rationalize in a sports setting.

The ratings of SESS factors used by head and assistant coaches when evaluating athletes do not significantly differ in previous research. The ordering of factors differs, but one factor has not been shown to be significantly more or less important than another. This demonstrates congruence between the information used by head and assistant coaches when evaluating

athletes.

A rationalization for why assistant coaches rate all or certain factors higher or in a different order than head coaches is unclear. Certain factors, like Coachability, may be ranked higher by assistant coaches because of differences in the responsibilities of either coaching role. Assistants spend more one-on-one time with athletes for position-specific skill coaching whereas head coaches are more accountable for rostering and operational decisions relevant to the whole team (Solomon et al., 1996).

Sources of Evaluation

A secondary purpose of this study was the identification of information collegiate ice hockey coaches use to assess athlete ability. Exploratory question one addresses this purpose to determine what source of expectancy information are salient to collegiate coaches when assessing ice hockey athletes. Coach ratings of impression information pertaining to psychological, personal, and physical athlete characteristics were accessed.

Evaluative information pertaining to player physical attributes does not appear in the top one-third of SESS item means ranked in Table 3. The five most salient sources to collegiate ice hockey coaches are Hard Worker, Love of Sport, Respect, Competitive Demeanor, and Willingness to Learn. Each of the five items is a psychological impression cue. These findings are consistent with previous investigations of the sources of expectancy information utilized by coaches. During athlete evaluations coaches rely predominantly on player's psychological characteristics (Solomon, 2001a, 2002a). Psychological impression cues are the highest rated source of expectancy information employed by coaches (Becker & Solomon, 2005; Solomon, 2001a, 2002a, 2010; Solomon & Lobinger, 2011; Solomon, Stacey, Becker, Breyfogle, Rivchun, Valz, & Leal, 2012). Despite this finding there was little overall difference between ratings of the

30 SESS items. This means while one type of expectancy information may be more highly rated than another, the degree of difference in the importance of each factor is inconsequential. The four factors of the SESS are statistically of equal importance to ice hockey coaches, but observations can be made as to the overall rankings of sources of expectancy information by collegiate hockey coaches. The highest rated factor was Coachability which indicates that a player's receptivity to coach input may be meaningful to a coach. The factor housing characteristics related to being a team player fell in the middle of expectancy source rankings. This could indicate Team Player is more important than the lower rated physical characteristics and the characteristics related to the use of good judgment and reason in sport. Overall, it appears that psychological player characteristics are the most meaningful to collegiate ice hockey coaches. Since no factor or set of items stands out statistically it is possible a set of characteristics meaningful to hockey athletes or coaches is not captured by the measure. The small sample size and lower statistical power could also contribute to these results.

The top five SESS items being psychological characteristics resembles findings in previous research. Expectancy studies sampling collegiate coaches also showed that coaches find psychological impression cues most salient when evaluating athletes (Solomon, 2001a, 2002a; Becker & Solomon, 2005). Although the top 10 rated impression cues by college ice hockey coaches were psychological, hockey coaches rate each of the 30 items of the SESS lower than basketball coaches (Becker & Solomon, 2005). Both basketball and hockey are team sports, but something inherently different about each sport or the evaluative criteria coaches employ could contribute to the differences in scores.

To further address the primary purpose of this investigation mean ratings of each item were computed for the four factors (Coachability, Team Player, Physical Ability, and Maturity) of

the SESS. Hockey coach means for the four factors of the Solomon Expectancy Sources Scale are ranked in the same order as in previous research, indicating that psychological cues are likely prioritized over physical impression cues (Becker & Solomon, 2005; Solomon, 2010; Solomon & Rhea, 2008). However, mean ratings for each of the four factors ratings are lower than those derived from work in other sports. Basketball coaches rated all four SESS factors higher than hockey coaches. Of the four SESS factors Coachability and Team Player are rated similarly to golf and hockey coaches. Interestingly, golf coaches value Physical Ability and Maturity more highly than ice hockey coaches (Becker & Solomon, 2005; Solomon et al, 2012). A casual observer can surmise that the physical demands of golf and hockey as well as the overall physicality of the sports are markedly different. It is possible golf coaches' valuation of the SESS items under Physical Ability (coordination, strength, speed, reaction time, agility, athleticism) are related to the physical attributes needed during golfers' swings (Solomon, 2008). Hockey coaches' lower ratings of Physical Ability may be due to attitudes about what physical qualities contribute to hockey players' success.

Lower body power, anaerobic power, and endurance are markers of physical ability meaningful in strength and conditioning research targeting collegiate ice hockey players (Burr, Jamnik, Baker, MacPherson, Glendhill, & McGuire, 2008; Green, Pivarnik, Carrier, & Womack, 2006; Ransdell, Murray, & Yong, 2013). Since power output is measured in research on collegiate golfers as well, the characteristics related to sustained power output or aerobic endurance may be more specific to the physical qualities desirable in ice hockey athletes (Barnes & Fry, 2008; Doan, Newton, Young-Hoo, & Kramer, 2006; Peyer, Pivarnik, Eisenmann, & Vorkapich, 2011; Torres-Ronda, Sánchez-Medina, & González-Badillo, 2011). As such, hockey coaches might prioritize those physical attributes higher than the items housed in Physical

Ability. Alternatively hockey coaches may not place as much importance on specific physical abilities as general anthropomorphic qualities, like height, weight, and body composition. It is unclear why hockey coaches do not prioritize Maturity equitably with golf coaches. The athlete characteristics that comprise Maturity were determined to be important player qualities through multiple analyses of information provided by coaches across numerous sports (Solomon, 2008).

How receptive an athlete is to instruction or the degree of receptivity desired by coaches may contribute to the similarity in Coachability ratings in golf and hockey. While collegiate golfers are team sport athletes, a golf game is played individually. Hockey athletes have direct contact with teammates and opponents throughout the course of a game. It is possible the factors housed in Team Player (high aspirations, self-discipline, being a hard worker, love of the sport, team chemistry, role acceptance, leadership qualities, communication) are of similar importance to golf and hockey coaches despite differences in the level of teammate interaction during play. The qualities related to being a good team member may be similar between sports as well. Golf and hockey athletes do not interact with teammates in the same ways during game situations due to the structure of each sport. Possessing a strong work ethic, love of the sport, self-discipline, leadership qualities, and communication skills could bear similar importance to golfers and hockey players outside of competition. Although comparisons of the four SESS factors between hockey, golf, and basketball show some commonalities in factor ratings it appears that differences exist between hockey coaches and coaches of other sports. The demands of hockey and the criteria collegiate ice hockey coaches use to assess players may be different than those employed by coaches of either golf or basketball.

Cross-cultural research compared the sources of expectancy information meaningful to U.S. and German coaches (Solomon & Lobinger, 2011). The Solomon Expectancy Sources Scale

was validated and proven reliable on United States coach samples. German coaches evaluated the four factors of the SESS lower than U.S. sport coaches. It was posited that the SESS may not capture some source of information salient to coaches trained in Germany, possibly because of the training coaches receive at German sports institutes (Solomon & Lobinger, 2011).

International-level organizations like the German Olympic Sports Confederation educate and credential coaches at the club and advanced levels and additionally offer continuing education courses to individuals interested in supplementing their current coaching knowledge (German Olympic Sports Confederation [DOSB], 2013). Individuals seeking a sport-related undergraduate degree or advanced degrees in coaching and performance can attend universities with curriculum in sport-related fields, like the German Sport University Cologne (DSHS, 2013). The SESS factor ratings by NCAA collegiate ice hockey coaches are lower than those acquired from U.S. and German coaches during a cross-cultural investigation. Given that the four factors of the SESS were rated lower by NCAA hockey coaches than international and U.S. coaches of multiple sports implies some criteria relevant to ice hockey player evaluation is not captured by the Solomon Expectancy Sources Scale. It is possible some characteristics or combination of qualities salient to hockey coaches or specific to success in the sport are not included in the SESS. These could be sport-specific skills and abilities like puck control, edge control, fighting, hitting, boardplay, catching and making passes, shooting (wristshot, snapshot, slap shot, forehand, and backhand), and skating ability.

Expectancy Sources at Different Competitive Levels

Addressing the third purpose of this investigation required examination of the Solomon Expectancy Sources Scale factors salient to coaches at different competitive levels. The exploratory question revealed there were no significant differences in the sources of expectancy

information employed by Division I and III ice hockey coaches. Coaches at the NCAA Division I and III competitive levels rate factors of the SESS in a similar way. Although no statistical results were found, differences in the mean rankings of SESS factors by DI and III coaches were observed. Coaches at both competitive levels rated Coachability high among the four factors of the SESS, but DIII coaches also ranked the items in Team Player highly.

It is possible DIII coaches value qualities that make an athlete a good member of a team because players do not receive athletic scholarships and are drawn from a smaller pool of interested, eligible student-athletes than attend DI institutions. Athlete characteristics related to maturity are the lowest rated by Division I coaches, while player physical abilities are the lowest ranked by DIII coaches. Division I coaches may have ranked Physical Ability higher, as a factor of moderate importance, because athletes at the Division I level tend to be stronger and more powerful than DIII athletes of the same sports (Harman & Garhammer, 2008). As a reaction to pressures Division I coaches face to achieve or maintain a winning record a desire for strong, powerful, and athletic players may contribute to the higher prioritization of Physical Ability.

Findings in Division I and III ice hockey are relatable to previous research in other sports at the DI and junior college levels. Coachability was rated highest by ice hockey coaches at both levels included in this investigation, mirroring findings in junior college and DI athletics in basketball and track and field (Becker & Solomon, 2005; Solomon, 2010). This demonstrates congruency between the cues salient to coaches at varying levels of play and across multiple sports. In a study of junior college athletes and in the sample of ice hockey coaches, physical abilities were not among the top 10 rated SESS items (Solomon, 2010). Findings bear similarities to previous research on golf and basketball at the DI level, in cross-cultural research, and to the original work done in developing the SESS (Becker & Solomon, 2005; Solomon, 2008; Solomon

& Lobinger, 2011; Solomon et al., 2012). The information coaches across multiple competitive levels (DI, DIII) find most important in athlete evaluations do not pertain to the physical abilities of the player. This means that non-physical information is most meaningful to coaches across competitive levels and nationalities. Despite the existence of coach training programs, clinics, and coaching-related majors not all coaches will share the same views on what skills or traits predispose athletes to success. Without a widely accepted framework for player evaluations it is interesting that regardless of differences in competitive level coaches appear to value psychological evaluative criteria in athlete assessments (Becker & Solomon, 2005; Solomon, 2008; Solomon & Lobinger, 2011; Solomon et al., 2012). Experience rostering and coaching teams, continuing education clinics, and advice from colleagues may help collegiate coaches identify qualities commonly possessed by successful athletes. Something in the background or training of coaches in college athletics might influence coaches' prioritization of psychological expectancy sources.

Sources of Sport-Confidence Salient to Division III Athletes

Confidence is as paramount to successful athletic performance as the possession of sport-specific skills. Feelings of self-efficacy an individual experiences during daily functioning are different than those developed within the context of sport. Research has demonstrated confidence built on by experiences, feelings, and thoughts an individual encounters as an athlete impact feelings of Sport-Confidence, or self-efficacy, in the sport environment (Vealey, 1986). A fourth aim of this project was determining the sources of Sport-Confidence drawn on by collegiate ice hockey players of different positions. To address this purpose Division III ice hockey athletes (n=16) were sampled. Evaluation of the information meaningful to players' feelings of sport-specific efficacy was completed via the Sources of Sport Confidence Questionnaire (SSCQ).

Sources of sport-confidence important to ice hockey athletes in this investigation are reflective of the original works in sport-confidence and more contemporary publications (Machida, Marie Ward, & Vealey, 2012; Vealey, 1986, 1988; Vealey et al., 1998; Wilson, Sullivan, Myers, & Feltz, 2004). The final sample was predominantly Division III female ice hockey athletes that as a group show similar ratings of sources of sport-confidence to the female athletes included in the studies that generated the Sources of Sport-Confidence Questionnaire (Vealey et al., 1998). Female high school athletes included in the final phase of the SSCQ's development showed similarities to Division III ice hockey players in the information rated as important to self-efficacy in sports.

In the original SSCQ studies, athlete item ratings produced a mean ranking of sources of sport-confidence ranging from most to least important (mastery, social support, physical/mental preparation, coach's leadership, demonstration of ability, vicarious experience, environmental comfort, situational favorableness, and physical self-presentation). DIII hockey athletes' ranking of the sources of sport-confidence are similar to those collected from collegiate athletes in previous research with the exception that ice hockey players in this study rated social support as the most important source of SC (Vealey, 1989). This finding is divergent from the results of previous research, because child, adolescent, high school, collegiate, and master's athletes rate sources like mastery, demonstration of ability, and physical/mental preparation as the strongest of the nine sources of sport-confidence (Machida et al., 2012; Vealey, Chase, Magyar, & Galli, 2004; Vealey et al., 1998; Wilson et al., 2004). These three sources are also termed enactive mastery experiences, or memories of past successes which provide an individual with evidence of ability at a given task (Bandura, 1997). While experiences related to past successes in sport are typically the most salient for athletes, the highest rated source for hockey players in this

study is derived from the perceived support of others.

Social support was the most salient source of sport-confidence for Division III hockey players in this study. In a previous study on collegiate athletes, social support was the highest rated of the nine sources of sport-confidence (Machida et al., 2012). Social support in collegiate ice hockey could contribute to feelings of efficacy in sport due to the smaller number of ice hockey programs in the U.S. overall. As such, an individual's team and a sense of social support or community may be valued more highly by ice hockey athletes. Additional factors beyond an athlete's control can impact the importance of sources of sport-confidence to a player.

Personality and the achievement environment created by the coach can affect the types of SC sources relied on by a player (Machida et al., 2012). Something unique to athletes themselves or the expectations and basis for rostering decisions held by DIII hockey coaches may account for the difference in rankings of both vicarious experience and demonstration of ability. An athlete's environment and his or her individual characteristics influence reliance on certain sources of sport-confidence. Time-of-season also appears to play a role in the meaningfulness of some sources of sport-confidence.

Certain sources of sport-confidence are more salient as elite athletes approach competition and as injured athletes progress through rehabilitation programs (Kingston, Lane, & Thomas, 2010; Magyar & Duda, 2000). Season time point might have affected the sources important to athletes in this investigation, as each team was nearing the completion of the regular season at the time of participation. However, female athletes at all developmental levels showed physical/mental preparation and mastery as stronger sources of sport-confidence at multiple season-time points (Vealey et al., 2004). This accounts for the high ratings of physical/mental preparation in the predominantly female athlete sample, but does not elucidate why mastery is

rated fourth of the nine sources of sport-confidence. Athletes were accessed toward the end of the regular season. The climate created by coaches, players' families, or the players themselves leading into the playoffs could have created a more socially supportive atmosphere and reduced the emphasis on enactive mastery experiences.

Sources of Sport-Confidence by Player Position

The sources of sport-confidence salient to ice hockey players as a whole differed when examined by player position. Ice hockey player position was simplified into three groups: offense (n=8), defense (n=6), and goalie (n=2). Players were issued the SSCQ to determine whether the information and experiences used to build sport-confidence varied by position. Responses to the Sources of Sport-Confidence Questionnaire produced means for SC sources by position. This provided information about what ice hockey players draw from to form feelings of confidence in sport.

The most striking differences between player positions are the order and magnitude of mean values for some sources of sport-confidence. Vicarious experience and demonstration of ability are rated more highly by offensive than defensive players. Aside from these differences offensive and defensive player ratings and order of source of sport-confidence are similar to one another. Goaltender valuations of factors on the Sources of Sport-Confidence Questionnaire differ from the responses of their skater counterparts. Coach's leadership is rated as the strongest source of sport-confidence by goaltenders, followed by social support, and demonstration of ability. Physical self-presentation has a higher rating by goalies than skaters. Each SSCQ factor is more valued by ice hockey goaltenders than by either forwards or defensemen. Goalies rank the other SC sources (physical/mental preparation, mastery, vicarious experience, situational favorableness, and environmental comfort) in a similar order when compared to the other player

groups. The findings pertaining to goaltenders must be taken with caution due to sample size and require further study for evaluation. Bearing that point in mind, some interpretation of the findings can be made.

Some research focuses on personality differences between successful and unsuccessful players and athletes of specific positions however no work has surveyed the sources of sport-confidence salient to athletes of specific positions (Schaubhut, Donnay, & Thompson, 2006; Schurr, Ruble, & Nisbet, 1984). Similarities to other player positions in goalie's ratings of SC sources show homogeneity among hockey athletes in what contributes to feelings of confidence in sport. High valuation of coach's leadership may point to a head coach's ability to make decisions, lead, and employ strategy to prevent scoring opportunities as a salient source of confidence for netminders. A reliance on the coach to develop effective strategies and systems that prevent breakdowns in game play or easy scoring chances may be related to the salience of coach's leadership to goaltenders.

It is unclear why goaltenders rated all of the SC sources higher than ice hockey players of other positions. Having a small sample size and little variability in scores could contribute the higher means or goaltenders may find items in the SSCQ more salient to feelings of confidence than skaters. Goaltenders were the only player group in this study to list demonstration of ability as a top-four SSCQ factor, rating the source third among the nine sources of sport-confidence. For the sample of collegiate ice hockey players, across all three groups the highest rated four SSCQ factors were social support (first for skaters), physical/mental preparation (second for skaters and fourth for goalies), mastery (skaters) or demonstration of ability (goaltenders) as third, and coach's leadership (fourth for skaters and highest with goalies). Differences exist in the salience of items between positions in hockey as well as across levels of play and sport when compared to

elite non-hockey athletes (Kingston, et al, 2010).

The demands of being a forward, defenseman, or goalie differ in terms of the physicality, strategy, hockey-specific skills, and to some degree the conditioning required for each position. As such, the salience of certain information relevant to performance may be greater for one position than another. Additionally, athletes at the DIII level likely differ from elite players in terms of skill and athletic experience (e.g. try-out and play-off appearances, championship games played, quality of instruction). Differences in athletic background may explain what sources of sport-confidence contribute most to sport-specific feelings of efficacy.

Summary

Throughout a career in athletics a coach will identify a set of characteristics that he or she believes are meaningful for an athlete's success in sport. Past research on collegiate coaches demonstrated that the information most salient during player evaluations is psychological in nature. The importance of an athlete's coachability, qualities as a team player, physical ability, and maturity varies across the researched sports of golf, basketball, and hockey. Similarities exist in the valuation of psychological sources of evaluative information by coaches of multiple sports. When compared to German-trained or U.S. coaches of other sports it appears hockey coaches may find player characteristics or sport-specific abilities important that were not addressed in previous research. However, there are similarities between head and assistant ice hockey coaches in the evaluative criteria employed when assessing hockey players. Whatever it is that hockey coaches are looking for in their players, there appears to be congruence in the valuation of SESS factors across different competitive levels and between head and assistant coaches. Many coaches recognize confidence as important to athletes and from a practical standpoint it is important to know where athletes draw confidence meaningful to sport.

Confidence in sport settings was shown to be contributed to by nine identifiable types of information. The SC sources reported as relevant to Division III athletes' feelings of sport-specific self-efficacy were more akin to findings in contemporary sport-confidence research than the original works defining the concept and developing a measure for SC. The support of significant others and teammates was overall the most meaningful source of sport-confidence to DIII ice hockey athletes in this study. Ratings of the nine sources of sport-confidence differ by player positions. It is possible that differences exist in the information most relevant to feelings of sport-specific confidence between positions in DIII ice hockey. Further research is required to address this possibility. While mean ranks were reported without statistical analysis, the findings pertaining to coach evaluations of athlete performance and sport-confidence have value to sport psychology practitioners and coaches.

Practical Implications

In designing a meaningful study in the field of sport psychology an investigator must construct an experiment that will be a meaningful addition to the literature and have utility for individuals working in the field. This study not only contributed to the expectancy and sport-confidence literature, but produced findings relevant to coaches, athletes, and sport psychology practitioners. The findings will be most likely applicable to work with NCAA ice hockey coaches and athletes at the DIII level. However, findings for both the coach and athlete samples should be generalized with caution as the sample size is small and may not accurately represent all NCAA DI and III ice hockey coaches or every Division III male and female ice hockey athlete.

A practitioner working with collegiate ice hockey teams must understand how coaches evaluate athletes in order to appreciate the rationale behind rostering decisions, selection of starters, and to inform players of what is meaningful to coaches at the collegiate level. The

results point to psychological information as the most salient to coaches. Practitioners can encourage athletes to showcase their work ethic, love of the sport, respect, competitive demeanor, and willingness to learn while the coach is making an initial assessment of the player (top 5 rated items by coaches in this study). Confidence and cognitive anxiety are related to performance in both elite and non-elite athletes (Hays et al., 2009; Vealey & Chase, 2008; Woodman & Hardy, 2003). Sport psychology consultants who encourage players to supplement physical conditioning with mental skills training may facilitate athletes becoming well rounded to meet coach expectations in multiple areas of evaluation. Coaches can use this information in player selection and evaluation. Recognizing that the psychological and physical qualities athletes possess are important to sport performance and may help a coach identify which players are physically and mentally prepared for competition.

Sport psychology consultants working in collegiate ice hockey should be alert to what evaluative criteria coaches employ when assessing players. A consultant beginning work with an ice hockey team could meet with the coach to determine what he or she feels are important qualities for an athlete to possess. After gathering this information the consultant can relate the coach's evaluative criteria to existing literature on expectancy and gain a better understanding of what is meaningful to that specific coach. Whether those criteria coincide with the impression cues highlighted as salient in previous expectancy research or are unique to ice hockey might be relevant to understanding coach behavior. It is important for a sport psychology consultant to know what information an athlete taps in his or her personal life for reassurance of self-efficacy. A consultant should be aware that confidence in sport is drawn from specific sources meaningful to the athlete (Vealey, 1996, 1988; Vealey et al., 1998). It appears the sources of information relevant to ice hockey players varies by position and may be influenced by gender. In planning a

confidence-building intervention a consultant could employ this information in creating a more sport- and position-specific plan in addition to drawing information from areas meaningful to the individual. For example, physical self-presentation may be less meaningful to female ice hockey athletes than to female gymnasts or volleyball players.

An ice hockey coach can utilize this information at any time during the on- or off-season. The knowledge that ice hockey athletes across multiple positions rate social support as a meaningful source of sport-confidence has practical value. The items housed in the social support factor on the SSCQ pertain to receiving and perceiving support from teammates, family, significant others, and coaches. Past research indicates both receiving support and knowing support is available is a buffer against stress and enhances feelings of confidence (Rees & Freeman, 2007; Sarason, Sarason, & Pierce, 1990). A coach can provide encouragement and support to players as well as inform athletes that he or she is available on or off the ice. Making athletes aware of support services, like sport psychology consultants, or encouraging team events where socialization and bonding can happen naturally are all potential strategies for a coach to enhance feelings of social support for his or her athletes. This investigation left some questions unanswered and raised new queries that can be addressed in future research.

Future Directions

This project has produced a number of possibilities for follow-up experiments through research questions targeting expectancy and sport-confidence. Reproducing this study on the same scale and employing different sampling techniques may yield a better response rate. A reason as to why collegiate ice hockey coaches rated the four factors of the SESS lower than German-trained coaches can be ascertained through further research. Determining the player characteristics or sport-specific skills meaningful to collegiate ice hockey coaches during player

evaluations will require interviews with college-level coaches. Exploring coach training programs, like the American Developmental Model developed by USA Hockey, could provide information on what qualities or skills are emphasized as important to U.S. ice hockey coaches. The training programs for U.S. and international coaches at different levels of play and the importance of SESS factors to those coaches in player assessments could be a venue for future research. At the collegiate level players are frequently recruited from Canadian and U.S. junior teams. Therefore studies investigating the salience of SESS factors to coaches from Canada versus the United States could help practitioners and athletes identify what qualities are most important to showcase during try-outs depending on the nationality of the coach.

Similarly, more conclusive or applicable findings in sport-confidence may be achieved through a different sampling method. This study used e-mail invitations and website-based questionnaires, resulting in minimal return from both coaches and athletes. The electronic invitations may have been sent to a spam mail folder, perceived as an advertisement, or may be easier to ignore than a postmarked envelope containing an invitation and the materials. Mailing the requisite forms and questionnaires and including return postage may have resulted in a higher response rate. Future studies in the same vein could examine whether there is a relationship in the valuations of certain sources of sport-confidence by comparable player positions in other sports (i.e. comparing lacrosse defense to ice hockey defense). It appears social support is salient to ice hockey athletes overall and the potential for real or perceived support to buffer anxiety was demonstrated in past research (Rees & Freeman, 2007; Sarason, et al. 1990). A follow-up examining the efficacy of a confidence-building mental skills training program using Vealey's model (Vealey & Chase, 2008) and emphasizing social support could provide information relevant to coaches and practitioners. Whether the SC sources identified as most salient to a

player are related to actual level of confidence in sport is another venue for future research. To help athletes have more meaningful try outs, assist scouts and coaches in recruiting players with qualities important to the coaching staff, and aid consultant in identifying what coaches find meaningful requires further research is required. An explanation as to why coaches responded with greater frequency than athletes merits inquiry. Concerns over the end of the regular season and a desire to minimize distractions for the team as a whole could explain the low response rate.

Conclusion

This study produced information relevant to expectancy theory by focusing on the evaluative criteria coaches employ and to sport-confidence research by identifying what SC source are meaningful to DIII ice hockey players. Head and assistant coaches were similar in the evaluative information they identified as meaningful in athlete evaluations. Overall, collegiate ice hockey coaches rate psychological athlete characteristics highest among expectancy sources. While psychological expectancy sources were ranked above other types of evaluative information, there were no meaningful differences in the data. The lower valuation of expectancy sources by collegiate ice hockey coaches in comparison to coaches of other sports and internationally trained coaches merits notice. Whether international coaches prioritize different sources of expectancy information than U.S. coaches is relevant to athletes trying out for international teams. Showing sources of sport-confidence relevant to an athlete may vary by position was an interesting result of this investigation. It is possible position-specific differences in the experiences that contribute to confidence in sport exist. Consultants need to be aware of this information in designing mental skills training programs for ice hockey athletes. The project provides insights into player assessments and how athletes form feelings of self-efficacy specific

sport. These outcomes may be relevant to coaches and practitioners, but also presents questions answerable through future research.

APPENDIX A

Athlete Demographic Questionnaire

ATHLETE DEMOGRAPHIC QUESTIONNAIRE

Age: _____

Race/Ethnicity: (check one) ___ African-American
 ___ Asian/Asian-American/Pacific Islander
 ___ Caucasian
 ___ Hispanic/Latino
 ___ Middle Eastern
 ___ Native American/Indian
 ___ Other: _____

Team Gender (circle one): Male Female

Competitive Level (circle one): Division I Division III

Position Played in Competitive Hockey: Defenseman Forward Goalie

Years of Hockey Playing Experience: _____

Highest Level of Hockey Achieved: _____

Name of Current Institution: _____

Years at Current Institution: _____

Sv% for 2012-2013 regular season: _____

APPENDIX B

Coach Demographic Questionnaire

APPENDIX C

Solomon Expectancy Sources Scale

Solomon Expectancy Sources Scale

Directions: Below is a list of factors that coaches may consider when assessing athlete ability. Complete the sentence highlighted below by filling in each factor. Please read each sentence carefully and circle the response that reflects your perception when evaluating ability in college athletes. Circle the number of the response that identifies your use of that component when assessing your players' athletic ability.

When evaluating athlete ability, _____ is a component which I use a majority of the time.

	Very Strongly Disagree	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree	Very Strongly Agree
High Aspirations	1	2	3	4	5	6	7
Self Discipline	1	2	3	4	5	6	7
Being a Hard Worker	1	2	3	4	5	6	7
Love of the Sport	1	2	3	4	5	6	7
Team Chemistry	1	2	3	4	5	6	7
Role Acceptance	1	2	3	4	5	6	7
Communication	1	2	3	4	5	6	7
Leadership Qualities	1	2	3	4	5	6	7
Handling Pressure	1	2	3	4	5	6	7
Concentration	1	2	3	4	5	6	7
Mental Maturity	1	2	3	4	5	6	7
Competitive Demeanor	1	2	3	4	5	6	7
Receptivity to Coaching	1	2	3	4	5	6	7
Willingness to Listen	1	2	3	4	5	6	7
Willingness to Learn	1	2	3	4	5	6	7
Integrity	1	2	3	4	5	6	7
Courage	1	2	3	4	5	6	7
Trust	1	2	3	4	5	6	7
Honesty	1	2	3	4	5	6	7
Respect	1	2	3	4	5	6	7
Confidence Level	1	2	3	4	5	6	7
Coordination	1	2	3	4	5	6	7
Strength	1	2	3	4	5	6	7
Speed	1	2	3	4	5	6	7
Reaction Time	1	2	3	4	5	6	7
Agility	1	2	3	4	5	6	7
Athleticism	1	2	3	4	5	6	7
Athletic Experience	1	2	3	4	5	6	7
Ability to Use Good Strategy	1	2	3	4	5	6	7

	Very Strongly Disagree	Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree	Very Strongly Agree
Making Complete Assessments	1	2	3	4	5	6	7

APPENDIX D

Sources of Sport-Confidence Questionnaire

Athlete Self-Rating Scale

Think back to times when you felt very confident when participating in your sport. What things made you feel confident? What things helped you believe in your abilities and gave you confidence that you would be successful?

Listed below are some things that may help athletes feel confident in sport situations. For each statement, circle the number which indicates **HOW IMPORTANT THAT IS IN HELPING YOU FEEL CONFIDENT IN YOUR SPORT**. Please respond to every question even though they may seem repetitive. There are no right or wrong answers because every athlete is different. Please be honest - your answers will be kept completely confidential.

I gain self-confidence in my sport when I...

	not at all important	not very important	slightly important	of average importance	very important	extremely important	of highest importance
1. get positive feedback from my teammates and/or friends.....	1	2	3	4	5	6	7
2. keep my focus on the task.....	1	2	3	4	5	6	7
3. psych myself up.....	1	2	3	4	5	6	7
4. master a new skill in my sport.....	1	2	3	4	5	6	7
5. get breaks from officials or referees..	1	2	3	4	5	6	7
6. perform in an environment (gym, pool, stadium, etc.) that I like and in which I feel comfortable.....	1	2	3	4	5	6	7
7. feel good about my weight.....	1	2	3	4	5	6	7
8. believe in my coach's abilities.....	1	2	3	4	5	6	7
9. know I have support from others than are important to me.....	1	2	3	4	5	6	7
10. demonstrate that I am better than others.....	1	2	3	4	5	6	7
11. see successful performances by other athletes.....	1	2	3	4	5	6	7
12. know that I am mentally prepared for the situation.....	1	2	3	4	5	6	7
13. improve my performance on a skill in my sport.....	1	2	3	4	5	6	7
14. see the breaks are going my way....	1	2	3	4	5	6	7
15. feel I look good.....	1	2	3	4	5	6	7
16. know my coach will make good decisions.....	1	2	3	4	5	6	7
17. am told that others believe in me and my abilities.....	1	2	3	4	5	6	7
18. show my ability by winning or placing.....	1	2	3	4	5	6	7

I gain self-confidence in my sport when I...

	not at all important	not very important	slightly important	of average importance	very important	extremely important	of highest importance
19. watch another athlete I admire perform successfully..... 1	1	2	3	4	5	6	7
20. stay focused on my goals.....1	1	2	3	4	5	6	7
21. improve my skills.....1	1	2	3	4	5	6	7
22. feel comfortable in the environment (gym, pool, stadium, etc.) in which I'm performing.....1	1	2	3	4	5	6	7
23. feel that everything is "going right" for me in that situation.....1	1	2	3	4	5	6	7
24. feel my body looks good.....1	1	2	3	4	5	6	7
25. know my coach is a good leader.....1	1	2	3	4	5	6	7
26. am encouraged by coaches and/or family..... 1	1	2	3	4	5	6	7
27. know I can outperform opponents.... 1	1	2	3	4	5	6	7
28. watch a teammate perform well.....1	1	2	3	4	5	6	7
29. prepare myself physically and mentally for a situation..... 1	1	2	3	4	5	6	7
30. increase the number of skills I can perform..... 1	1	2	3	4	5	6	7
31. like the environment where I am performing..... 1	1	2	3	4	5	6	7
32. have trust in my coach's decisions.....1	1	2	3	4	5	6	7
33. get positive feedback from coaches and/or family..... 1	1	2	3	4	5	6	7
34. prove I am better than my opponents..... 1	1	2	3	4	5	6	7
35. see a friend perform successfully.....1	1	2	3	4	5	6	7
36. believe in my ability to give maximum effort to succeed..... 1	1	2	3	4	5	6	7
37. receive support and encouragement from others..... 1	1	2	3	4	5	6	7
38. show I'm one of the best in my sport...1	1	2	3	4	5	6	7
39. watch teammates who are at my level perform well.....1	1	2	3	4	5	6	7
40. develop new skills and improve.....1	1	2	3	4	5	6	7
41. feel my coach provides effective leadership..... 1	1	2	3	4	5	6	7

Appendix E
Human Subjects Approval Form

INSTITUTIONAL REVIEW BOARD PROTOCOL REVIEW REQUEST

The TCU Institutional Review Board (IRB) is responsible for protecting the welfare and rights of the individuals who are participants of any research conducted by faculty, staff, or students at TCU. Approval by the IRB must be obtained prior to initiation of a project, whether conducted on-campus or off-campus. While student research is encouraged at both the undergraduate and graduate level, only TCU faculty or staff may serve as Principal Investigator and submit a protocol for review.

Please submit this protocol electronically to [IRBFacultySubmit](#) (pdf preferred). Include the Protocol Approval Form as a word document with highlighted sections filled in. Also submit a consent document, HIPAA form if applicable, Protecting Human Research Participants Training certificates, recruitment materials, and any questionnaires or other documents to be utilized in data collection. A template for the consent document and HIPAA form, instructions on how to complete the consent, and a web link for the Protecting Human Research Participants Training are available on the TCU IRB webpage at www.research.tcu.edu. Submission deadline for protocols is the 15th of the month prior to the IRB Committee meeting.

1. **Date:**10/15/2012
2. **Study Title:** Sport-Confidence and Expectancy in Collegiate Ice Hockey
3. **Principal Investigator (must be a TCU faculty or staff):** Michael P. Stacey II
4. **Department:**Kinesiology
5. **Other Investigators:** List all faculty, staff, and students conducting the study including those not affiliated with TCU.
Gloria B. Solomon, Ph.D., CC-AASP
6. **Project Period:**1/28/2013-4/31/2013
7. **If you have external funding for this project –**
Funding Agency: N/A**Project #:**N/A**Date for Funding:**N/A
8. **If you intend to seek/are seeking external funding for this project –**
Funding Agency: N/A**Amount Requested From Funding Agency:**N/A
Due Date for Funding Proposal:N/A
9. **Purpose:**Describe the objectives and hypotheses of the study and what you expect to learn or demonstrate:

This investigation has eight purposes. The first purpose is to test whether psychological information

is more salient to head collegiate ice hockey coaches than assistant coaches. A second purpose is to identify differences in the sources of expectancy information used by more and less successful head coaches. The third purpose is to distinguish between the sources of expectancy information used by more and less successful goalie coaches. A fourth purpose of this study is to test the sources of Sport-Confidence salient to collegiate ice hockey players. A fifth purpose is to identify which sources of Sport-Confidence are most salient to collegiate hockey players of different competitive levels. A sixth purpose is to identify differences in the sources of Sport-Confidence hockey players use by scholarship status. A seventh purpose is to test identify the sources of Sport-Confidence salient to more and less successful goalies.

10. Background: Describe the theory or data supporting the objectives of the study and include a bibliography of key references as applicable.

Expectancy theory states that coaches base expectations of athletic ability on a number of athlete characteristics. These sources of information, termed psychological and physical impression cues, were discovered to be predictive of athlete performance by members of the coaching staff (Solomon, 2001a, 2001b, 2002a, 2002b). Studies of coaches at two time-points during the athletic season demonstrated psychological impression cue use by head coaches and physical impression cue use by assistant coaches was predictive of athlete performance (Solomon, 2001a, 2001b, 2002a, 2002b). A three-phase study developed a measure that assessed the sources of expectancy information coaches used to evaluate athletes (Solomon Expectancy Sources Scale; Solomon, 2008). In expectancy research on sources of expectancy sources salient to head and assistant coaches, collegiate ice hockey teams were not included. During the development of the SESS, a small number of hockey teams ($n=X$), compared to other sports teams ($n=Y-X$), contributed to the construction of the measure (Solomon, 2008). Although hockey goalies are included in the sample, the effect on a statistical analysis would be smaller than the impact of better represented sports. The primary purpose of this investigation is to use the SESS to assess sources of expectancy information salient to head and assistant coaches of collegiate ice hockey. Results will indicate if the results of previous expectancy research (Solomon, 2001a, 2001b, 2002a, 2002b) are generalizable to ice hockey. Additionally, the findings will validate the SESS on an underrepresented population in the expectancy literature.

Exploratory questions in this investigation are based on previous research in Sport-Confidence. It is known in expectancy research that confidence is an impression cue salient to head coaches (Solomon, 2001a, 2002a). Confidence in athletics is drawn from sources of information both internal and external to the athlete (Mochida, Marie Ward, Vealey, 2012 ; Vealey, 1986, 1988; Vealey & Chase, 2008; Vealey, Hayashi, Garner-Holman, & Giacobbi, 1998; Vealey & Knight, 2002). The influence of perfectionism on the salience of sources of sport confidence was studied using a sample that includes ice hockey players (Machida et al., 2012). However, the sources of confidence most salient to goaltenders has yet to be determined. The secondary purpose of this study will be fulfilled through use of the Sources of Sport Confidence Scale (SSCQ; Vealey, 1998) to identify the sources of confidence drawn on by ice hockey goaltenders.

References:

Machida, M., Marie Ward, R., & Vealey, R.S. (2012). Predictors of sources of self-confidence in collegiate athletes. *International Journal of Sport & Exercise Psychology*, 10, 172-185.

Solomon, G.B. (2001a). Performance and personality impression cues as predictors of athletic

- performance: An extension of expectancy theory. *International Journal of Sport Psychology*, 32, 88-100.
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- Solomon, G.B. (2002a). Confidence as a source of expectancy information: A follow-up investigation. *International Sports Journal*, 6, 119-127.
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- Solomon, G.B. (2008). Expectations and perceptions as predictors of coaches' feedback in three competitive contexts. *Journal for the Study of Sports and Athletics in Education*, 2, 161-179.
- Vealey, R.S. (1986). Conceptualization of sport-confidence and competitive orientation: Preliminary investigation and instrument development. *Journal of Sport Psychology*, 8, 221-246.
- Vealey, R.S. (1988). Sport-confidence and competitive orientation: An addendum on scoring procedures and gender differences. *Journal of Sport & Exercise Psychology*, 10, 471-478.
- Vealey, R.S., Hayashi, S.W., Garner-Holman, M., & Giacobbi, P. (1998). Sources of sport-confidence: Conceptualization and instrument development. *Journal of Sport & Exercise Psychology*, 20, 54-80.
- Vealey, R.S., & Knight, B.J. (2002, September). *Multidimensional sport-confidence: A conceptual and psychometric extension*. Paper presented at Association for the Advancement of Applied Sport Psychology Conference, Tucson, AZ.
- Vealey, R.S. & Chase, M.A. (2008). Self-confidence in sport: Conceptual and research advances. In T.S. Horn (Ed.), *Advances in sport psychology* (pp. 65-97). Champaign, IL: Human Kinetics

11. Subject Population: Describe the characteristics of the participant population including the inclusion and exclusion criteria and the number of participants you plan to recruit:

Completion of this project will require the participation of collegiate ice hockey athletes and coaches. The populations to be sampled are Division I (DI) and Division III (DIII) ice hockey teams. DI teams men's teams (N= 59) and women's teams (N= 35) will compose approximately 44% of the population sampled. DIII men's (N=72) and women's (N=49) hockey teams will be approximately 56% of the total population. Altogether, all NCAA-affiliated ice hockey programs competing in DI and DIII will be surveyed. Investigation of three levels of college ice hockey will yield results relevant to the highest and lowest levels of NCAA and allow for the examination of between-level differences.

12. Recruitment Procedure: Describe your recruitment strategies including how the potential participants will be approached and precautions that will be taken to minimize the possibility of undue influence or coercion. Include copies of the recruitment letters, leaflets, etc. in your submission.

Ice hockey coaches will be identified at each institution's website. Coach email addresses will be collected from the web page and saved in an electronic database accessible only to the principle investigator. Participants will be sent an initial email containing consent forms (for athletes and coaches), a letter that invites participation, and a link to the questionnaires hosted by *Qualtrics* (see Appendix A). Following the link will allow coaches access to the *Qualtrics* website to complete the demographic questionnaire and SESS to measure expectancy sources. Coaches will also be asked to forward the message and attached forms to the rest of the coaching staff and all rostered athletes.

Once coaches have forwarded the message, the same procedures will be applied for athletes, however the players will be issued the SSCQ (Sources of Sport Confidence Questionnaire; Vealey, Hayashi, Garner-Holman, & Giacobbi, 2008) to identify sources of sport confidence, instead of the SESS. Each coach and goalie will be assigned a number to help maintain accurate records and anonymity. Regular season coach and athlete statistics will be obtained on the university's athletics website. Both coach and player participants will be allotted two weeks from the day of initial contact to access the *Qualtrics* website and complete the instruments. A reminder email will be sent after one week to all coaches prompting them to complete the surveys and thanking those who already have.

13. Consenting Procedure: Describe the consenting procedure, whether participation is completely voluntary, whether the participants can withdraw at any time without penalty, the procedures for withdrawing, and whether an incentive (describe it) will be offered for participation. If students are used as participants, indicate an alternative in lieu of participation if course credit is provided for participation. If a vulnerable population is recruited, describe the measures that will be taken to obtain surrogate consent (e.g., cognitively impaired participants) or assent from minors and permission from parents of minors.

Via email, participants will receive a consent form (Appendix G, J) to detail the purposes and procedures of this project. Consent will be assumed when the consent form is read and the participants follow a link to the online surveys hosted at *Qualtrics.com*. At any time, participants may choose to withdraw without finishing the questionnaires without penalty. There will be no incentives

for completion of the surveys. Once all surveys are completed, the participants will be thanked for participation and sent the major findings.

14. Study Procedures: Provide a chronological description of the procedures, tests, and interventions that will be implemented during the course of the study. Indicate the number of visits, length of each visit, and the time it would take to undergo the various tests, procedures, and interventions. If blood or tissue is to be collected, indicate exactly how much in simple terms. Flow diagrams may be used to clarify complex projects.

There are three questionnaires that the participants will be asked to complete. One, a Demographic Questionnaire for athletes or coaches, will serve to obtain relevant background information including age, gender, race/ethnicity, level coached, gender coached, years of experience, and performance statistics (see Appendix G, J). Two, the Solomon Expectancy Sources Scale (SESS; Solomon, 2010) will be issued to coaches. The measure contains 30-items across four factors: Coachability, Team Player, Physical Ability, and Maturity (see Appendix A). Third, the Sources of Sport-Confidence Questionnaire (SSCQ; Vealey et al., 1998) will be administered to players. There are 41 items on the SSCQ housed by 9 factors: Mastery, demonstration of ability, mental and physical preparation, physical self-presentation, support, vicarious experience, environmental comfort, situational favorableness, coach's leadership. A coach or player completing their respective questionnaires will require approximately 20 to 30 minutes.

15. Data Analyses: Describe how you will analyze your data to answer the study question.

Testing whether psychological information is more salient to head coaches than assistant coaches will require a multivariate analysis of variance (MANOVA) will be performed. Coaches will be grouped by coach type by responses to the demographic questionnaire: head, assistant, goalie. These groups will serve as the independent variable. The dependent variable will be the four factors of the SESS (Coachability, Team Player, Physical Ability, and Maturity).

To determine whether differences exist in the expectancy sources prioritized by more and less successful head coaches, four independent samples t-tests will be ran. More and less successful head coaches will be grouped by win percentage (successful = win percentage > .600, unsuccessful = win percentage < .500). These two groups will be the independent variable. The four factors of the SESS (Coachability, Team Player, Physical Ability, and Maturity) will serve as the dependent variable.

Testing whether differences exist in the expectancy sources used by more and less successful goalie coaches will be done through four independent samples t-tests. More and less successful goalie coaches will be differentiated by goalie save percentage (successful = save percentage > .920, unsuccessful = save percentage < .900). These two groups will serve as the independent variable. The dependent variable will be the four sources of the SESS (Coachability, Team Player, Physical Ability, and Maturity).

In order to test whether there are differences in the sources of Sport-Confidence salient to collegiate ice hockey players, a multivariate analysis of variance (MANOVA) will be used. Players will be grouped by position (forward, defense, goalie) with player position serving as the independent variable. The dependent variable will be the nine sources of Sport-Confidence of the SSCQ (mastery, demonstration of ability, mental and physical preparation, physical self-presentation, social support, vicarious experience, environmental comfort, situational favorableness, and coach's leadership).

To test what sources of Sport-Confidence are salient to collegiate ice hockey players of different competitive levels, nine independent samples t-tests will be performed. Athletes will be grouped by division (Division I and Division III in men's hockey or National Collegiate and Division III in women's hockey). Level of play groupings will serve as the independent variable. The dependent variable will be the nine sources of Sport-Confidence of the SSCQ (mastery, demonstration of ability, mental and physical preparation, physical self-presentation, social support, vicarious experience, environmental comfort, situational favorableness, and coach's leadership).

Determining whether the sources of Sport-Confidence differ by scholarship status, a multivariate analysis of variance (MANOVA) will be performed. Athletes will be grouped by scholarship status (full, partial, none), with scholarship status serving as the independent variable. The dependent variable will be the nine sources of Sport-Confidence of the SSCQ (mastery, demonstration of ability, mental and physical preparation, physical self-presentation, social support, vicarious experience, environmental comfort, situational favorableness, and coach's leadership).

Testing whether differences exist in the sources of Sport-Confidence salient to more and less successful ice hockey goaltenders will require nine independent samples t-tests. More and less successful goalie coaches will be differentiated by goalie save percentage (successful = save percentage > .920, unsuccessful = save percentage < .900). The independent variable will be goaltender success. The dependent variable will be the nine sources of Sport-Confidence of the SSCQ (mastery, demonstration of ability, mental and physical preparation, physical self-presentation, social support, vicarious experience, environmental comfort, situational favorableness, and coach's leadership).

16. Potential Risks and Precautions to Reduce Risk: Indicate any physical, psychological, social, or privacy risk which the subject may incur. Risk(s) must be specified. Also describe what measures have been or will be taken to prevent and minimize each of the risks identified. If any deception is to be used, describe it in detail and the plans for debriefing.

Minimal risk is involved in participating in this study. The measures employed are non-sensitive and have been implemented in previous Surveys will collect no sensitive information from coaches or goaltenders. Participants taking the SESS will be asked questions relevant only to the information used to assess goaltenders. Goaltenders will only be queried to determine sources of confidence. After the participants are coded, there will be no way to determine who provided data.

17. Procedures to Maintain Confidentiality: Describe how the data will be collected, de-identified, stored, used, and disposed to protect confidentiality. If protected health information is to be re-identified at a later date, describe the procedure for doing so. All signed consents and hard data must be stored for a minimum of 3 years in a locked filing cabinet (and locked room) in the principal investigator's office, lab, or storage closet at TCU. Your professional society may recommend keeping the materials for a longer period of time.

Each participant will be assigned a number, which will be used throughout data analysis. Information that could identify a participant will be stored on a password-protected flash drive accessible only to the principle investigator, Michael Stacey II. The results of this investigation will be used in completing a thesis. From the thesis, a manuscript will be written for publication in a sport psychology journal. A separate manuscript focus on the applicability of the results will be submitted to a coaching journal. No subjects will be identifiable through discussion of the results.

18. Potential Benefits: Describe the potential benefits of the research to the participants, to others with similar problems, and to society.

The results of this study can be applied to aid coaches in assessing and developing collegiate athletes. Additionally, the findings relevant to goaltenders will help hockey goalies and sport psychology consultants identify information or experiences that build athlete confidence. All participants will receive information as to the purpose of the study and provided with a report of the results upon request. The purpose and findings will be sent via email to the address collected from the athletics website unless a different address is requested by the participant.

19. Training for Protecting Human Research Participants: Submit training certificates for all the study investigators. The training link is available on the TCU IRB webpage at www.research.tcu.edu.

20. Check List for the Items That Need to be Submitted: Please combine all the files into one pdfdocument before submitting the materials electronically to the IRB. To prevent any delay in the approval of your protocol, use the most recent template for the protocol, consent document, and HIPAA form by downloading them from www.research.tcu.edu each time you prepare your materials.

- | | |
|--|--------------------------|
| a. Protocol | <input type="checkbox"/> |
| b. Consent document | <input type="checkbox"/> |
| c. HIPAA form if applicable | <input type="checkbox"/> |
| d. Protecting Human Research Participants Training certificate for each investigator | <input type="checkbox"/> |
| e. Recruitment fliers, letters, ads, etc. | <input type="checkbox"/> |
| f. Questionnaires or other documents utilized in screening and data collection | <input type="checkbox"/> |



Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that **Gloria Solomon** successfully completed the NIH Web-based training course "Protecting Human Research Participants".

Date of completion: 01/06/2011

Certification Number: 591229



Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that **Michael Stacey II** successfully completed the NIH Web-based training course "Protecting Human Research Participants".

Date of completion: 10/04/2011

Certification Number: 778885

Appendix F

Letter of Intent for Coaches



Texas Christian University

Harris College of Nursing and Health Sciences
Department of Kinesiology

December 5, 2012

Dear Coach ,

My name is Michael Stacey and I am a graduate student in the Department of Kinesiology at Texas Christian University. I am expanding on two lines of research that have mostly overlooked hockey athletes and coaches. One line of inquiry examines interactions between college coaches and athletes. The second focuses on the evaluation of confidence in ice hockey players. In bringing these lines of research together, I am primarily interested in how collegiate coaches develop student-athletes into high-level performers and the feelings of confidence those athletes experience.

Despite the popularity of ice hockey, it is underrepresented in sport psychology research in comparison to other team sports. Part of the purpose of this research is to give hockey more representation and attention in sport psychology. As a result of this investigation, I hope to understand two key aspects of ice hockey. First, what information a coach uses when evaluating an athlete. Second, how ice hockey players build confidence.

At this time, I am inviting all NCAA-affiliated DI, National Collegiate, and DIII men's and women's ice hockey coaches and athletes to contribute to this research. You, your coaching staff, and athletes are invited to participate in this investigation. Your involvement would require approximately 20 minutes for the completion of two questionnaires. If you feel comfortable with your team participating, please forward this message with its attachments to your coaching staff and team. They will be receiving similar materials that take approximately 20 minutes to complete.

Your and every participant's responses are kept completely anonymous and confidential. Upon completion of the materials, respondents and institutions will be assigned numbers for anonymity. All data obtained will be pooled and reported on as group, not individual, results. As a future sport psychology consultant, I think your insights about how you judge athlete ability will help people like myself better work with athletes and train future coaches to assess players in a fair and unbiased way.

If you have any questions, please respond to this message or call me at the phone number below. Please read the attached consent form provided below. To access the questionnaires, just click on this link.

https://tcuharris.qualtrics.com/SE/?SID=SV_2oFJQLA5YfMqAYJ

Thank you for your attention.

Sincerely,

Michael P. Stacey II, BA
USA Hockey Coach – Level 1
Department of Kinesiology
Texas Christian University
Fort Worth, TX 76129
814-207-4284
(m.p.stacey@tcu.edu)

Appendix G
Coach Consent Form



Texas Christian University
Fort Worth, Texas

CONSENT TO PARTICIPATE IN RESEARCH

Title of Research: Breaking the Ice: Brining Hockey into Sport Psychology Research

Funding Agency/Sponsor: N/A

Study Investigator: Michael P. Stacey II, Gloria B. Solomon, Ph.D.

What is the purpose of the research?

Investigating the way ice hockey coaches evaluate athletes. Evaluating confidence in ice hockey players

How many people will participate in this study?

All Division I and Division III hockey teams (N=215) will be invited to participate.

What is my involvement for participating in this study?

For coaches to participate, they will require a signed consent form, a Demographic Questionnaire, and completion of 30 items on the Solomon Expectancy Sources Questionnaire.

For athletes to participate, they will require a signed consent form, a Demographic Questionnaire, and completion of 41 items on the Sources of Sport-Confidence Questionnaire.

How long am I expected to be in this study for and how much of my time is required?

Completion of all forms and questionnaires should take approximately 20-30 minutes.

What are the risks of participating in this study and how will they be minimized?

Participation in this study carries minimal risk. The tools are non-sensitive and have been used in past studies on multiple populations. The expectancy assessment collects data on the type of information used in decision-making by coaches. The confidence questionnaire gathers information relevant to athletes' feeling of confidence. Both assessment tools are non-sensitive.

Any data gathered is not harmful to the individual or compromisingly personal. None of the tools employed require participants to divulge sensitive information. All participants will be assigned a number, which will be used for identification.

What are the benefits for participating in this study?

Your participation may provide information to assist coaches in their assessment and development of athletes in the college sport environment. That information could possibly lead to better coach education and training. Since this is an exploratory study, there are minimal immediate benefits. Participation may provide coaches with information to assist in the

development and assessment of athletes. Goaltenders will gain information that can benefit in building a sense of self-confidence. The information gathered can possibly be used in coach training and player development.

Will I be compensated for participating in this study?

There is no compensation for participation, but a copy of the results can be sent upon request.

What is an alternate procedure(s) that I can choose instead of participating in this study?

There is no alternate procedure.

How will my confidentiality be protected?

Questionnaires will not require participant names. There will be no items requesting information that could potentially identify the institution of the coach's affiliation. All data will be stored on a password-protected computer in the TCU Sport Psychology Lab in the Rickel Building. At the culmination of this study, after the pre-designated waiting period, all materials completed by participants will be erased and destroyed. Findings will be presented at a national conference (Association for Applied Sport Psychology) and then published in a coaching journal.

Is my participation voluntary?

Participation in this study is completely voluntary.

Can I stop taking part in this research?

Yes. You may choose to stop participating at any time for any reason.

What are the procedures for withdrawal?

There is no penalty for withdrawal. You may withdraw from the study at any time by simply not completing or submitting the materials.

Will I be given a copy of the consent document to keep?

You may print a copy of this consent for your personal records.

Who should I contact if I have questions regarding the study?

Michael P. Stacey II will be available to answer any questions you may have now or later about this research. His phone number is 814-207-4284 and his email address is m.p.stacey@tcu.edu.

Who should I contact if I have concerns regarding my rights as a study participant?

Dr. Timothy Barth, IRB Co-Chair TCU, Telephone 817-257-6412.

Dr. David Cross, IRB Chair, Telephone 817-257-6416.

Your signature below indicates that you have read or been read the information provided above, you have received answers to all of your questions and have been told who to call if you have any more questions, you have freely decided to participate in this research, and you understand that you are not giving up any of your legal rights.

Participant Name (please print): _____

Participant Signature: _____

Date: _____

Investigator Name (please print): _____

Date: _____

Investigator Signature: _____

Date: _____

Appendix H

Reminder E-mail for Coaches



Texas Christian University

Harris College of Nursing and Health Sciences
Department of Kinesiology

December 5, 2012

Dear CoachName/AthleteName,

I would like to thank you for completing the questionnaires and contributing to the representation of ice hockey in sport psychology research. If you have not yet found time, there is still a two-week window to complete the materials. Please follow the link below, if you would like to participate.

https://tcuharris.qualtrics.com/SE/?SID=SV_2oFJQLA5YfMqAYJ

If you have questions or concerns, reply to this e-mail or call me at the number listed below. I will do my best to respond to any questions you have. Please read the attached consent form provided.

Thank you for your attention.

Sincerely,

Michael P. Stacey II, BS
Department of Kinesiology
Texas Christian University
Fort Worth, TX 76129
814-207-4284
(m.p.stacey@tcu.edu)

Appendix I
Athlete Letter of Intent



Texas Christian University

Harris College of Nursing and Health Sciences
Department of Kinesiology

December 5, 2012

Dear ,

My name is Michael Stacey and I am a graduate student in the Department of Kinesiology at Texas Christian University. I am expanding on two lines of research that have mostly overlooked hockey athletes and coaches. One line of inquiry examines the interactions that occur between college coaches and athletes. The second focuses on the evaluation of confidence in ice hockey players. I am primarily interested in how collegiate coaches develop student-athletes into high-level performers and the feelings of confidence those athletes experience.

As a result of this investigation, I hope to understand two key aspects of ice hockey. First, what information a coach uses when evaluating an athlete. Second, how ice hockey players build confidence. At this time, I am inviting all NCAA ice hockey coaches and athletes to contribute to this research. As such, you are invited to participate in this investigation. Your involvement would require approximately 20 minutes for the completion of two questionnaires.

Your and every participant's responses are kept completely anonymous and confidential. Upon completion of the materials, you will be assigned a number and all data obtained will be reported as group, not individual, results. As a future sport psychology consultant, I think your insights about confidence will help people like myself better work with athletes and train future coaches.

If you have any questions at this time, please respond to this message or call me at the phone number below. Please read the attached consent form provided below. To access the questionnaires, just click on this link.

https://tcuharris.qualtrics.com/SE/?SID=SV_2oFJQLA5YfMqAYJ

Thank you for your attention.

Sincerely,

Michael P. Stacey II, BS
Department of Kinesiology
Texas Christian University
Fort Worth, TX 76129
814-207-4284
(m.p.stacey@tcu.edu)

Appendix J
Athlete Consent Form



Texas Christian University
Fort Worth, Texas

CONSENT TO PARTICIPATE IN RESEARCH

Title of Research: Breaking the Ice: Brining Hockey into Sport Psychology Research

Funding Agency/Sponsor: N/A

Study Investigator: Michael P. Stacey II, Gloria B. Solomon, Ph.D.

What is the purpose of the research? Investigating the way ice hockey goalie coaches evaluate athletes. Evaluating confidence in ice hockey players.

How many people will participate in this study? All Division I and Division III hockey teams (N=215) will be invited to participate.

What is my involvement for participating in this study?

For athletes to participate, they will require a signed consent form, a Demographic Questionnaire, and completion of 41 items on the Sources of Sport-Confidence Questionnaire.

How long am I expected to be in this study for and how much of my time is required?

Completion of all forms and questionnaires should take approximately 20-30 minutes.

What are the risks of participating in this study and how will they be minimized? Participation in this study carries minimal risk. The tools are non-sensitive and have been used in past studies on multiple populations. The confidence questionnaire gathers information relevant to athletes' feeling of confidence. Both assessment tools are non-sensitive.

Any data gathered is not harmful to the individual or compromisingly personal. None of the tools employed require participants to divulge sensitive information. All participants will be assigned a number, which will be used for identification.

What are the benefits for participating in this study?

Your participation may provide information to assist coaches in their assessment and development of athletes in collegiate athletics. That information could possibly lead to better coach education and training. Since this is an exploratory study, there are minimal immediate benefits. Goaltenders will gain information that can be beneficial to building a sense of self-confidence.

Will I be compensated for participating in this study?

There is no compensation for participation, but a copy of the results can be sent upon request.

What is an alternate procedure(s) that I can choose instead of participating in this study?

There is no alternate procedure.

How will my confidentiality be protected?

Questionnaires will not require participant names. There will be no items requesting information that could potentially identify the institution of the coach's affiliation. All data will be stored on a password-protected computer in the TCU Sport Psychology Lab in the Rickel Building. At the culmination of this study, after the pre-designated waiting period, all materials completed by participants will be erased and destroyed. Findings will be presented at a national conference (Association for Applied Sport Psychology) and then published in a coaching journal.

Is my participation voluntary?

Participation in this study is completely voluntary.

Can I stop taking part in this research?

Yes. You may choose to stop participating at any time for any reason.

What are the procedures for withdrawal?

There is no penalty for withdrawal. You may withdraw from the study at any time by simply not completing or submitting the materials.

I may withdraw from the study at any time without penalty by simply not completing or submitting the online questionnaires.

Will I be given a copy of the consent document to keep?

You may print a copy of this consent for your personal records.

Who should I contact if I have questions regarding the study?

Michael P. Stacey will be available to answer any questions you may have now or later about this research. His phone number is 814-207-4284 and his email address is m.p.stacey@tcu.edu.

Who should I contact if I have concerns regarding my rights as a study participant?

Dr. Timothy Barth, IRB Co-Chair TCU, Telephone 817-257-6412.

Dr. David Cross, IRB Chair, Telephone 817-257-6416.

Your signature below indicates that you have read or been read the information provided above, you have received answers to all of your questions and have been told who to call if you have any more questions, you have freely decided to participate in this research, and you understand that you are not giving up any of your legal rights.

Participant Name (please print): _____

Participant Signature: _____

Date: _____

Investigator Name (please print): _____

Date: _____

Investigator Signature: _____

Date: _____

Appendix K

Reminder E-mail to Athletes



Texas Christian University

Harris College of Nursing and Health Sciences
Department of Kinesiology

December 5, 2012

Dear CoachName/AthleteName,

I would like to thank you for completing the questionnaires and contributing to the representation of ice hockey in sport psychology research. If you have not yet found time, there is still a two-week window to complete the materials. Please follow the link below, if you would like to participate.

https://tcuharris.qualtrics.com/SE/?SID=SV_2oFJQLA5YfMqAYJ

If you have any questions or concerns, reply to this e-mail or call me at the number listed below. I will do my best to respond to any questions you have. Please read the attached consent form provided.

Thank you for your attention.

Sincerely,

Michael P. Stacey II, BS
Department of Kinesiology
Texas Christian University
Fort Worth, TX 76129
814-207-4284
(m.p.stacey@tcu.edu)

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