EXAMINING A MODEL OF CAREER ADVANCEMENT OF FEMALE AND MALE ASSISTANT COACHES

By

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ABSTRACT

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Since the inception of Title IX, women's participation in sport has significantly increased. However, there is a significant decline in the number of women in the coaching profession (Acosta & Carpetner, 2012). Scholars claim that women's lower intention to advance their career may be contributing to their limited representation in leadership positions (e.g., Cunningham et al., 2003; van Vianen & Keizer, 1996). As an exploratory investigation, and informed by the existing literatures (e.g., DeRue & Wellman, 2009; Dragoni et al., 2009; Machida et al., 2012; Moran-Miller & Flores, 2011) and theories (Bandura, 1997; Van Velsor et al., 2010), the purposes of the present study were (a) to examine the influences of a wide array of antecedents on assistant coaches' intentions to advance their career, and (b) to investigate possible gender differences. The antecedents examined in the present study included leader competency, motivation to lead, leader self-efficacy, outcome expectancy, developmental experiences which consist of developmental challenges and head coach professional support (i.e., feedback, support, and mentoring), learning orientation, work-family and family-work conflicts, and gender discrimination. Six hundred and seventy-three assistant coaches who coach collegiate women's teams and 245 of their head coaches participated in the study. Data analyses were conducted in two main phases. First, structural equation models were tested with the whole sample of assistant coaches (N = 673). Second,

using composite scores of the factors confirmed in the first phase, I conducted path analyses with the sub-sample of assistant coaches who had head coaches' evaluations of assistant coaches' leader competency (n = 245). Multiple indicators multiple causes (MIMIC) models and multiple group analyses were conducted to examine gender differences. The results from the two phases of the analyses were generally consistent. Overall, the results showed that leader self-efficacy and outcome expectancy were positively related to career intention through their effects on motivation to lead. Developmental experiences, which consist of developmental challenges and head coach professional support, were positively related to leader self-efficacy. Learning orientation was positively related to engagement in developmental experiences. In addition, the results showed that family-work conflict was directly and negatively related to motivation to lead, while gender discrimination was negatively related to outcome expectancy, which in turn was related to motivation to lead. The findings from the present study also suggest possible gender differences in the roles of the factors examined. Although women had higher outcome expectancy and motivation to lead than men, women reported lower career intention, leader self-efficacy, and developmental challenges than men. Theoretical and research implications as well as practical implications of the findings are discussed.

This dissertation is dedicated to my family who has provided a tremendous amount of support for my education in the United States for the last 10 years.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

Nature of the Problem

Research supports that women are as capable as men to lead (e.g., Eagly & Carli, 2007; Eagly & Chin, 2010). However, there are very few women leaders, especially in fields such as athletics that are considered “masculine” in nature. This trend is salient worldwide and can be seen in the structure of many athletic organizations, such as the International Olympic Committee (IOC) and the National Collegiate Athletic Association (NCAA). Though small, women’s representation in athletic professions such as collegiate athletic administration has shown steady increase (Acosta & Carpenter, 2012). One athletic career that shows significant decline in women’s representation is intercollegiate sport coaching. In 1972, when Title IX was instituted, women coached over 90% of women’s teams. However, currently, women coach only 42% of women’s teams. Thus, more than half of women’s teams are coached by men, though less than 3% of men’s teams are coached by women (Acosta & Carpenter, 2012).

Having female representation in the athletic profession has significant implications for society. Scholars argue that female leaders in athletics can play a crucial role in affecting the lives of athletes, especially young female athletes (e.g., Hasbrook, 1987; Hepler & Feltz, 2008). Although increased female representation in leadership positions in athletics can have significant positive impacts, there are various sociological and psychological challenges that are faced by women to advance in their

career (e.g., Bracken, 2009; Eagly & Carli, 2007; Epitropaki & Martin, 2004; Sartore & Cunningham, 2007). Scholars in business and sport settings suggest that women's and men's career development processes are different, and they have indicated that programs that are specifically targeted to women are necessary to increase gender equity in organizations (Greenhill, Auld, Cuskelly, & Hopper, 2009; Knoppers, 1987; Leonard, 1989; Lovett & Lowry, 1994; Schwalbe, Godwin, Holden, Schrock, Thompson, & Wolkomir, 2000; Shaw & Frisby, 2006; Stangl & Krane, 1998). However, there is little empirical study that examined such gender differences. Thus, it is still unclear how women's leader development and career advancement processes might differ from men's, and how such gender differences may surface in the career development of coaches.

Purposes of the Study and Hypotheses

Intercollegiate coaching is the athletic leadership profession that shows the largest decline in women's representation (Acosta & Carpenter, 2012). The purposes of the present study were to examine the factors that influence intercollegiate coaches' leader development and career advancement, and to investigate gender differences in the process. I believe that the present study has significant implications for those who study women's leadership, including leadership in athletics, and for those organizations and fields that struggle to increase women's representation in leadership positions.

Intention as a Predictor of Career Advancement

Intention can be considered as the best predictor of individuals' behaviors (Ajzen, 1991; Armitage & Conner, 2001; Gordin & Kok, 1996), and research supports this relationship in various settings, such as health and safety (e.g., Elliot, Armitage, &

Baugham, 2003; Gordin & Kok, 1996), exercise (e.g., Dzewaltowski, Noble, & Shaw, 1990; Hagger, Chatzisarantis, & Biddle, 2001), and industry and organizations (e.g., Hurtz & Williams, 2009; Maurer & Palmer, 1999; McCarthy & Garavan, 2006). Though there is a dearth of studies examining the intentions of leaders in career advancement, a few studies suggest that females have lower intention than males to advance their careers in general business (Gupta, Turban, & Bhawe, 2008; van Vianen & Keizer, 1996) as well as in athletics settings (Cunningham, Doherty, & Gregg, 2007; Cunningham, Sagas, & Ashley, 2003). Intention may be critical, especially for women's career advancement, and can be one of the factors that explain why women are underrepresented in leadership positions in athletics. Thus, the present study examined intention to advance one's coaching career as the proximate predictor of one's career advancement.

There is no empirical study to date in any field, including athletics, which extensively examined the leaders' career advancement model and explored possible gender differences in the process. The present study was exploratory in nature; thus it did not aim to propose a theoretical framework of leaders' career advancement. Rather, informed by past literatures in the field (e.g., DeRue & Wellman, 2009; Dragoni, Tesluk, & Oh, 2009; Machida, Schaubroeck, & Feltz, 2012; Moran-Miller & Flores, 2011) as well as various theoretical models and frameworks (Bandura, 1997; Van Velsor, McCauley, & Ruderman, 2010), the present study examined possible influences of a wide array of antecedents on coaches' career intention, which was conceptualized to be the predictor of their career advancement. I identified plausible facilitating antecedents including developmental challenges, feedback, support, mentoring relationship, and learning

orientation. Common issues women face in advancing their careers, such as work-family and family-work conflicts and gender discrimination, were also considered. The hypothesized model is presented in Figure 1. In addition to testing the hypothesized model, I examined the potential differences in the factors and roles of these factors in the leader development and career advancement processes between women and men.

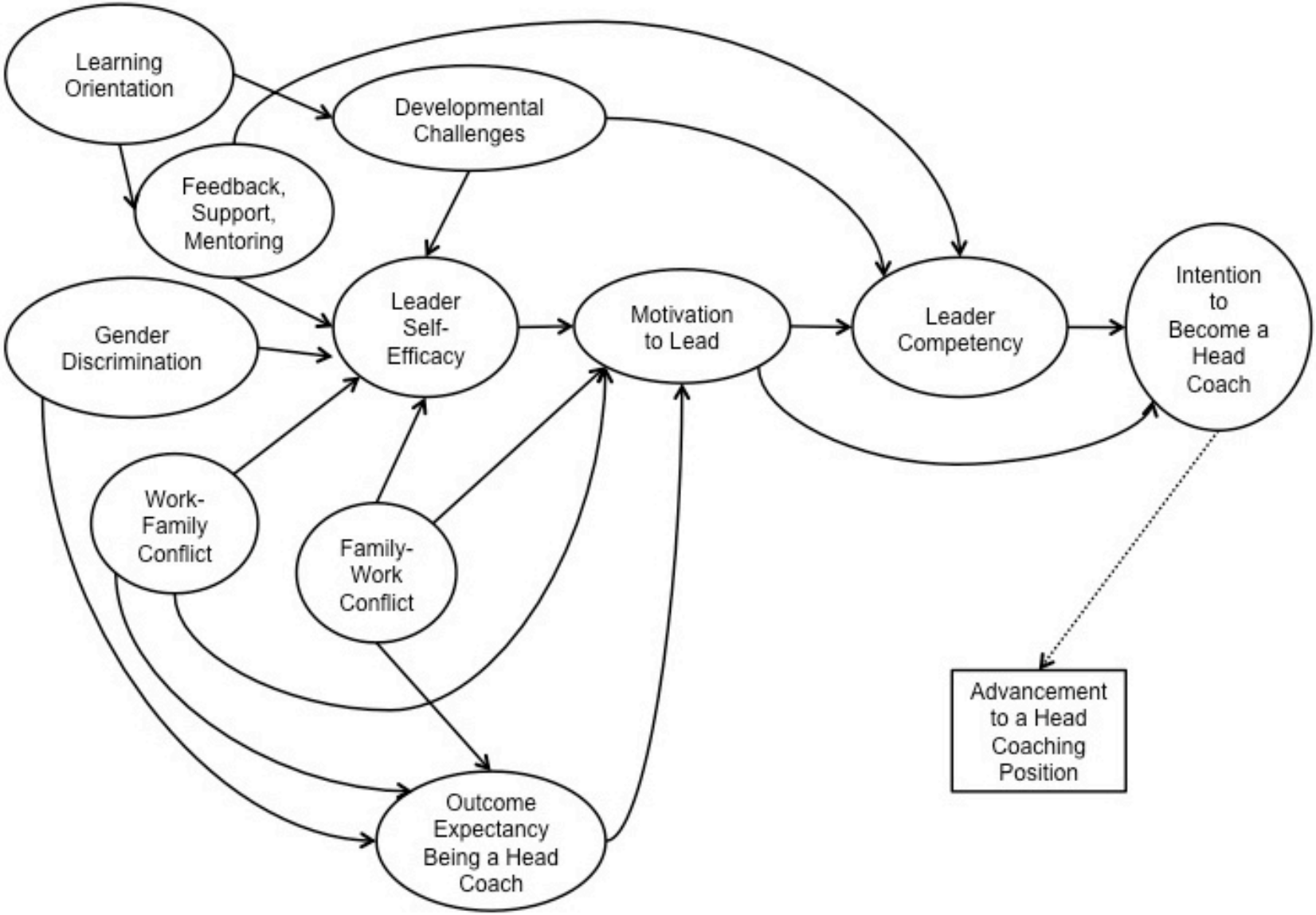

Figure 1. Hypothesized Model of Leader Development and Career Advancement of Coaches

Leader Competency

Leader development can be defined as the process by which individuals learn leadership skills and develop the competencies critical for effectiveness in leadership positions (Dragoni et al., 2009; Spreitzer, McCall, & Mahoney, 1997; Van Velsor et al., 2010). Leader competency includes cognitive, interpersonal, business, and strategic skills (Mumford, Campion, & Morgeson, 2007). If assistant coaches are properly being developed as leaders and have high leader competency, they are more likely to pursue their leadership careers and advance to higher leadership positions. Thus, leader competency was examined as a direct predictor of career intention.

Motivation to Lead

Motivation to lead can be defined as "an individual differences construct that affects a leader's or leader-to-be's decisions to assume leadership training, roles, and responsibilities and that affect his or her intensity of effort at leading and persistence as a leader" (Chan & Drasgow, 2001, p.482). Though research on motivation to lead is still a relatively newly emerged area of inquiry, and few studies have examined it as a focal variable, having high motivation to lead is considered critical for a leader's success (Chan & Drasgow, 2001; Kark & Van Dijk, 2007; Machida et al., 2012; Van Iddekinge, Ferris, & Heffer, 2009). Low motivation to lead may, therefore, negatively affect the development of coaches' leader competency, which, in turn, may lower their intention to advance in their career. Thus, I anticipated that motivation to lead indirectly relates to career intention through leader competency.

Hypothesis 1. *Motivation to lead positively relates to career intention through leader competency.*

In addition to this indirect relationship, I hypothesized that motivation to lead is directly related to career intention. Leaders who are in an early stage of their career may not yet possess high leader competency because they are in the midst of developing their skills. However, if they have high motivation to lead, they may be able to maintain high career intention in this developmental phase that poses many difficulties and failure experiences to leaders. Motivation to lead is conceptualized to influence leaders' decisions to assume and take leadership roles (Chan & Drasgow, 2001). For leaders to put maximal efforts in developing and advancing their careers to higher leadership positions, it may be critical to be able to maintain high motivation and high career intention. Thus, I hypothesized that motivation to lead is not only related to career intention through leader competency, but also it is directly related to career intention.

Hypothesis 2. *Motivation to lead directly and positively relates to career intention.*

Leader Self-Efficacy

The self-efficacy belief of the leader could play a vital role in leaders' career advancement. Self-efficacy is one of the largest areas of research in applied psychology, including education, organizational psychology, and athletics (e.g., Chen & Bliese, 2002; Feltz, Short, & Sullivan, 2008; Schunk, 1996; Stajkovic & Luthans, 1998), although there is a paucity of studies that examine its role in leadership (Machida & Schaubroeck, 2011). Leader self-efficacy can be defined as a person's perception of his or her "abilities, knowledge, and skills in areas needed to lead others effectively" (Machida & Schaubroeck, 2011, p.460). Though past research has indicated that high

self-efficacy beliefs of leaders are associated with greater work performance and leader effectiveness (e.g., Ng, Ang, & Chan, 2008; Paglis & Green, 2002; Stajkovic & Luthans, 1998), the role of self-efficacy in career advancement is still unclear.

Bandura (1997) argued that self-efficacy beliefs promote the learning of new skills by affecting an individual's actions, efforts, and persistence. The findings from past research, which showed the linkage between leader self-efficacy and motivation to lead (Chan & Drasgow, 2001; Machida et al., 2012), and between leader self-efficacy and leader performance (Paglis & Green, 2002; Ng et al., 2008; Stajkovic & Luthans, 1998), support this perspective. Therefore, I hypothesized that higher self-efficacy beliefs may be positively associated with leaders' motivation to lead others, which in turn may increase their leader competency and their intention to advance career.

Hypothesis 3. *Leader self-efficacy positively relates to leader competency through motivation to lead.*

Hypothesis 4. *Leader self-efficacy positively relates to career intention through motivation to lead.*

Outcome Expectancy

In social-cognitive theory, Bandura (1997) explained the relationships between self-efficacy beliefs and outcome expectancies: "perceived self-efficacy is a judgment of one's ability to organize and execute given types of performances, whereas an outcome expectation is a judgment of the likely consequences such performances will produce" (p.21). Social-cognitive theory argues that self-efficacy and outcome expectancy need to be distinguished, because correct performance does not always lead to the individual's desired outcome. Thus, even if assistant coaches possess high self-efficacy

and high leadership skills, they might not expect that they will be able to obtain head coaching positions because of a discriminatory environment or other barriers. Low outcome expectancy may negatively affect coaches' desire to lead others, which affect their intention to advance in their careers. Past research suggests that outcome expectancy plays a role in one's career intention (Betz & Voyten, 1997; van Vianen, 1999), and the present study hypothesized that motivation to lead mediates this relationship between outcome expectancy and career intention.

Hypothesis 5*. Outcome expectancy positively relates to career intention through motivation to lead.*

Developmental Experiences

According to McCauley and colleagues (McCauley & Van Velsor, 2004; Van Velsor et al., 2010), there are three components that constitute optimal developmental experiences for leaders: developmental challenges, feedback (i.e., assessment), and support. First, job assignments that challenge leaders to expand their comfort zone are critical. Challenging experiences instill doubts in their current knowledge and skills and motivate them to explore new information and strategies. Thus, challenging experiences may cultivate a leader's needs to learn and master the challenges to grow further. The second component is assessment or process and performance feedback that leaders obtain from multiple sources (e.g., themselves, supervisors, peers). Feedback gives leaders information about their current strengths and weaknesses, and clarifies their developmental needs and possible strategies to overcome challenges successfully. The third important component, support, which can be in many forms (e.g., supervisor, peers, family), can lessen the sense of insecurity and assist leaders in maintaining

confidence in the face of challenges. Such support includes the mentoring relationship that leaders have with their supervisors. The importance of developmental experiences, which include challenges, feedback, and support and mentoring relationship, is demonstrated in research (e.g., Birdi, Allan, & Warr, 1997; DeRue & Wellman, 2009; Hazucha, Hezlett, & Schneider, 1993; Higgins, 2000).

Past research indicates that developmental experiences play critical roles in leader development. However, the mechanism by which these developmental experiences result in development is still unclear. Bandura (1997) identified the four main sources of self-efficacy: achievement experiences, verbal persuasion, vicarious experiences, and physiological and affective states. Challenges, feedback, support, and the mentoring relationship can be categorized into these sources proposed by Bandura, thus have direct influence on self-efficacy. Machida et al. (2012) showed that challenges, feedback, and support predict women's leader self-efficacy, which in turn predicts their motivation to lead, which is then related to their career ascendance. The present study hypothesized that developmental experiences are positively related to leader self-efficacy, and leader self-efficacy mediates the relationship between developmental experiences and motivation to lead, which is related to leader competency and career intention.

Hypothesis 6. *Developmental challenges, feedback, support, and mentoring relationship positively relate to leader self-efficacy.*

Hypothesis 7. *The relationships between developmental challenges, feedback, support, and mentoring relationship, and motivation to lead are mediated by leader self-efficacy.*

In addition, the present study examined the direct relationship between these developmental experiences and leader competency. Though self-efficacy is established as a strong predictor of one's behavior and performance, it is possible that leaders can increase their leader competency without increasing their self-efficacy. Developmental experiences may impact coaches' leader competency directly. Leaders, who are in the developmental phase, may be underestimating their abilities because of the challenges they are facing, and they may be attending more to their deficits (Van Velsor et al, 2010). Thus, though leaders may have low self-efficacy, they may still demonstrate high leader competency as long as they are exposed to quality developmental experiences. The study hypothesized that developmental experiences have a direct and positive relationship with leader competency.

Hypothesis 8. *Developmental challenges, feedback, support, and mentoring relationship quality directly relate to leader competency.*

Learning Orientation

Scholars suggest that the amount of learning that occurs in similar developmental experiences may differ among individuals, and such variation can be attributed to individual differences in the *individual's ability to learn* (Spreitzer et al., 1997; Van Velsor et al., 2010). The ability to learn is "a complex combination of motivational factors, personality factors, and learning tactics" (Van Velsor et al., 2010, p.5). Such individual differences could include a construct such as learning orientation. Learning orientation is referred to as an individuals' focus on mastery of tasks, learning, and increasing competence (Dweck, 1975, 1986). A high learning orientation fosters an

individual's motivation to explore new strategies and perspectives, which would be critical for the individual's long-term development (Dweck, 1975, 1986).

Recent studies by DeRue and Wellman (2009) and Dragoni et al. (2009) support the positive roles that learning orientation plays in leader development, and past research in various settings reported a positive link between learning orientation and self-efficacy (e.g., Bell & Kozolowski, 2002; VandeWalle, Cron, & Slocum, 2001; Vosloo, Ostrow, & Watson, 2009). Further, McCauley and colleagues (McCauley & Van Velsor, 2004; Van Velsor et al., 2010) and empirical studies (e.g., Birdi et al., 1997; VandeWalle, Ganesan, Challagalla, & Brown, 2000) suggest that learning orientation is positively related to individuals' engagement in developmental experiences. Thus, I hypothesized that coaches' learning orientation is related to their extent of engagement in developmental experiences (e.g., developmental challenges, feedback, support, and mentoring relationship), which in turn influences their leader self-efficacy.

Hypothesis 9. *Learning orientation positively relates to developmental challenges, feedback, support, and mentoring relationship.*

Hypothesis 10. *The relationship between learning orientation and leader self-efficacy is mediated by developmental challenges, feedback, support, and mentoring relationship.*

Work-Family and Family-Work Conflict and Gender Discrimination

Though developmentally challenging experiences may play positive roles in leader development, women who aspire to be leaders have to deal with unique challenges in addition to the challenges all leaders encounter (McCauley & Van Velsor, 2004). Challenges that are unique to women leaders may include extensive domestic

responsibilities at home, work-family and family-work conflicts (e.g., Bianchi, Milkie, Sayer, & Robinson, 2000; Carlson, Kacmar, & Williams, 2000), and gender discrimination in their organizations (e.g., Eagly & Carli, 2007; Epitropaki & Martin, 2004). These challenges are also documented in the research on women leaders in athletics (e.g., Bracken, 2009; Greenhill et al., 2010; Leberman & Palmer, 2009). It is, in fact, possible that these challenges are more evident in the field of athletics, which has been historically male-dominated. It is important to consider these additional challenges and how these challenges might affect coaches' development and career advancement.

Adverse physiological and affective states are among the main sources of self-efficacy levels (Bandura, 1997); thus, I anticipated that coaches who have faced high levels of obstacles, such as work-family and family-work conflicts, and gender discrimination, are more likely to experience adverse physiological and affective reactions (e.g., anxiety, exhaustion, frustration), which in turn reduce their motivation to lead.

Hypothesis 11. *Work-family and family-work conflicts and gender discrimination negatively relate to leader self-efficacy.*

Hypothesis 12. *The relationships between work-family and family-work conflicts and gender discrimination and motivation to lead are mediated by leader self-efficacy.*

Furthermore, I anticipated that these challenges are not only related to leader self-efficacy, but also are related to outcome expectancy, and in turn influence leaders' desire to lead others. Even when they expect to face family interference with work, or work interference with family, or anticipate their gender to be a hindrance for their

career advancement, they may still be able to maintain high self-efficacy as leaders because they are aware that in the absence of these obstacles, they could be successful. However, such obstacles that are rather uncontrollable may decrease their expectancy to obtain the desirable outcomes, which in turn, reduces their motivation to lead.

Hypothesis 13. *Work-family and family-work conflicts and gender discrimination negatively relate to motivation to lead through outcome expectancy.*

In addition to the indirect relationship through leader self-efficacy and outcome expectancy, I also hypothesized that work-family and family-work conflicts directly influence leaders' motivation to lead. Leaders' motivation to lead may be significantly and negatively affected when family and domestic responsibilities interfere with work and vice versa, because such conflicts make it difficult for them to assume and take responsibilities as leaders. This decrease in motivation to lead is not necessarily due to a decrease in their confidence about their leadership skills or outcome expectancy. Leaders may be able to maintain their strong sense of self-efficacy and possess high outcome expectancy in the face of family interference with work or work interference with family because they may be aware that they can be successful and achieve the favorable career outcome if they are not faced with these constraints. Machida et al. (2012) demonstrated that family-work conflict is negatively and directly related to motivation to lead of women leaders in athletics, separately from its indirect influence through leader self-efficacy. Thus, leader self-efficacy and outcome expectancy may not be the only factors which directly influence motivation to lead; conflicts rising from having family life may simply reduce coaches' motivation to lead.

Hypothesis 14: *There are direct negative relationships between work-family and family-work conflicts and motivation to lead.*

Gender Comparison in the Hypothesized Model

Past studies suggest that many people, especially males in power positions, believe affirmative action programs are institutional discrimination against men (Greenhil, et al., 2009; Leonard, 1989). However, scholars in business and sport settings have indicated that programs that are specifically targeted to women are necessary to eliminate the inequities in the workplace (Greenhill et al., 2009; Knoppers, 1987; Leonard, 1989; Lovett & Lowry, 1994; Schwalbe et al., 2000; Shaw & Frisby, 2006; Stangl & Krane, 1998). The current status of women in leadership and decision-making positions in athletics, as well as past studies on leader development, suggest that it is imperative to examine how women can be developed as leaders and what potential differences exist in the career advancement processes of women and men. Such examination will increase understanding of general leader development issues, inform programs and practices of developing leaders not only in the field of athletics but also in other fields, and possibly increase the number of women who will hold higher leadership positions in the future. Thus, in addition to testing the aforementioned hypotheses, the present study examined gender differences in the hypothesized model.

Definitions

Developmental Challenges

Developmental challenges consist of five dimensions: (a) *unfamiliar responsibilities*, (b) *creating change*, (c) *high levels of responsibility*, (d) *managing boundaries*, and (e) *managing diversity* (McCauley et al., 1999).

Developmental Experiences

Being consistent with McCauley and colleagues' (McCauley & Van Velsor, 2004; Van Velsor et al., 2010) leader development model, developmental experiences were conceptualized to consist of three main components: developmental challenges, feedback (i.e., assessment), and support.

Feedback (Assessment)

Feedback involves the performance and process evaluations that a leader receives from multiple sources (e.g., themselves, supervisors, peers, employees, family) (Van Velsor et al., 2010). For the present study, quality of feedback that assistant coaches received from the head coaches was assessed.

Gender Discrimination

Gender discrimination in the present study referred to assistant coaches' perception of gender discrimination in the workplace.

Intention to Advance Careers (Career Intention)

Being consistent with conceptual work (Ajzen, 1991) and past research on intentions (e.g. Hurtz & Williams, 2009), the intentions to advance one's career to a head coaching position was measured with three types of intentions: *desire* (i.e., I want to be a head coach), *felt responsibility* (i.e., I feel obligated to be a head coach), and *self-prediction* (i.e., I will be a head coach).

Leader Competency

Leader competency was defined as the knowledge and skills necessary to lead others successfully (Spreitzer et al., 1997; Dragoni et al., 2009). Leader competency included *cognitive, interpersonal, business*, and *strategic skills* (Mumford et al., 2007).

Leader Self-Efficacy

Self-efficacy is defined as “beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments” (Bandura, 1997, p. 3). For the present study, leader self-efficacy was defined as leaders’ (assistant coaches’) confidence in their capacities to lead others effectively (Machida & Schaubroeck, 2011).

Learning Orientation

Learning orientation is defined as an individual’s emphasis on mastery of tasks, learning, and increasing competence (Dweck, 1975, 1986).

Mentoring Relationship

Mentoring relationship encompasses two dimensions: mentoring quality and mentoring learning. Mentoring quality encompasses perceived satisfaction, benefits, and the depths associated with the mentoring relationship, whereas mentoring learning is learning that occurs in mentors (head coaches) and mentees (assistant coaches) in the relationship (Allen & Eby, 2003).

Motivation to Lead

Motivation to lead can be defined as “an individual differences construct that affects a leader’s or leader-to-be’s decisions to assume leadership training, roles, and responsibilities and that affect his or her intensity of effort at leading and persistence as a leader” (Chan & Drasgow, 2001, p.482). Motivation to lead consists of three sub-constructs: *affective* (i.e., like to lead others), *social-normative* (i.e., lead for a sense of responsibility), and *non-calculative* (i.e., lead without considering the costs and benefits).

Outcome Expectancy

Outcome expectancy is defined as “a judgment of the likely consequences such performances will produce” (Bandura, 1997, p.21). For the present study, assistant coaches’ outcome expectancy toward obtaining head coaching positions was assessed.

Support

Support is defined as tangible and emotional assistance individuals receive from others for their work (Van Velsor et al., 2010). It can be in many forms (e.g., supervisors, peers, employees, family, organization); for the present study, work support that assistant coaches receive from head coaches was assessed.

Work-Family and Family-Work Conflicts

Work-family conflict is defined as “a form of interrole conflict in general demands of, time devoted to, and strain created by the job interfere with performing family responsibilities” (Netemeyer, Boles, & McMurrian, 1996, p.401), while family work-conflict is defined as “a form of interrole conflict in which the general demands of, time devoted to, and strain created by the family interfere with performing work-related responsibilities” (Netemeyer et al., 1996, p.401).

Delimitations

The study was delimited to assistant coaches and their head coaches who coach women’s teams in intercollegiate athletics (NCAA Division I, II, and III). Coaches who coach women’s teams were selected because I aimed to make a meaningful comparison between genders. As indicated, there are fewer than 3% of female coaches who coach men’s teams. Men’s teams are deemed contextually different from women’s teams. Coaches who participated in the present study were female and male, older than 18 years old, with various demographic characteristics (i.e., ethnicity, educational

attainment, marital status). Assistant coaching positions included both paid and unpaid (volunteer) positions, and participants had varying degrees of experiences.

CHAPTER II

LITERATURE REVIEW

Women's status in the workplace is still lower than men's. The recent report issued by the U.S. government shows that although women outnumber men in earned college degrees and graduate education, women still earn 75% as much as their male counterparts at all educational levels. Women are three times more likely than men to work in administrative support jobs. Though women hold about 50% of middle management positions in the United States (U.S. Bureau of Labor Statistics, 2010), few women hold the top management and leadership positions. For example, as of 2011, only 14 of Fortune 500 companies (Fortune, 2011) and 98 of 3049 publicly traded companies (Petrecca, 2011) were led by female CEOs.

Research consistently shows that women and men are generally equally qualified for leadership jobs (Eagly & Carli, 2007; Eagly & Chin, 2010), and some studies have indicated that women tend to exhibit more effective leadership styles than men (Eagly, Johannessen-Schmidt, & van Engen, 2003). Further, some scholars suggest that leadership styles that women tend to employ are seen more favorably in contemporary organizations (e.g., Eagly & Carli, 2007; Eagly & Chin, 2010). Despite past studies that claim that women should be equally good leaders as men, if not better, underrepresentation of women in leadership positions is still apparent across various professions.

This chapter reviews the literature relevant to the present study. First, I review the current status of women in athletic professions as well as the implications of

increased representation of women in athletic leadership positions. The discussion focuses on the representation of women in the coaching profession, which has shown a significant decline in the past three decades (Acosta & Carpenter, 2012), and also was the population of interest in the present study. Second, I review research on career intention, because it is considered the best predictor of career advancement in athletics and was the focal dependent variable in the present study. The hypothesized model of career advancement of coaches is presented. Finally, I review the literature on predictors of career intentions. Plausible gender differences in the roles of each antecedent are also discussed.

Underrepresentation of Women in Athletic Careers

Women are generally underrepresented in higher leadership positions; there are very few women leaders, especially in fields such as athletics that are considered "masculine" in nature. This trend is salient worldwide and can be seen in the structure of many athletic organizations, such as the International Olympic Committee (IOC). The IOC is the umbrella organization of all Olympic events, and perhaps is one of the most influential sport organizations in the world. The IOC consists of 106 representatives from 85 different countries (International Olympic Committee, 2012). However, there are only 20 women representatives, and there are only two women out of 15 members on the current IOC executive board. In addition, the IOC has never had a woman as president in its history. The statistics of intercollegiate athletics in the United States also suggest that women are significantly underrepresented in leadership and decision making positions (Acosta & Carpenter, 2012). For example, women hold about 36% of administrative positions in athletic administration; however, the percentages of women

are even less in senior management. Only 20% of athletic director positions in NCAA registered institutions (Division I, II, and III) are held by women. In Division I institutions, women hold 9% of such positions (Acosta & Carpenter, 2012).

Though small, women's representation in positions such as collegiate athletic administration have increased over the last 30 years (Acosta & Carpetner, 2012). Yet, intercollegiate sport coaching is an athletic career that shows significant decline in women's representation. Women coached over 90% of women's teams in 1972, when Title IX was instituted. However, currently, women represent 43% of head coaching positions in women's teams. Thus, in the intercollegiate athletics, men coach more than half of women's teams, although women coach less than 3% of men's teams (Acosta & Carpenter, 2012).

Increasing female representation in the coaching profession has significant implications. Scholars argue that female coaches can have a positive impact on the lives of athletes, especially young female athletes (e.g., Hasbrook, 1987; Hepler & Feltz, 2008). Female coaches can serve as role models to these athletes, which impact their participation in sport and physical activities (Hepler & Feltz, 2008; Marshall, 2001) and their later advancement to athletic professions (Everhart & Chelladurai, 1998; Moran-Miller & Flores, 2011). Demonstrating that women can be successful in male-dominated fields such as athletics can challenge the dominant conception in society that women cannot lead, facilitate the acceptance of female leaders in young people, and motivate young girls to pursue a leadership career in athletics (Hepler & Feltz, 2008).

Though increasing female representation in leadership positions in athletics could bring significant changes, women face various psychosocial difficulties and

challenges in advancing their career (e.g., Bracken, 2009; Eagly & Carli, 2007; Epitropaki & Martin, 2004; Sartore & Cunningham, 2007). Scholars in business and sport settings suggest that women's and men's career development processes may differ, and advocate the need for programs that are specifically targeted to women in order to increase women's representation in leadership and to achieve gender equity in organizations (Greenhill, Auld, Cuskelly, & Hopper, 2009; Knoppers, 1987; Leonard, 1989; Lovett & Lowry, 1994; Schwalbe, Godwin, Holden, Schrock, Thompson, & Wolkomir, 2000; Shaw & Frisby, 2006; Stangl & Krane, 1998). However, there is little empirical study that examined such gender differences; thus, it is still unclear how women's and men's leader development and career advancement may be different, and how the differences surface in the career development of intercollegiate sport coaches where there is a decline in women's representation.

Intention as a Predictor of Career Advancement

Intention can be considered as the best predictor of many individuals' behaviors (Ajzen, 1991; Armitage & Conner, 2001; Gordin & Kok, 1996), and this relationship between intention and behaviors is established in various settings, such as health and safety (e.g., Gordin & Kok, 1996; Elliot, Armitage, & Baugham, 2003), exercise (e.g., Dzewaltowski, Noble, & Shaw, 1990; Hagger, Chatzisarantis, & Biddle, 2001), and the industries and organizations (e.g., Maurer & Palmer, 1999; Hurtz & Williams, 2009; McCarthy & Garavan, 2006). Although there is a dearth of studies examining the intention of leaders, a few studies suggest that, as compared to men, women have lower intention for advanced careers in general business (Gupta, Turban, & Bhawe, 2008; van Vianen & Keizer, 1996), as well as in athletic settings (Cunningham, Sagas,

& Ashley, 2003; Cunningham, Doherty, & Gregg, 2007). Studies in athletics, which include Cunningham et al. (2003, 2007) and the recent work by Moran-Miller and Flores (2011), advocate that strong career intention is important for women's career development in athletics. Intention may be especially critical for women's career advancement, and can be one of the factors that explain why women are underrepresented in leadership positions in athletics. Having career intention as the proximate predictor of career advancement, I present a model of leader development and career advancement of collegiate coaches in Figure 1.

Antecedents of Career Intention

Informed by theories (Bandura, 1997; Van Velsor, McCauley, & Ruderman, 2010) and existing literatures (e.g., Chan & Drasgow 2001; DeRue & Wellman, 2009; Dragoni, Tesluk, & Oh, 2009; Machida, Schaubroeck, & Feltz, 2012), I identify the antecedents of career intention. First. The relationships between career intention, and leader competency and motivation to lead are explained. Drawing upon social-cognitive theory (Bandura, 1997), I also discussed the roles of outcome expectancy and leader self-efficacy. In addition, based on McCauley and colleagues' leader development model (Van Velsor et al., 2010), social-cognitive theory (Bandura, 1997), and past literature, I discuss the effects of developmental experiences that include developmental challenges, feedback, support, mentoring relationship, and learning orientation. I also consider the influences of challenges such as work-family and family-work conflicts and gender discrimination in the model.

Leader Competency

Leader development is defined as the process by which individuals learn leadership skills and develop competencies necessary for effectiveness as leaders (Dragoni et al., 2009; Van Velsor et al., 2010). Past research (e.g., Hazucha, Hezlett, & Schneider, 1993) shows that leading or management skills are predictive of employees' career advancement. If assistant coaches are properly being developed as leaders, they might be more likely to pursue leadership careers and advance to higher leadership positions. Thus, current leader *competency* can be a predictor of career intention. Leader competency is defined as the knowledge and skills necessary for successful leadership (Dragoni et al., 2009; Spreitzer, McCall, & Mahoney, 1997).

Leading and coaching. Studies of both leader and coach development were reviewed due to the observation that there seems to be overlap between the factors that affect leader and coach development. However, coaching and leading are conceptually different. In fact, the literature seems to suggest that leading requires broader skill sets than coaching.

Leader competency. Mumford, Campion, and Morgeson (2007) examined the leadership skills that are required for leaders at different levels of organizational leadership. The study identified four main leadership skill requirements, which include *cognitive skills, interpersonal skills, business skills,* and *strategic skills*. Mumford et al. considered *cognitive skills* as the basis of leadership skills, which are related to basic cognitive capabilities (i.e., collecting, processing, and disseminating information, and learning). These skills include oral and written communication skills, reading comprehension skills, active learning skills, and critical thinking skills that allow leaders to process new information and its implication.

The second category of leadership skill requirement is *interpersonal skills*, which involve the social skills that are vital in interacting with and influencing others (Mumford et al., 2007). Interpersonal skills encompass social perceptiveness, negotiation skills, and persuasion skills, which are important in developing leaders' awareness and coordination of their own reactions and reactions of others. These skills enable them to develop satisfying and productive relationships and influence others effectively to accomplish teams' and organization's goals. *Business skills* is the third category of leadership skills, which include the skills that are necessary to create an optimal work context (Mumford et al., 2007). These skills include management of material, personnel, and financial resources, and operation analysis. These skills assist leaders in making critical decisions while they obtain and allocate resources.

The fourth category of leadership skills involves *strategic skills*, which are highly conceptual skills that require a systems perspective "to understand complexity, deal with ambiguity, and to effect influences in the organization" (Mumford et al., 2007, p.157). These include visioning and system perception skills, which allow leaders to have clear organizational objectives and ideas of when changes occur. Strategic skills also encompass environmental scanning skills, which include identification of downstream consequences and key causes, which in turn allow leaders to have a deeper understanding of the environment. Strategic skills also encompass problem identification skills, which assist leaders in determining the nature of organizational problems, and the solution appraisals and objective evaluation skills that allow leaders to actively evaluate and lay out the solutions for these problems. Mumford et al. (2008) tested this model of four leadership skills in a sample of 1023 managers at different

organizational levels (i.e., junior, midlevel, and senior), and these four categories of leadership skills were theoretically and empirically supported. In addition, DeRue and Wellman (2009) successfully used these four leadership skills as taxonomy to measure leadership skill development of managers.

Coach competency. Multiple theoretical frameworks have conceptualized coaching effectiveness, including models such as the Multidimensional Model of Leadership (Chelladurai & Saleh, 1978) and the Mediational Model of Leadership (Smoll & Smith, 1989). The most recent framework proposed is Myers and colleagues' (Myers, Chase, Beauchamp, & Jackson, 2010; Myers, Feltz, Maier, Wolfe, & Reckase, 2006; Myers, Feltz, & Wolfe, 2008) coaching competency model, which was developed based on the work of coaching self-efficacy (Feltz, Chase, Moritz, & Sullivan, 1999; Myers, Feltz, Chase, Reckase, & Hancok, 2008).

Myers and colleagues (Myers, Chase, et al., 2010; Myers, Feltz, Maier, et al., 2006; Myers, Feltz, & Wolfe, 2008) defined coaching competency as a "head coach's ability to affect athletes' learning and performance" (Myers, Chase, et al., 2010, p.478), and they conceptualized it as a multidimensional construct that includes four main dimensions. First is *motivation*, which is defined as the coach's ability to effectively influence the athletes' motivation for their optimal performance. The second dimension, *game strategy*, refers to the coach's skills in leading athletes to desired outcomes at competitions. The third dimension, *technique,* involves the coaches' ability to instruct athletes to improve their sport skills. *Character building* is the fourth dimension, which refers to the coach's skills in facilitating the athletes' personal development and positive attitudes toward sports.

Comparing leader and coach competency. From examining each dimension of leader competency in Mumford et al. (2007) and coach competency in Myers et al. (Myers, Chase, et al., 2010; Myers, Feltz, et al., 2006), one can observe that leader competency encompasses a broader set of skills than coach competency does. For example, the *interpersonal skill* dimension identified in Mumford et al. can be considered as an overarching dimension that encompasses the *motivation* and *character building* dimensions of coach competency in Myers et al. The dimensions *game strategy and technique* in coach competency can be integrated into the dimension in leader competency as *business skills*, which are associated with the individual's skills in creating an effective work context, conducting operational analysis, and managing resources. Thus, it seems that the dimensions of coaching competency can be captured in leader competency, although there are some dimensions in leader competency, such as *cognitive skills* and *strategic skills,* that might not be completely captured in coach competency.

In sum, the theories and models available in the coaching and leadership literatures seem to suggest that leading requires a broader set of skills than coaching, which implies that leadership skills can be considered as foundational skills for effective coaching. Therefore, developing leader competency might be critical for assistant coaches to acquire coach competency, and to develop and remain as an effective coach throughout their career. Thus, I propose that leader competency is related to coaches' career intention.

Gender differences in leader competency. Research, in general, is in agreement that women and men are generally equally qualified for leadership jobs

(Eagly & Carli, 2007; Eagly & Chin, 2010). Some studies have even indicated that women tend to exhibit more effective leadership styles than men. A meta-analysis of 45 past studies on transformational, transactional, and laissez-faire leadership styles reported that, as compared to men, women demonstrate more transformational leadership behaviors and contingent reward behaviors, which are considered effective leadership styles (Eagly et al., 2003). Further, scholars have suggested that women adopt leadership styles that may be more favorable in contemporary organizations (e.g., Eagly & Carli, 2007; Eagly & Chin, 2010). Despite these past studies that claim that women should be equally good leaders as men, if not better, women are underrepresented in leadership positions (Eagly & Carli, 2007; Acosta & Carpenter, 2012). It is imperative to examine gender differences in the role of leader competency in career advancement.

Motivation to Lead

Motivation to lead is "an individual differences construct that affects a leader's or leader-to-be's decisions to assume leadership training, roles, and responsibilities and that affect his or her intensity of effort at leading and persistence as a leader" (Chan & Drasgow, 2001, p.482). Thus, the leader's motivation to lead could play an important role in leader development. Motivation to lead consists of three sub-constructs: *affective-identity motivation to lead*, in which individuals are motivated to lead because they like to lead others; *social-normative motivation to lead*, in which individuals are motivated to lead for a sense of responsibility; and *non-calculative motivation to lead*, in which individuals are motivated to lead without considering the costs and benefits associated with taking the leadership roles. There is a dearth of studies examining the

effects of motivation on leader development (Chan & Drasgow, 2001; Kark & Van Dijk, 2007); however, it can be hypothesized that motivation to lead is critical in developing leader competency. Chan and Drasgow (2001) conceptualized that motivation to lead affects leaders' decisions to assume the leadership role, to engage in leadership training, and to persist in leading others. Chan and Drasgow's study also showed that motivation to lead is positively related to military recruits' leadership potentials as rated by their supervisors and peers. A recent study by Machida et al. (2012) also reported that motivation to lead is positively related to women leaders' career ascendance. Low motivation to lead may, therefore, negatively affect the development of one's leader competency, which may lower their intention to advance their career. Thus, I anticipate that motivation to lead is indirectly related to career intention through it is effect on leader competency. Therefore, I put forth the following hypothesis:

Hypothesis 1. *Motivation to lead positively relates to career intention through leader competency.*

In addition to this indirect relationship, I hypothesize that motivation to lead is directly related to assistant coaches' career intention. There is no study that has examined this relationship; however, it can be assumed that leaders who are in an early stage of their career may not yet possess high leader competency because they are in the midst of developing skills. Nevertheless, if they have high motivation to lead, they may be able to maintain high career intention in this developmental phase, which may accompany many of the challenges and difficulties. Motivation to lead is conceptualized to influence leaders' decisions to assume and take leadership roles (Chan & Drasgow, 2001). Thus, I hypothesize that motivation to lead is not only indirectly related to career

intention through leader competency, but also motivation to lead is directly related to career intention.

Hypothesis 2. *Motivation to lead directly and positively relates to career intention.*

Gender differences in motivation to lead. Because women face unique challenges in addition to general challenges that all leaders encounter in advancing and sustaining their career (e.g., Eagly & Carli, 2007; McCaley & Van Velsor, 2004), it may be more crucial for women to maintain strong motivation to lead in their developmental process than it is for men. However, as indicated above, motivation to lead is a relatively new area of inquiry, and there is no conceptual or empirical study that has examined such gender differences – although Machida et al.'s (2012) study of women administrators in athletics showed that motivation to lead may play a crucial role in women's career advancement. Gender differences in the intensity of motivation to lead as well as the role of motivation to lead in assistant coaches' career advancement need to be examined.

Leader Self-Efficacy

Self-confidence or self-efficacy beliefs of leaders may play a vital role in the development of leader competency. Self-efficacy is defined as "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (Bandura, 1997, p. 3). It is conceptualized to influence the:

> course of actions [people] choose to pursue, how much effort they put forth in given endeavors, how long they will persevere in the face of obstacles and

> failures, their resilience to adversity, [and] whether their thought patterns are self-hindering or self-aiding. (Bandura, 1997, p. 3)

Leader self-efficacy can be defined as individuals' confidence in their capabilities to lead others effectively (Machida & Schaubroeck, 2011).

Very few empirical studies have examined the relationship between leader self-efficacy and leaders' performance (Anderson, Krajewski, Goffin, & Jackson, 2008; Hannah, Avolio, Luthans, & Harms, 2008). Nonetheless, studies suggest that leader self-efficacy is related to the effectiveness of the leaders as rated by others and to greater work unit outcomes. For example, leader self-efficacy has been shown to be associated with greater work-performance and leaders' effectiveness (Paglis & Green, 2002; Stajkovic & Luthans, 1998), and with organizational performance (Wood & Bandura, 1989).

Studies of the role of self-efficacy in the development of leaders are even scarcer than studies of self-efficacy in relation to leadership outcomes. However, scholars have suggested that leader self-efficacy is related to leader development (Hanna et al., 2008). I further argue that motivation to lead explains the mechanism by which leader self-efficacy influences leader development. Social cognitive theory (Bandura, 1997) argues that one of the ways in which self-efficacy influences performance and learning is through its effect on actions, efforts, and persistence. Empirical investigation also provides support for this perspective. Chan and Drasgow's (2001) study showed that leader self-efficacy is positively related to motivation to lead, which, in turn, is positively related to leaders' potentials. Machida et al. (2011) also demonstrated that leader self-efficacy is positively related to motivation to lead, which is related to women leaders'

career ascendance. Thus, I hypothesized that leader self-efficacy is related to leader competency through its effect on motivation to lead of coaches.

Hypothesis 3. *Leader self-efficacy positively relates to leader competency through motivation to lead.*

In addition, self-efficacy has been linked to career intention. A study by Betz and Voyten (1997) on 350 college students' career explorations showed that career decision making self-efficacy belief was negatively associated with career indecision and positively associated with career exploration intentions. With a sample of 1,030 employees, van Vianen (1999) also reported that managerial self-efficacy was positively related to ambition for a managerial position. Although the link between self-efficacy and career intention is established to some degrees, the mechanism by which self-efficacy results in changes in career intention is still unclear. As indicated by Bandura (1997), self-efficacy influences one's performance and learning through its impacts on actions, effort, and persistence. Thus, for the present study, I hypothesized that leader self-efficacy influences motivation to lead, which, in turn, affects career intention, which was conceptualized as a proximate predictor of coaches' career advancement.

Hypothesis 4. *Leader self-efficacy positively relates to career intention through motivation to lead.*

Gender differences in leader self-efficacy. Research suggests that women leaders are usually less confident than their male counterparts (e.g., Hacket & Betz, 1981; Heilman, Simon, & Repper, 1987; Pallier, 2003). Hacket and Betz (1981) proposed that women's restrained positions at work may be, at least in part, attributed to their low self-efficacy beliefs. Hacket and Betz's claim is supported in research. For

example, the examination by Heilman et al. (1987), on women's and men's reactions to affirmative action, showed that when selected on the basis of sex preference rather than merit, women evaluate their performance more negatively and give themselves less credits for successful outcomes. They also view themselves as less competent in general leadership skills and show less desire to persist in their leadership roles. Heilman et al. explained these results by claiming that women have lower confidence as leaders, while men are generally more confident about their ability. Such differences may create the discrepancy in their career attainment. The results were replicated in the more recent study by Stewart and Shapiro (2000). Also, van Vianen and Keizer (1996) reported that men demonstrate higher managerial self-efficacy, which in turn is related to their higher ambition to be a manager than women.

The studies in sport settings also suggest that female leaders are less confident than male leaders. Cunningham et al. (2007) showed that, although there are no gender differences in the degrees of perceived barriers and support in becoming a head coach, female assistant coaches show lower head coaching self-efficacy as compared to male assistant coaches. Greenhill et al.'s (2009) investigation of females' limited representation in sport coaching also suggests that females may be underestimating their capacity to be successful in the profession. Female coaches who participated in the study indicated that they would not apply for higher coaching positions unless they meet all the required qualifications, even if their experiences are extensive. Greenhill et al. discussed that female coaches' lack of self-confidence may be contributing to their reluctance to make themselves available for positions, and their lack of self-confidence may explain the underrepresentation of women in higher sport leadership positions.

Not only are the degrees of self-efficacy beliefs different, but also the roles of self-efficacy in leader development may differ between genders. Klassen (2004) reviewed and examined cross-cultural differences in efficacy beliefs. Comparison was made between (a) Asian vs. Western and (b) Eastern Europe vs. Western Europe and American. Past studies showed that self-efficacy is generally lower for individuals in the non-Western group; however, Klassen suggested that these lower self-efficacy beliefs do not necessarily lead to lower performance, and in some cases, lower self-efficacy is more predictive of performance for the individuals from non-Western cultures.

What this review of studies by Klassen (2004) indicates is that there might be cultural differences in the roles of self-efficacy in influencing performance. Women and men are socialized in certain gender roles (e.g., Eagly & Carli, 2007; Eagly & Karau, 2002), and it is possible that the roles of self-efficacy are different for women and men leaders. As indicated, studies suggest that women generally have lower self-efficacy as compared to men (Hacket & Betz, 1981; Heilman et al., 1987; Pallier, 2003), although research also indicates that females are as competent as males as leaders (e.g., Eagly et al., 2003; Eagly & Carli, 2007). Thus, lower self-efficacy may not have a strong impact on women's competency as compared to men, or women may have a more "realistic" sense of self-efficacy. Yet, self-efficacy is shown to be critical in increasing career intention, which supposedly predicts career advancement (e.g., Cunningham et al., 2003, 2007; Moran-Miller & Flores, 2011). In the development process as leaders, women are required to deal with the challenges that they face at work, which include general challenges as leaders and challenges that may be more evident for women, such as work-family and family-work conflicts and gender discrimination (e.g., Bracken,

2009; Eagly & Carli, 2007; Epitropaki & Martin, 2004; Sartore & Cunningham, 2007). Having high levels of leader self-efficacy may be more critical for women than it is for men, in order to remain motivated to lead and advance in their career.

Outcome Expectancy

In social-cognitive theory, Bandura (1997) explained the relationships between self-efficacy beliefs and outcome expectancies: “Perceived self-efficacy is a judgment of one’s ability to organize and execute given types of performances, whereas an outcome expectation is a judgment of the likely consequences such performances will produce” (p.21). Social-cognitive theory argues that self-efficacy and outcome expectancy need to be distinguished, because correct performance does not always lead to the individual’s desired outcome. Thus, even if assistant coaches possess high self-efficacy and high leadership skills, they might not expect that they would be able to obtain head coaching positions. Past research suggests that outcome expectancy plays a role in one’s career intention. In their study on career exploration of college students, Betz and Voyten (1997) demonstrated that outcome expectancy is positively related to students’ career exploration intentions. In addition, van Vianen (1999) reported a positive relationship between outcome expectancy and employees’ ambition for managerial positions.

Although the relationship between outcome expectancy and career intention is established to some degree, the mechanism by which outcome expectancy results in changes in one’s intention has not been examined. I propose that outcome expectancy negatively affects coaches’ desire to lead others, which, in turn, influences their intention to advance careers. When individuals perceive that there is little chance that

they will obtain a higher leadership position, they may not be able to maintain high motivation to lead, which lowers their career intention.

Hypothesis 5*. Outcome expectancy positively relates to career intention through motivation to lead.*

Gender differences in outcome expectancy. There are few studies which have systematically investigated gender differences in outcome expectancy and its effect on career advancement. However, Cunningham et al. (2007) reported that female assistant coaches expect less positive outcomes associated with being a head coach than their male counterparts, although there are no significant gender differences in perceived degrees of barriers and levels of support in becoming a head coach. Thus, there may be gender differences in career outcome expectancy between women and men, which may impact their differences in motivation to lead and career intention. In addition, the role of outcome expectancy in career advancement may vary between women and men. For women, having high outcome expectancy may be more crucial than for men because past research indicates that women tend to hesitate to apply for jobs when they believe they are not qualified and have little chance to receive an offer, even though they have extensive experiences (Greenhill et al., 2009).

Developmental Experiences

Developmental work experiences may be critical for the development of leaders. According to McCauley and colleagues (McCauley & Van Velsor, 2004; Van Velsor et al., 2010), the work experiences that best facilitate leader development consist of three components: developmental challenges, feedback (i.e., assessment), and support.

Developmental challenges. Challenging job assignments that force leaders to expand their comfort zone are necessary components of work experiences (Van Velsor et al., 2010). In a comfortable environment, leaders do not feel the urge to grow because they become complacent and satisfied with existing knowledge and skills. On the other hand, challenging experiences instill doubts in their current knowledge and skills and motivate them to explore new information and strategies. Thus, challenging experiences may cultivate leaders' needs to learn and to take the challenges in stride (Van Velsor et al., 2010).

McCauley, Ruderman, Ohlott, and Morrow (1994) developed and provided validity evidence for the Developmental Challenge Profile (DCP) in response to the need to measure developmental experiences for managers. Factor analyses of 692 managers yielded 15 DCP scales, which included: *unfamiliar responsibilities, proving yourself, developing new directions, inherited problems, reduction decisions, problems with employees, high stakes, managing business diversity, job overload, handling external pressure, influencing without direct authority, adverse business conditions, lack of top management support, lack of personal support,* and *difficult boss*. The study showed the adequate internal consistency and test-retest reliability and confirmed the factor structure. The study also showed the significant relationships between these developmental challenges and reports of on-the-job learning, job transitions, objective features of the jobs, and psychological states of the job incumbents, which provided validity evidence.

Through the series of studies by McCauley and colleagues and their work at the Center for Creative Leadership (McCauley, Ohlott, & Ruderman, 1999; Van Velsor et

al., 2010), DCP was further modified, and currently it includes 10 lower-order dimensions with five higher-order dimensions or task-related characteristics that increase the developmental values of the challenging work experiences (see Table 1). Those five higher-order characteristics include: (a) *unfamiliar responsibilities*, (b) *creating change*, (c) *high levels of responsibility*, (d) *managing boundaries*, and (e) *managing diversity*. The first higher-order dimension, *unfamiliar responsibilities,* refers to the degree to which individuals must handle responsibilities that are new or different from their previous jobs. Individuals experience such challenges when they switch jobs and obtain new responsibilities, or when there are significant changes in the senior management and organizational structure. Unfamiliar responsibilities accompany novel situations which break their routines and encourage them to adopt new tactics that assist their growth. Also with unfamiliar responsibilities, individuals have to prove themselves and re-gain credibility from their peers, followers, and superiors (McCauley et al., 1994).

The second higher-order dimension, *creating changes,* involves three sub-dimensions of job characteristics: *new directions, inherited problems,* and *problems with employees* (McCauley et al., 1999). *New directions* is the degree to which the job assignment requires individuals to initiate a strategic change or a new project for the organization. The dimension *inherited problems* refers to the degree to which the assignment requires individuals to solve problems that existed before they were assigned to the job. *Problems with employees* refers to the degree to which a job assignment requires individuals to manage problem employees (e.g., who lack experiences and motivation, or are resistant). Ambiguity associated with *creating*

changes motivates individuals to explore new strategies and set clear goals, which are critical for their development (Dechant, 1990; McCauley et al., 1994).

The third higher-order dimension, *high levels of responsibilities,* is represented by two sub-dimensions, *high stakes* and *scope and scale* (McCauley et al., 1999). The dimension *high stakes* refers to the extent to which the job assignment encompasses significant responsibilities through clear deadlines, pressure from superiors, and high visibility, and through responsibilities for making decisions that significantly affect the organization. *Scope and scale* is the degree to which the job assignment involves a wide range of significant responsibilities. These components of the job assignment add complexity to the job and require individuals to learn and improve their skills (Kelleher, Finestone, & Kowy, 1986; McCauley et al., 1994).

Managing boundaries is the fourth higher-order dimension of developmental challenges; it involves two aspects of job assignments: *handling external pressures* and *influencing without authority* (McCauley et al., 1999). *Handing external pressures* is the extent to which leaders need to manage relationships with and influence groups outside the organization (e.g., clients, unions, government agencies, business partners). *Influence without authority* is the degree to which the job assignment requires leaders to influence people over whom they have no direct authority. *Managing boundaries* requires leaders to improve their skills to build collaborative relationships with others (Dechant, 1990; McCauley et al., 1994).

The last dimension, *managing diversity*, consists of two sub-dimensions: *working across cultures* and *working group diversity* (McCauley et al., 1999). *Working across cultures* refers to the extent to which the job assignment demands leaders to work with

people and groups from different cultures or different countries. *Working group diversity* is the degree to which the job assignment requires leaders to work with and manage people of both genders and different racial and ethnic backgrounds. *Managing diversity* involves the responsibility for developing and making personnel decisions about a diverse group of people. These experiences of *managing diversity* assist leaders to develop an understanding of cross-cultural differences and diversity and to improve their interpersonal adaptability (Spreitzer et al., 1997).

Table 1

Developmental Challenges (McCauley et al., 1999)

Higher Order Sub-Scale	Lower Order Sub-Scale	Example Items
Experiencing a Job Transition	Unfamiliar Responsibilities	You lack experience important to carrying out some aspect of your job.
Creating Change	New Directions	You have to carry out a major reorganization as a result of a merger, acquisition, downsizing, or rapid growth.
	Inherited Problems	You inherited widespread morale problems.
	Problems with Employees	Your direct reports resist your initiatives.
High Levels of Responsibility	High Stakes	You are responsible for decisive action in a highly charged environment.
	Scope and Scale	The job is potentially more than even a good delegator can handle.
Managing Boundaries	External Pressure	You manage relationships with government officials or regulatory agencies.
	Influence without Authority	To accomplish a major portion of your objectives, you must influence and work with executives higher than your immediate boss.
Managing Diversity	Work across Cultures	You manage parts of the business that are scattered across the world.
	Work Group Diversity	You have to get people from different racial, religious, cultural, or ethnic backgrounds to work together.

Empirical studies support the effects of developmental challenges on leader development. For example, DeRue and Wellman (2009) conducted a four-phase study to examine the leadership skill development of managers. In the first phase, the authors collected data on individual difference variables. During the second phase, the authors conducted interviews with managers to collect specific examples and descriptions of job experiences that affected their development as leaders. In the third phase, the managers rated their developmental experiences using the DCP (McCauley et al., 1994, 1999). In the fourth phase, using the Mumford et al. (2007) taxonomy of leadership skills, supervisors rated leadership skill development for each of the specific work experiences identified by the managers in the second phase of the study. In the final sample of 60 managers and 225 work experiences, the study reported that developmentally challenging work experiences have a predominantly positive, inverted U-shaped relationship with managers' leadership skill development.

The study of Dragoni et al. (2009) also showed the benefits of developmental challenges on managers' leader competency. The developmental quality of managerial assignments was measured using the DCP (McCauley et al., 1994, 1999). Managers' end-state competencies scale (Spreitzer et al., 1997) was used to measure leader competency. The results showed that the developmental quality of managerial assignments had a positive association with end-state competencies, even after accounting for the effects of tenure in job assignments and organization. A more recent study by Dragoni et al. (2011) also reported that leaders' developmental experiences, as measured by the Leadership Experience Inventory (LEI; VanKatwyk & Laczo, 2004), positively predicted strategic thinking competency as assessed by multiple exercises.

Though the role of developmental challenges in leader development is well established in the management literature, there is no study to date that has specifically examined the effects of challenges on leader development in sport. However, the literature seems to be in agreement that certain experiences are essential in the development of coaches. North (2010) examined the role and impact of the Coach Development Officers' program, using the data that were obtained from 46 coaches who participated in the program. The results suggested that providing developmental opportunities is instrumental in developing coaches. Also, Erickson, Côté, and Fraser-Thomas (2007) proposed the stages of developmental experiences based on the data collected from 19 retrospective interviews with high performance coaches. The stages are (a) *diversified early sport participation* (i.e., participation in various team and individual sports on a recreational basis); (b) *competitive sport participation* (i.e., participation in at least one sport at a competitive level and multiple leadership opportunities); (c) *highly competitive sport participation* (i.e., competing at elite levels), *introductory coaching experiences*, (e.g., coaching part-time at developmental level), *engagement in non-coaching activities* (e.g., enrolling in graduate programs), and *interaction with mentor coaches*; and lastly (d) *coaching at an elite level* (i.e., coaching at high-performance level). This study suggested that certain experiences and incremental challenges are crucial for high performance coaches' development.

Feedback (Assessment). Feedback involves the assessment or process and performance evaluations that leaders obtain from multiple sources (e.g., themselves, supervisors, peers, employees, family) (Van Velsor et al., 2010). Feedback gives leaders information about their current strengths and weaknesses, and clarifies their

developmental needs and possible strategies to overcome challenges successfully (Van Velsor et al., 2010). Thus, feedback assists individuals in dealing with the uncertainty they experience in challenging assignments (DeRue & Wellman, 2009). Although the results from the studies on feedback interventions in enhancing performance have been inconsistent, the meta-analysis of 131 studies, with 607 effect sizes indicated that there is a generally positive relationship between feedback and performance (Kluger & DeNisi, 1996). Both learning theories (e.g., Kanfer & Ackerman, 1989) and leadership or leader development models (e.g., Avolio, 2004; Van Velsor et al., 2010) also suggest the importance of feedback in the leader development process.

There are a limited number of empirical investigations on the role of feedback in leader development; however, existing research supports its role. For example, Hazucha et al. (1993) examined the effects of 360-degree feedback on the development of managers after two years. The supervisors, peers, and subordinates completed the Management Skill Profile (MSP) to provide feedback to managers. The study found that access to feedback from peers, supervisors, and subordinates was related to significant progress in individuals' management skills as rated by both self and others. The recent study by DeRue and Wellman (2009), which showed that there is a predominantly positive, inverted U-shaped relationship between developmental challenges and leadership skill development, also indicated the positive role of feedback in the leadership skill development of managers. Though the statistics did not reach the significance level, the results from DeRue and Wellman indicated that feedback moderates the curvilinear relationship between developmental challenge and leadership skill development. That is, there is a positive, concave downward curve relationship

between developmental challenges and leadership skill development for individuals who have less feedback access; however, such a pattern is not present among individuals with greater feedback access. The results suggest that feedback availability can counter the negative impact that a high degree of challenges may have (DeRue & Wellman, 2009). A recent study by Machida et al. (2012) on women leaders in athletics did not support such moderating influence of feedback, however, was not supported, although their study still supported the importance of peer and supervisor feedback. Machida et al. showed that the moderation effect of peer and supervisor feedback on the relationship between developmental challenges and leader self-efficacy, motivation to lead, and career ascendance are not significant. Instead, feedback has an influence on leader self-efficacy separate from developmental challenges, which in turn, is related to motivation to lead and career ascendance.

There is a scarcity of studies that have examined the effects of feedback on leader development in sport, although giving feedback has been identified as one of the critical behaviors for effective leadership in sport (e.g., Beam, Serwatka, & Wilson, 2004; Chelladurai & Saleh, 1980; Riemer & Chelladurai, 1995). The aforementioned study by North (2010), on the role and impact of the Coach Development Officers' program, indicated that feedback plays an important role in the effectiveness of the program. Though it was not specific to leadership skill development in coaches, Write and Côté (2003) examined the impact of social and contextual factors in the development of leader-athletes. Six leader-athletes who competed on Canadian intercollegiate sport teams participated in a three-part interview, which provided an in-depth description of the activities they were involved in during their development. Write

and Côté reported that the social influences that play an instrumental role in the development of athletes' leadership skills include receiving feedback and acknowledgement from parents and coaches. These studies provide support to the importance of feedback in developing leaders in sport.

Support. The third important component in the developmental experience put forth by McCauley and colleagues (McCauley & Van Velsor, 2004; Van Velsor et al., 2010) is support. Developmental challenges provide leaders with opportunities to grow; however, such experiences could have the most developmental values when there is support available for leaders (Van Velsor et al., 2010). Support can be in many forms (e.g., supervisors, peers, employees, family, organization) and can alleviate the sense of insecurity and give leaders confidence in the face of challenges. Support assists leaders in dealing with the struggles associated with challenges and development, and it encourages them to gain a positive view of themselves (Van Velsor et al., 2010).

The importance of support and the relationship with others in leader development is empirically supported. For example, Birdi, Allan, and Warr (1997) examined four types of developmental activities and how participation in these activities differs depending on various individual and environmental factors. The environmental factors examined included perceived social support: management support, coworker support, and non-work support from family and friends. The study showed that, though peer and non-work support are not significantly related to employees' participation in developmental activities, supervisor or senior staff support is positively related to employees' participation in developmental activities. In addition, a study by Hazucha et al. (1993) showed that supervisor support is positively related to managers' self-

reported skill development, and organizational support is significantly related to the managers' skill development as rated by self and others. There are also positive relationships between supervisor and organizational support and self-ratings of efforts and engagement in development activities. A recent study by Machida et al. (2012) also demonstrated that peer and supervisor support are positively related to leader self-efficacy, which in turn is related to motivation to lead and to career ascendance.

Mentoring relationship. One important form of support is the mentoring relationship. The benefits of the mentoring process and other developmental relationships in the workplace are well documented (e.g., Day, 2001; Higgins, 2000). McCauley and colleagues (McCauley et al. & Van Velsor, 2004; Van Velsor et al., 2010) argued that mentoring relationships not only facilitate career advancement, but also provide psychological support to leaders. The leader development literature identifies mentoring relationships as critical for leader development. In a review of contextual factors that influence leadership development, Day (2001) discussed six specific practices, including mentoring, that can be employed in an organization to facilitate leadership development. Mentoring relationship could be formal (i.e., a mentor formally assigned to a mentee in an organization-sponsored program), and mentoring relationship also could be informal (i.e., mentoring encouraged by the organization) (Day, 2001). Regardless of the formality of the mentoring relationship, scholars argue that mentoring relationships could be a significant developmental experience which supports developing leaders (Allen & Eby, 2003; Day, 2001; Ragins, Cotton, & Miller, 2000). Mentoring relationships also provide leaders with the opportunities to observe

and interact with members of senior management, which assists leaders to enhance their strategic thinking skills that are critical for advancing their careers (Day, 2001).

Empirical evidence supports the effects of mentoring relationships on employees' career success. For example, a meta-analysis by Allen, Eby, Poteet, and Lentz (2004) reviewed the existing empirical studies regarding the career benefits associated with mentoring. The results showed that both objective (i.e., compensation, promotion) and subjective career outcomes (i.e., career satisfaction, expectation for advancement) are related to two functions of mentoring: career-related and psychosocial mentoring, though the effect sizes were small. Also, Lankau and Scandra (2002) show that mentoring influences the learning and job attitudes of protégés. The results showed that there is a positive relationship between vocational mentoring and protégés' relational learning (i.e., understanding of interpersonal relationships and interaction among the organization), which is negatively associated with intentions to leave. In addition, role modeling through mentoring is positively related to protégés' personal skill development, which, in turn, is negatively related to role ambiguity and positively related to job satisfaction.

Further, a study by Ragins et al. (2000) indicated that the quality of the mentoring relationship may be more critical than the mere availability of mentors. Results indicated that protégés who are in highly satisfying relationship with their mentors have more positive attitudes toward their job and career than protégés who are in dissatisfying mentoring relationship and non-mentored individuals. However, the study found no significant differences in attitudes between non-mentored individuals and individuals who reported dissatisfaction or individuals who reported marginal satisfaction with their

mentors. Thus, this study suggests that the mere presence of a mentor does not lead automatically to a positive outcome; it is the quality of the mentoring relationship that matters.

There is a scarcity of studies that have systematically examined the effects of support or mentoring on leader development in sport. The aforementioned studies in sport, by North (2010) on coach development through the Coach Development Officers program, and by Write and Côté (2003) on athletes' leader development, have indicated the importance of support from mentors, parents, or coaches in developing leaders. In addition, the examination of the development of expert sport coaches by Nash and Sproule (2009) provided insight into the role of the mentoring relationship in the leader development of coaches. Using an interview approach, they examined the transition of nine expert coaches through various stages in their careers. One of the critical factors in their career development that was identified by these coaches included having appropriate mentors at the initial stages of their coaching careers. Interaction with and observing experienced coaches assist a developing coach to learn tactics and gain knowledge that are critical for a successful coaching career.

Developmental experiences as antecedents. In sum, past research (DeRue & Wellman, 2009; Dragoni et al., 2009; Hazcha et al., 1993) seems to suggest that developmental experiences, which include developmental challenges, feedback, support, and mentoring, play an integral role in developing the leadership skills of individuals in various occupational fields, including athletics. Though the roles of developmental experiences are documented in research, the mechanism by which these developmental experiences result in leader development is still unclear. I

hypothesize that increase in leader self-efficacy can explain the relationship between the developmental experiences and leader development.

According to Bandura (1997), there are four major sources of self-efficacy. The first source is *enactive mastery experience*s, which are past success experiences and considered the strongest sources of self-efficacy. The second source of self-efficacy is *vicarious experiences*; individuals develop self-efficacy through observing the performance of others. *Verbal persuasion* is the third source of self-efficacy; it occurs when significant others (including oneself) demonstrate their support for one's capabilities to succeed. Fourth, *physiological and affective states* can also influence self-efficacy, through the associations people make between their performances and various levels of physiological arousal and emotions.

In relations to these four sources of self-efficacy proposed by Bandura (1997), developmental challenges, and the successes and failures associated with these experiences, could be considered the forms of *enactive mastery experiences* that can significantly affect leaders' self-efficacy. Feedback and support can be related to *verbal persuasion* sources, where leaders increase their efficacy belief by the verbal encouragement or support that they receive from others. Mentoring relationships can be considered as *verbal persuasion* and *vicarious experience* sources of self-efficacy. Modeling the mentors and receiving support from mentors could increase leaders' self-efficacy.

There are a limited number of studies that have examined the sources of leader self-efficacy (Hannah et al., 2008) or the relationships between developmental experiences and leader self-efficacy. A study by van Vianen and Keizer (1996) showed

that managerial experience, verbal persuasion, vicarious experience, and physiological and affective states are related to managerial self-efficacy in employees, which, in turn, is related to their ambitions for managerial careers. In addition, Mellor, Barclay, Bulger, and Kath (2006) reported that stewards' verbal persuasion is positively related to union members' self-efficacy to serve as stewards.

In athletic context, North (2009) suggested that the confidence of coaches is enhanced through regular interactions and contact with the mentor coach. A recent study by Moran-Miller and Flores (2011) also showed that the quality of female role models is a positive predictor of female college athletes' coaching self-efficacy, which in turn is positively related to their interest in coaching. In addition, Machida et al. (2012) showed that challenges, feedback, and support predict women's leader self-efficacy, which is related to their desire to lead others, and ultimately their career ascendance. Thus, I hypothesize that challenge, feedback, support, and mentoring relationships should have direct effect on coaches' leader self-efficacy, which in turn influences their motivation to lead.

Hypothesis 6. *Developmental challenges, feedback, support, and mentoring relationship quality positively relate to leader self-efficacy.*

Hypothesis 7. *The relationships between developmental challenges, feedback, support, and mentoring relationship quality, and motivation to lead are mediated by leader self-efficacy.*

In addition, there may be a direct relationship between these developmental experiences and leader competency. Though self-efficacy is established as a strong predictor of one's behavior and performance, it is possible that leaders can demonstrate

high leader competency without possessing high self-efficacy. Leaders who are in the developmental phase may be underestimating their abilities because of the challenges they are facing, and they may be attending more to their deficits than their strengths (Van Velsor et al, 2010). Also, as Klassen (2004) reported, the predictability of self-efficacy on performance may be different between cultures. Low self-efficacy does not necessarily lead to lower performance in some individuals. As indicated by past research, women in general tend to underestimate their ability and have lower self-efficacy than men, especially in male-dominated fields (e.g., Clifton & Gill, 1994; Lirgg, George, Chase, & Ferguson, 1996), which may include athletics. Thus, although coaches may have low leader self-efficacy, they may still demonstrate high leader competency as long as they are exposed to quality developmental experiences.

Hypothesis 8. *Developmental challenges, feedback, support, and mentoring relationship quality directly relate to leader competency.*

Gender differences in developmental experiences. Betz and Hackett (Betz, 2007; Hackett & Betz, 1981) argued that low self-efficacy beliefs that result from limited access to the four main self-efficacy information sources (i.e., mastery, verbal persuasion, vicarious learning, and affective and emotional state) proposed by Bandura (1997) may be contributing to the underrepresentation of women in the workplace. Though scarce, existing research does support this claim. van Vianen and Keizer (1996) found that men reported higher degrees of managerial experiences and job tasks and that they received more positive feedback or verbal persuasion than women, and men showed higher managerial self-efficacy and ambitions for managerial careers than women.

In addition, studies suggest that the roles of developmental experiences may differ between women and men. Through an experimental study which examined the reactions of recipients toward affirmative action, Stewart and Shapiro (2000) showed that men have a greater desire to persist as leaders as compared to women. The study also demonstrated that negative outcome feedback has a greater impact on women, and women take larger responsibilities for task failures than men. Neubert and Taggar (2004) examined how gender moderates the relationship between individual characteristics, which include member network centrality (i.e., feeling included in other team members' network of advise and support), and emergence of informal leadership in the context of intact manufacturing teams. Results showed that member network centrality is important for the leadership emergence of both men and women, but it is more critical for men than for women.

In addition, scholars suggested that mentoring experiences for women may be different from mentoring experiences for white men (e.g., Rudeman & Hughes-James, 1998). The examination by Ragins and Cotton (1999) of the effects of gender composition on the relationship of mentoring functions and career outcomes (i.e., promotion rate and compensation) indicated that the gender composition of the mentoring relationship are related to reports of mentor functions and the career outcomes of protégés. There is a positive and significant relationship between having a history of primarily male mentors and a protégée's compensation. Compensation is significantly higher among female protégés with a history of male mentors than female protégés with a history of female mentors. The results also suggested that male protégés with male mentors may benefit the most from their mentoring relationship

(e.g., satisfaction, support for development, challenging job assignments, compensation), while male protégés with female mentors may benefit the least. Female protégés with a history of male mentors receive more promotions than their male counterparts, although the compensation is significantly lower among female protégés.

A study by Ragins et al. (2000) examined the impact of protégés' gender and the combination of mentor and protégés' gender on job attitudes (e.g., career commitment, job satisfaction, turn over intentions). The study indicated that both men and women benefit similarly in their job attitudes from a relationship with an informal mentor. However, the study found significant differences in the role of a formal mentor in career commitment. Higher career commitment was observed among men with formal mentors than women with formal mentors. Further, significantly less career commitment is reported among women with formal mentors than both men and women without mentors.

In the athletics context, studies of gender differences in the roles of developmental experiences are even scarcer. Although there was no male comparison, Greenhill et al.'s (2009) aforementioned case study with female sport leaders suggested that having formal and informal networks has a substantial impact on female coaches' career pathways. Developing informal mentoring programs for female coaches is deemed important. Greenhill et al. further suggested that women-only networks in athletics (e.g., administrators and coaches) can encourage mutual support and assistance, which may play a critical role in improving women's positions in athletics. Assigning mentor coaches to developing coaches may instill confidence that women need to advance their career (Greenhill et al., 2009).

In addition to these findings from past studies, a recent study by Machida et al. (2012) suggested that developmental challenges, feedback, and support may play a critical role in women leaders' career ascendance through their effects on leader self-efficacy and motivation to lead, although the study did not have a male sample comparison. Thus, the past studies in both business (e.g., Allen et al., 2004; Birdi et al., 1997; Hazucha et al., 1993) and sport settings (Machida et al., 2012; North, 2010; Write & Côté, 2003) seem to suggest that developmental experiences can play a critical role in leader development, and that there may be gender differences in their roles. However, there has been a limited number of empirical studies that have examined such gender differences.

Learning Orientation

Scholars (DeRue & Wellman, 2009; Dragoni et al., 2009; Van Velsor et al. 2010) have argued that there is a variation in the degrees of learning that occurs from similar developmental experiences, and such variation can be, in part, attributed to individual differences in the ability to learn. The ability to learn is "a complex combination of motivational factors, personality factors, and learning tactics" (Van Velsor et al., 2010, p.5), which include constructs such as learning orientation (Dweck, 1986). Learning orientation may be related to the degree of coaches' engagement in developmental experiences (i.e., developmental challenges, feedback, support, and mentoring), which, in turn, relate to their leader self-efficacy.

Learning orientation is a psychological construct that has gained considerable attention in leader development research (e.g., DeRue & Wellman, 2009; Dragoni et al., 2009) and has consistently shown its positive role in leader development (e.g., DeRue &

Wellman, 2009; Dragoni et al., 2009). Learning orientation is defined as an emphasis on learning, mastery, and increasing competence (Dweck, 1975, 1986). Learning or mastery orientation has been linked to self-efficacy, which in turn relates to performance. For example, VandeWalle, Cron, and Slocum (2001), in a setting of undergraduate business courses, showed that students' learning goal orientation is positively related to their self-efficacy, which, in turn, positively relates to their exam performance. Further, through an experimental study using a computer simulation task, Bell and Kozolowski (2002) showed that there is a generally positive relationship between participants' learning orientation and their self-efficacy. In another experimental study using a simulated team decision-making task, Porter (2005) also found a significant and positive relationship between team learning orientation and self-efficacy.

However, the mechanism by which learning orientation results in an increase of self-efficacy is still unclear. A high learning orientation encompasses motivation to investigate new methods and tactics, which may improve one's capabilities for the longer term (Dweck, 1975). McCauley and colleagues (McCauley & Van Velsor, 2004; Van Velsor et al., 2010) argued that individuals' ability to learn fosters motivation to participate and facilitates engagement in developmental experiences, which in turn influences their own development. Birdi et al. (1997) showed that employees' learning orientation is significantly related to participation in different types of developmental activities (e.g., voluntary or involuntary learning activities, career-planning activities). Also VandeWalle, Ganesan, Challagalla, and Brown (2000) demonstrated that employees' learning orientation is positively related to their perception of benefits associated with feedback-seeking behaviors, while it is negatively related to perceptions

of costs associated with such behaviors. In addition, Porath and Bateman (2006) reported that employees' learning orientation is significantly and positively related to engagement in proactive behaviors, which are related to higher performance.

In sport, learning or mastery orientation has generally shown a positive relationship with the self-confidence of athletes or sport participants (e.g., Hall & Kerr, 1997; Vosloo, Ostrow, & Watson, 2009); however, its effect on individuals in athletic careers has not been systematically examined. Informed by theories (Deweck, 1975; McCaley & Van Velsor et al., 2010) as well as past research in the area, I hypothesize that coaches' learning orientation is related to their extent of engagement in developmental experiences (e.g., developmental challenges, feedback, support, and mentoring), which in turn influences their leader self-efficacy.

Hypothesis 9. *Learning orientation positively relates to developmental challenges, feedback, support, and mentoring relationship.*

Hypothesis 10. *The relationship between learning orientation and leader self-efficacy is mediated by developmental challenges, feedback, support, and mentoring relationship.*

Gender differences in learning orientation. Although no empirical study in a leadership context has examined gender differences in learning orientation, studies in educational settings show that the role of learning orientation may differ between genders. For example, a meta-analysis by Severiens and ten Dam (1998) on 22 past studies reported that there are significant gender differences in dimensions of students' learning orientation. In addition, Page and Alexitch (2003) showed that there is a positive relationship between learning orientation and academic performance for male

college students; however, such relationship was not observed among their female counterparts. Although there are not enough empirical and conceptual foundations to hypothesize the direction of gender differences in the role of learning orientation in leader development, it seems crucial to consider gender in its examination.

Work-Family and Family-Work Conflicts and Gender Discrimination

As the past research (e.g., DeRue & Wellman, 2009; Dragoni et al., 2009, 2011; Hazucha et al., 1993) demonstrated, challenges may play positive roles in leader development. However, leaders, especially women who aspire to be leaders, have to deal with additional challenges which may not be necessarily developmental. There have been a number of studies, in both general business and athletic careers, that have examined the challenges women leaders face in advancing to and sustaining their leadership roles (e.g., Braken, 2009; Eagly & Carli, 2007; Leberman & Palmer, 2009).

Such challenges include extensive domestic responsibilities at home, which result in work-family and family-work conflicts. Although the difference has been decreasing, time spent for housework by women is still significantly higher than men (Bianchi et al., 2000; Sayer, Bianchi, & Robinson, 2004), and work-family and family-work conflicts could pose a significant challenge to women. Work-family conflict is defined as “a form of interrole conflict in general demands of, time devoted to, and strain created by the job interfere with performing family responsibilities” (Netemeyer, Boles, & McMurrian, 1996, p.401). Family work-conflict is defined as “a form of interrole conflict in which the general demands of, time devoted to, and strain created by the family interfere with performing work-related responsibilities” (Netemeyer et al., 1996, p.401). Research shows that work-family and family-work conflicts are related to job

satisfaction, family satisfaction, life satisfaction, organizational commitment (Carlson, Kacmar, & Williams, 2000), job burn out, turn over intentions, job tension, and psychological distress (Burke, 1988; Netemeyer et al., 1996). Although studies have reported conflicting evidence about gender differences (e.g., Eagle, Miles, & Icenogle, 1997; Frone, Russell, & Barnes, 1996), work-family and family-work conflicts that female employees experience are often shown to be significantly higher than their male counterparts (e.g., Carlson et al., 2000; Williams & Alliger, 1994).

In sport settings, work-family and family-work conflicts can also be hindrances for women's career advancement. In a nation-wide study conducted by the NCAA (Bracken, 2009), female coaches indicated time requirements and amount of travel as the top two reasons for the lack of female representation in the coaching profession, and family commitments as a top contributing factor for females' hesitation to pursue a coaching career. In addition, female athletic administrators identified time requirements and family duties as the two top career-inhibiting factors for women in athletic administration, with 73% of them agreed that athletic careers conflict with family duties (Bracken, 2009).

Also, qualitative studies on women sport leaders show the possible effect of work-family and family-work conflicts on their development and advancement as leaders. For example, Leberman and Palmer (2009) conducted qualitative semi-structured interviews with nine female sport leaders in New Zealand and reported that, although these women developed strategies to cope with multiple constraints imposed by family and work, they also noted their experiences of feeling guilt, exhaustion and stress, lack of societal approval, and limited resources to deal with these challenges

throughout their careers. In addition, in examining the underrepresentation of women in elite coaching professions, Greenhill et al.'s (2009) case study with sport leaders in Queensland, Australia, also demonstrated that time and family commitments are one of the dominant issues that negatively impact female coaches' career progression.

While work-family and family-work conflicts impose significant constraints, gender discrimination in organizations can also impose an additional challenge that women need to overcome to attain and sustain a leadership position. Women generally perceive gender to be a hindrance in their work more than men (Berdahl & Moore, 2006; Browne, 1997). Because people usually associate leaders with masculine characteristics, women are often perceived to be inadequate for leadership positions (Epitropaki & Martin, 2004). When women display traditional feminine characteristics (e.g., weak, uncertain, ineffectual) and few masculine qualities (e.g., tough, decisive, or competent), women often face difficulty in gaining acceptance as leaders (Eagly & Carli, 2007). However, when they demonstrate these masculine qualities, they also receive criticisms (Eagly & Carli, 2007); these qualities conflict with people's prescriptive stereotypes of women (Bowles, Babcock, & Lei, 2007; Tepper, Brown, & Hunt, 1993). Eagly and Carli describe this dilemma of women leaders as a "double bind" which makes it difficult for women to advance their careers as leaders.

A study by Heilman, Wallen, Fuchs, and Tamkins (2004) showed the possible biases toward women which may limit their career success. Through three experimental studies, the results show that when women are recognized to be successful, they are less favored. This trend is most evident when they are successful in a male-dominated field. In addition, the results demonstrated that these negative reactions toward women

could significantly affect people's recommendations for women's career outcomes (i.e., salary, special career opportunities). Another experimental study by Gupta et al. (2008) showed that the perceived gender stereotype may significantly influence women's career intention. With a sample of undergraduate business students, Gupta et al. examined the effects of implicit and explicit activation of gender stereotypes on women's and men's entrepreneurial intentions. Participants read a fictitious news article about the characteristics of successful entrepreneurs. The article provided either (a) *no gender stereotypical information* (i.e., control), (b*) explicit masculine stereotypical information*, (c) *implicit masculine stereotypical information*, (d) *explicit feminine stereotypical information*, (e) *implicit feminine stereotypical information*, or (f) *nullified stereotypical information* on the characteristics of successful entrepreneurs. Though no gender differences were observed when the stereotype was explicitly nullified (i.e., article said "entrepreneurs show characteristics of both men and women"), entrepreneurial intention was significantly higher among men than women in the control condition, where no explicit or implicit stereotypical information was presented; this result suggests "the everyday gender gap" (Gupta et al., 2008, p. 1057) in an intention to advance career in the field that is generally associated with masculine characteristics.

Literatures in sport also suggest that gender discrimination and stereotypes could be significant barriers for women to advance to leadership positions. For example, Sartore and Cunningham (2007) argued that gender discrimination and stereotyping can be a great hindrance to women's career in athletics in that it interrupts women's identity as leaders and results in self-limiting behaviors. The aforementioned study by NCAA (Bracken, 2009) also reported that female coaches and athletic administrators

identify gender discrimination as one of the top reasons why women leave careers or hesitate to enter into a career in athletics. In addition, a study with German female volunteer sport organization leaders indicated that these leaders have experienced gender discrimination and perceived it to be a significant barrier in sustaining and advancing their careers (Pfiser & Rauke, 2006). Also, Manley, Greenlees, Thelwell, and Smith (2010) showed that the gender of coaches possibly affects athletes' perceptions of coaches' competency, which may have a great impact on their career advancement. Competency ratings are significantly higher among male coaches as compared to female coaches in terms of their competency in game-strategy and coaching technique.

Physiological and affective states are among the main determinants of self-efficacy levels (Bandura, 1997); thus, adverse physical and emotional reactions to work-family and family-work conflicts and gender discrimination may negatively affect leaders' self-efficacy levels. A recent study by Machida et al. (2012) showed that gender discrimination and family-work conflict are not significantly related to women leader's self-efficacy, which is related to their desires to lead others. However, to date, Machida et al. (2012) is the only study that has investigated this relationship, and their population was limited to women athletic administrators. Based on Bandura's claim and past research in the field, which indicates that coaching jobs put significant constraints on women (e.g., Bracken, 2009; Sartore & Cunningham, 2007), I hypothesized that coaches who are facing high levels of such obstacles are more likely to experience anxiety, frustration, and other adverse physiological and emotional reactions, which may reduce leader self-efficacy, which in turn, may lower their motivation to lead.

Hypothesis 11. *Work-family and family-work conflict and gender discrimination negatively relate to leader self-efficacy.*

Hypothesis 12. *The relationships between work-family and family-work conflict and gender discrimination and motivation to lead are mediated by leader self-efficacy.*

Furthermore, I anticipated that these challenges are not only related to leader self-efficacy, but are also related to outcome expectancy, and this, in turn influences coaches' desire to lead others. Even when coaches face family interference with work or work interference with family, or perceive their gender to be a hindrance for their career advancement, they may still be able to maintain their self-efficacy as leaders because they are aware that they could be successful if not imposed on by these constraints. However, such obstacles, which are rather uncontrollable, may decrease coaches' expectancy to obtain the desirable outcomes, which in turn may reduce their motivation to lead.

Hypothesis 13. *Work-family and family-work conflicts and gender discrimination negatively relate to motivation to lead through outcome expectancy.*

In addition to the indirect relationship through leader self-efficacy and outcome expectancy, I also hypothesize that work-family and family-work conflicts directly influence women's motivation to lead. Leaders' motivation to lead may be significantly and negatively affected when family and domestic responsibilities interfere with work and vice versa, because such conflicts make it difficult for them to assume and take responsibilities as leaders. This reduction in motivation to lead may not be necessarily attributed to a decrease in their confidence about their leadership skills or outcome

expectancy. As indicated, leaders may be able to maintain their strong sense of self-efficacy in the face of family interference with work or work interference with family. Also, leaders may be able to possess high outcome expectancy in such challenges because they may anticipate that they can effectively manage these constraints. Machida et al. (2012) demonstrated that family-work conflict is negatively and directly related to motivation to lead of women leaders in athletics, although its indirect influence on motivation to lead through leader self-efficacy is not significant. Thus, in addition to leader self-efficacy and outcome expectancy, family duties which leaders have outside work may directly affect their desire to be leaders.

Hypothesis 14: There are direct negative relationships between work-family and family-work conflicts and motivation to lead.

Gender differences in work-family and family-conflicts and gender discrimination. In sum, past research has identified common challenges, such as work-family and family-work conflicts and gender discrimination, faced by women leaders in athletics. However, no study to date has simultaneously studied their plausible differential effects on women's and men's career advancement. Although past research on gender differences in work-family and family-work conflicts are inconclusive (e.g., Carlson et al., 2000; Eagle et al., 1997; Frone et al., 1996; Williams & Alliger, 1994), higher degrees of work-family and family-work conflict are often observed among female employees than among their male counterparts (e.g., Carlson et al., 2000; Williams & Alliger, 1994). Studies of gender discrimination in the workplace seem to indicate that women may be more affected by gender discrimination than men (e.g., Browne, 1997; Gupta et al., 2003; Heilman et al., 2004). In addition to the

developmental challenges as leaders, it is important to consider these additional challenges and how these challenges might contribute to women and men's development as leaders in the coaching profession. Women and men might have different responses to the same challenges; thus such gender differences need to be examined.

Summary

An intention can be the best predictor of career advancement (Ajzen, 1991; Armitage & Conner, 2001; Gordin & Kok, 1996; Moran-Miller & Flores, 2011). Past research and theories (Bandura, 1997; Van Velsor et al., 2010) have identified potential antecedents which include leader competency, motivation to lead, leader self-efficacy, outcome expectancy, developmental experiences (which consist of developmental challenges, feedback, support, and mentoring relationship), learning orientation, and challenges such as work-family and family-work conflicts and gender discrimination. I put forth several hypotheses in explaining their potential roles in leaders' career advancement.

The past studies on leader development and career advancement suggest that there may be gender differences in the responses to these antecedents. Athletics has historically been a male-dominated field, which has struggled to increase women's representation in higher leadership positions (e.g., IOC, 2012; Acosta & Carpenter, 2012). Despite its implications for increasing women's representation (e.g., Hepler & Feltz, 2008), collegiate coaching is a profession where a decline of women's representation is significant (Acosta & Carpenter, 2012). There is an obvious lack of a systematic examination of the career advancement process in athletics and an

investigation of gender differences in its process. Thus, it is imperative to investigate the roles of the aforementioned antecedents in the career advancement of collegiate coaches, and to examine the gender differences. Such study may have significant theoretical as well as practical implications, not only for athletics but also for any fields struggling to increase women's representation.

CHAPTER III

METHOD

Participants

Nine hundred and six assistant coaches who coach collegiate women's teams accessed the online survey. The responses from 673 assistant coaches and 245 of their head coaches were utilized for the subsequent analyses. Five hundred and seventy six assistant coaches indicated their gender: 360 assistant coaches (62.5%) were females and 216 (37.5%) assistant coaches were males. There were 128 female and 117 male head coaches. The mean age of the assistant coaches was 30.16 years (*SD* = 8.62). On average, the assistant coaches indicated 6.41 years of coaching experience (*SD* = 5.84) and 3.75 years (*SD* = 3.57) of working for their current head coaches. As presented in Table 2.1, there were gender differences in age, coaching experiences, and years working with the current head coach. Independent sample t-tests showed that the males were significantly older and had longer years of coaching experiences and longer years of working with the current head coaches than their female counterparts ($p < .001$). About 90% of the female and male assistant coaches were Caucasian. The five highest numbers of female assistant coaches were seen in basketball (*n* = 71), softball (*n* = 62), volleyball (*n* = 52), soccer (*n* = 39), and indoor (*n* = 35) and outdoor track (*n* = 37). For the male assistant coaches, the five highest numbers were seen in indoor (*n* = 86) and outdoor track (*n* = 90), cross country (*n* = 53), basketball (*n* = 27), and soccer (*n* = 27). In addition, more than 70% of the female coaches were single, and only 16% of

them had children, while less than 50% of male coaches were single, with about 46% of them had children. .

The mean age of the head coaches was 42.72 years (*SD* = 10.99). Head coaches, on average, indicated that they had 16.41 years of coaching experience (*SD* = 9.65). As reported in Table 2.2, about 90% of the head coaches were Caucasian. In addition, about 68% of head coaches were married and more than 50% of them had children.

Table 2.1

Demographic Information of Assistant Coaches

	Female		Male		Total	
	M	*SD*	*M*	*SD*	*M*	*SD*
Age	27.81	5.87	35.23	10.29	30.16	8.62
Coaching Experience	5.17	4.66	8.43	6.90	6.41	5.84
Years Working with the Current Head Coach	3.32	3.35	4.48	3.83	3.75	3.57

	Female		Male		Total	
	n	*%*	*n*	*%*	*n*	*%*
Sport[a]						
Baseball	0	0	1	0.5	1	0.1
Basketball	71	19.7	27	12.4	98	10.6
Bowling	0	0	0	0	1	0.1
Cross country	25	6.9	53	24.4	78	8.4
Fencing	0	0	2	0.9	2	0.2
Field hockey	27	7.5	3	1.4	31	3.4
Football	0	0	3	1.4	3	0.3
Golf	6	1.7	4	1.8	10	1.1
Gymnastics	8	2.2	0	0	8	0.9
Ice hockey	5	1.4	4	1.8	9	1.0
Lacrosse	13	3.6	3	1.4	16	1.7
Rifle	0	0	0	0	0	0
Rowing	12	3.3	7	3.2	19	2.1
Skiing	1	0.3	2	0.9	3	0.3
Soccer	39	10.8	27	12.4	67	7.2
Softball	62	17.2	12	5.5	74	8.0
Swimming & Diving	23	6.4	14	6.5	39	4.2
Tennis	7	1.9	6	2.8	13	1.4
Indoor track	35	9.7	86	39.6	121	13.1
Outdoor track	37	10.2	90	41.5	127	13.7
Volleyball	52	14.4	18	8.3	72	7.8
Water polo	2	0.6	1	0.5	3	0.3
Wrestling	1	0.3	0	0	1	0.1
Other sports	6	1.7	3	1.4	8	0.9
Gender of the Team						
Women's team only	295	82.9	100	46.1	399	69.3
Both women's and men's teams	61	17.1	114	52.5	177	30.7

Table 2.1 (cont'd)

	Female		Male		Total	
	n	%	*n*	%	*n*	%
Ethnicity						
African American	12	3.3	15	6.9	27	4.7
Asian	3	0.8	5	2.3	8	1.4
Caucasian	320	88.9	183	84.7	505	87.4
Hispanic	8	2.2	3	1.4	11	1.9
Native American	4	1.1	1	0.5	5	0.9
Pacific Islander	4	1.1	4	1.9	8	1.4
Interracial	3	0.8	1	0.5	4	0.7
Other	6	1.7	4	1.9	10	1.7
Highest Educational Attainment						
High School Diploma or GED	4	1.1	8	3.7	12	2.1
Associate Degree	0	0	4	1.9	4	0.7
Bachelor's Degree	170	47.1	95	44	265	45.7
Master's Degree	165	45.7	97	44.9	265	45.7
Doctoral Degree	6	1.7	7	3.2	13	2.2
Other	16	4.4	5	2.3	21	3.6
Current Institution						
NCAA Division I	147	40.7	110	50.7	259	44.6
NCAA Division II	81	22.4	36	16.6	117	20.1
NCAA Division III	128	35.5	70	32.3	119	34.3
Other	5	1.4	1	0.5	6	1.0
Current Position						
Associate head coach	21	5.8	25	11.5	47	8.1
Full time (paid) assistant coach	179	49.7	107	49.3	287	49.2
Part time (paid) assistant coach	81	22.5	56	25.8	138	23.7
Volunteer (Unpaid) assistant coach	21	5.8	10	4.6	33	5.7
Graduate assistantship	50	13.9	15	6.9	66	11.3
Other	8	2.2	4	1.8	12	2.1
Marital Status						
Single	266	73.7	101	46.8	368	63.4
Married or Cohabiting	95	26.3	115	53.2	212	36.6
Number of Children						
None	303	83.9	117	53.9	422	77.3
1	13	3.6	28	13.7	41	7.5
2	16	4.4	35	17.1	52	9.5
3	3	0.8	19	9.3	22	4.0
4	3	0.8	3	1.5	6	1.1
more than 4	0	0	3	1.5	3	0.6

Notes.[a] Participants indicated all sports they currently coach. The total number of the responses may not equal to 673; this is due to missing data on the demographic information.

Table 2.2

Demographic Information of Head Coaches

	Frequency	
	n	%
Gender		
Female	128	52.2
Male	117	47.8
Ethnicity		
African American	7	2.9
Asian	2	0.8
Caucasian	216	89.6
Hispanic	4	1.7
Native American	6	2.5
Pacific Islander	1	0.4
Interracial	2	0.8
Other	3	1.2
Highest Educational Attainment		
High School Diploma or GED	2	0.8
Associate Degree	1	0.4
Bachelor's Degree	57	23.4
Master's Degree	173	70.9
Doctoral Degree	8	3.3
Other	3	1.2
Marital Status		
Single	77	31.7
Married or Cohabiting	166	68.3
Number of Children		
None	104	43.7
1	30	12.6
2	55	23.1
3	34	14.3
4	8	3.4
more than 4	7	2.9

Notes. The total number of the responses may not equal to 245; this is due to missing data on the demographic information.

Procedures

The study was based on data collected from two sources: assistant coaches and head coaches. Assistant coaches who coach women's collegiate sport teams were recruited from the National Collegiate Athletic Association (NCAA) registered institutions (Division I, II, and III). The list of NCAA registered institutions was obtained from the NCAA website. Undergraduate research assistants and I obtained assistant coaches' names and emails from each institution's website. Then, the web link to the online survey was emailed directly to the assistant coaches' emails; 6,404 emails were sent. Assistant coaches completed the survey, which included questionnaires that measured their intention to advance their careers (i.e., career intention), motivation to lead, leader self-efficacy, outcome expectancy, developmental challenges, feedback, support, mentoring relationship, learning orientation, work-family and family-work conflicts, and gender discrimination. The order of questionnaires and the order of items were randomized for each participant. Assistant coaches were offered $5 Starbucks Gift cards for completing the whole survey. Assistant coaches provided their head coaches' names and contact information (i.e., email address). I then emailed the head coaches the web link to the online survey for evaluating the assistant coaches' leader competency and the mentoring relationship.

Measurements

Demographic questionnaire. Demographic information on both the assistant and head coaches was obtained. Selected items included age, educational background, years in coaching, and sport currently coaching (see Appendix A-1).

Intention to advance career (i.e., career intention). Three distinct conceptualizations of intention (Hurtz & Williams, 2009) to advance careers were measured, which included (a) the desire ("I want") to advance (3 items, e.g., "I want to become a university head coach during my career in athletics"), (b) the self-predicted likelihood ("I will") of advancing (3 items, e.g., "It is likely that I will actively seek opportunities to become a university head coach during my career in athletics"), and (c) the felt responsibility ("I should") to advance (3 items, e.g., "Every assistant coach should become a university head coach during his/her career in athletics"). Assistant coaches responded to each item on a 7-point scale, ranging from 1 ("strongly disagree") to 7 ("strongly agree"). See Appendix A-2 for this questionnaire.

Leader competency. Leader competency was assessed by the head coaches under whom the assistant coaches worked at the time of the study. Mumford, Campion, and Morgeson's (2007) leadership skill taxonomy was used. This scale consists of four skill dimensions: *cognitive skills* (6 items, e.g., "speaking: talking to others to convey information effectively"), *interpersonal skills* (4 items, e.g., "persuasion: persuading others to change their minds or behavior"), *business skills* (4 items, e.g., "management of personnel resources: motivating, developing, and directing people as they work"), and *strategic skills* (7 items, e.g., "identification of downstream consequences: determining the long-term outcomes of a change in operations"). Prior to the data collection, the relevancy of each item to the field of athletic coaching was assessed by three experienced coaches, and items and sub-scales were modified based on their feedback. For example, in the item "management of material resources: obtaining and seeing to the appropriate use of equipment, facilities, and materials needed to do

certain work," the phrase "to do certain work" was replaced by "to have a successful program." To capture the coaching profession's specific competencies, four items from the Coaching Efficacy Scale (CES; Feltz, Chase, Moritz, & Sullivan, 1999) representing each of four subscales of CES were also included (e.g., "Developing athletes' ability"). Head coaches indicated the extent to which their assistant coaches showed the competence in each of the skills, on a scale of 1 ("not at all") to 5 ("to a very large extent"). See Appendix A-3 for the questionnaire.

Motivation to lead. The 27-item motivation to lead (Chan & Drasgow, 2001) measure was used to assess participants' motivation to lead. The motivation to lead measure consists of three sub-scales: affective-identity (e.g., "Most of the time I prefer being a leader rather than a follower when working in a group"), non-calculative (e.g., "I would agree to lead others even if there are no special rewards or benefits with that role"), and social-normative (e.g., "I have been taught that I should always volunteer to lead others if I can"). Assistant coaches responded to the items based on a scale of 1 ("strongly disagree") to 5 ("strongly agree") (see Appendix A-4).

Leader self-efficacy. The assistant coaches' leader self-efficacy was assessed with the same items used for the leader competency measures constructed for this study, based on the leadership skill taxonomy of Mumford et al. (2007) and CES (Feltz, Chase, Moritz, & Sullivan, 1999). Assistant coaches indicated their confidence on a scale of 1 ("not at all confident") to 5 ("totally confident") that they can be effective in these dimensions (see Appendix A-5).

Outcome expectancy. To assess the career outcome expectancy of assistant coaches, I designed a measure based on past research in the area (Betz & Voyten,

1997; Hutrz & Williams, 2009; van Vianen, 1999). The measure consists of 4 items (e.g., “If I had the skills to be a head coach, I will be able to get a head coaching job in the future”). Assistant coaches responded to each item on a scale of 1 (“strongly disagree”) to 5 (“strongly agree”). See Appendix A-6 for the questionnaire.

Developmental challenge. The extent of engagement in developmental challenges was measured by the Developmental Challenge Profile (DCP: McCauley, Ohlott, & Ruderman, 1999). DCP consists of five higher order subscales. The example items for each subscale are presented in Table 1. Assistant coaches responded to each item based on a scale of 1 (“not at all descriptive”) to 5 (“extremely descriptive”) (see Appendix A-7). Prior to the data collection, the relevancy of each item to the field of athletic coaching was assessed by three experienced coaches. The sub-scale “work across culture,” which captures the extent to which leaders are required to work with people from different cultures and in different countries, was eliminated based on the consistent feedback from these experienced coaches that this was not relevant to the collegiate coaching profession. A few modifications were made to the items. For example, the item “the customer base you work with is extremely varied” was modified to “the customer base (e.g., supporters, fans, alums) you work with is extremely varied.”

Feedback. To measure the quality of feedback from supervisors and peers, the 9-item Informal Feedback Measure (Newstrom, Monczka, & Reif, 1974) was used. Each item was preceded by the following: “The feedback I receive from a head coach at work has tended to be …” Assistant coaches rated the feedback they received from head coaches on the scale of 1 to 7. Each item is associated with a set of two anchors. For example, on one item, assistant coaches evaluated the quality of feedback on a scale of

1 being “vague” and 7 being “clear”. On another item, they responded based on 1 being “weak” and 7 being “strong” (see Appendix A-8).

Support. Perceived support was measured by the Work Support measure (Haynes, Wall, & Bolden, 1999). The measure consisted of four items and was developed to assess perception of peer-support in the workplace. However, for the purpose of this study, it was used to measure perception of head coaches’ support by replacing the word “colleagues” with “head coaches.” Participants responded to each item which began with “To what extent can you count on your head coach to…” (e.g., “Count on your head coach to listen to you when you need to talk about problems at work?”), based on a scale of 1 to 5 (1 = “not at all”, 5 = “completely”) (see Appendix A-9).

Mentoring relationship. The 10-item measure developed by Allen and Eby (2003) was used to assess mentorship quality and learning. Assistant coaches and head coaches indicated their agreement with the statement on each item, based on a 5-point scale that ranged from 1 (“strongly disagree”) to 5 (“strongly agree”). Sample items included “The mentoring relationship between my mentor/protégé (replaced by the word “head coach/assistant coach” and I was very effective,” and “My mentor/protégé (replaced by the word “head coach/assistant coach”) and I were “co-learners” in the mentoring relationship.” Higher scores indicated better mentorship quality and mentorship learning (see Appendix A-10).

Learning orientation. Learning orientation of assistant coaches was assessed by VandeWalle’s (1997) five-item measure of learning goal orientation (e.g., “I often look for opportunities to develop new skills and knowledge”). Assistant coaches responded

to each item on a scale of 1 (“strongly disagree”) to 5 (“strongly agree”) (see Appendix A-11).

Work-family and family-work conflicts. The 10-item work-family and family-work conflict scale (Netemeyer, Boles, & McMurrian, 1996) was used to measure the constraints posed to coaches by having both work and family life. A sample item in the dimension of work-family conflict is “The demands of my work interfere with my home and family life.” A sample item in the dimension of family-work conflict is “I have to put off doing things at work because of demands on my time at home.” Assistant coaches indicated their agreement to items on a scale of 1 (“strongly disagree”) to 7 (“strongly agree”) (see Appendix A-12).

Gender discrimination. A four-item perceived gender discrimination scale (Foley, Hang-Yue, & Wong, 2005; Sanchez & Brock, 1996) was used to capture participants’ perceptions of gender discrimination at work. An example item is “At work, I sometimes feel that my gender is a limitation.” Assistant coaches indicated their agreements on each item on a five-point scale (1 = “Strongly disagree”, 5 = “Strongly agree”) (see Appendix A-13).

Data Analyses

Because I had limited participation from the head coaches, there was a significant amount of missing data on leader competency. Thus, data analyses were conducted in two main phases. First, I tested a structural equation model (SEM) using the whole sample of assistant coaches (N = 673) to confirm the measurements and structures without including leadership competency as measured by their head coaches. Then, using the factors and structures that were confirmed in the first steps, I

tested a path model with the sub-sample that had complete data (n = 245), which included the head coaches' evaluations of the leader competency of the assistant coaches. As supplementary analyses, I conducted Multiple Indicator Multiple Cause (MIMIC) model, as well as multiple group analysis, for testing heterogeneity and the measurement and structural equivalence of factors between samples of female and male assistant coaches.

In each phase, the models were first examined for overall fit as evaluated by various model fit indices, including chi-square. The chi-square test was interpreted with caution because scholars claim that the value is reliant on sample size and likely to be affected by model complexity and deviations from multivariate normality (Hu & Bentler, 1998). Thus, model evaluations considered the following indices: Comparative Fit Index (CFI: Bentler, 1990), Tucker-Lewis Index (TLI: Bentler & Bonett, 1980), and Root Mean Squared Error of Approximation (RMSEA: Browne & Cudeck, 1993). The indirect effects were examined using Sobel tests and bootstrap confidence intervals of the indirect effects based on 1,000 resamplings. For these latter tests, a 95% confidence interval that does not include zero indicates a significant indirect effect. In comparing models, changes in overall model fits were evaluated. In addition, the MIMIC models as well as the multiple group analysis were conducted to test for potential gender differences in the model. MIMIC models test for the heterogeneity and measurement equivalence between groups, while the multiple group analysis tests for group differences in measurements and structural parameters. MIMIC models and multiple group analysis were conducted in order to have rather comprehensive understandings of potential gender differences in the model. As post-hoc supplementary analyses, ordinary least

square (OLS) regression analyses were conducted to test for the potential curvilinear and interaction effects among factors.

CHAPTER IV

RESULTS

The purposes of this study were to examine a career advancement model of collegiate assistant coaches, and to investigate the gender differences in the model. This chapter presents the results in four main sections. The first section presents the descriptive statistics results. The second section presents the first phase of testing that used structural equation modeling. In this section, I evaluate the hypothesized as well as alternative models. Also, multiple indicators multiple causes (MIMIC) model and multiple group analyses results are presented. In the next section, the results of the path model are presented. This section presents the results of the path model using the composite scores of the factors confirmed in the first phase. MIMIC model and multiple group models results are also presented. The section that follows the path analysis is a presentation of the results from post-hoc supplementary ordinary least square (OLS) regression, which tested possible curvilinear effects and interaction effects.

Scale Reliabilities and Descriptive Statistics Results

The alpha coefficients of the scales, the descriptive statistics, and zero-order correlations among study variables are presented in Table 3. As indicated in the table, all scales used in the present study provided adequate level of internal consistency. In addition, the results showed that assistant coaches scored relatively higher than the mid-point of the scale on career intention, leader competency, motivation to lead, leader self-efficacy, outcome expectancy, feedback, support, mentoring relationship, and work-family conflict, while they scored relatively lower on family-work conflict and gender

discrimination. There were significant positive correlations between the present study's key dependent variable of career intention and (a) motivation to lead, (b) leader self-efficacy, (c) outcome expectancy, (d) developmental challenges, (e) learning orientation, and (f) gender discrimination. There was a negative correlation between career intention and support. In terms of the gender differences in the study variables, the results showed that women were lower in career intention, leader self-efficacy, and developmental challenges, although they were higher in motivation to lead and outcome expectancy as compared to their male counterparts.

Table 3

Zero-Order Correlation and Descriptive Statistics of Study Variables

Variables	*M*	*SD*	1	2	3	4	5	6
1. Career Intention (Scale 1-7)	5.12	1.54	**.91**					
2. Leader Competency (Scale 1-5)	4.02	.60	-.04	**.96**				
3. Motivation to Lead (Scale 1-5)	3.98	.38	.19***	.08	**.84**			
4. Leader Self-Efficacy (Scale 1-5)	4.02	.49	.22***	.05	.35***	**.93**		
5. Outcome Expectancy (Scale 1-5)	4.22	.65	.29***	.03	.30***	.27***	**.77**	
6. Developmental Challenges (Scale 5-15)	11.99	2.89	.21***	-.02	.09*	.21***	.08	**.92**
7. Feedback (Scale 1-7)	5.36	1.05	-.04	.14*	.19***	.16***	.05	-.07
8. Support (Scale 1-5)	4.21	.91	-.10*	.10	.08*	.10*	.07	-.13**
9. Mentoring Relationship (Scale 1-5)	3.91	.91	-.03	.13	.18***	.15***	.12**	-.03
10. Learning Orientation (Scale 1-5)	4.36	60	.19***	.04	.36***	.34***	.24***	.13**
11. Work-family conflict (Scale 1-5)	4.39	1.53	.05	.11	-.01	.03	-.08	.27***
12. Family-work conflict (Scale 1-5)	2.56	1.15	-.03	.12	- .14**	.02	-.15***	.10*
13. Gender Discrimination (Scale 1-5)	2.03	.97	.10**	-.00	-.08	-.02	.20***	.16**
14. Gender (1 = Female, 0 = Male)	.62	.48	-.13**	-.01	-.12**	-.12**	.11*	-.11**

Table 3 (cont'd)

Variables	7	8	9	10	11	12	13	14
1. Career Intention (Scale 1-7)								
2. Leader Competency (Scale 1-5)								
3. Motivation to Lead (Scale 1-5)								
4. Leader Self-Efficacy (Scale 1-5)								
5. Outcome Expectancy (Scale 1-5)								
6. Developmental Challenges (Scale 5-15)								
7. Feedback (Scale 1-7)	**.86**							
8. Support (Scale 1-5)	.69***	**.91**						
9. Mentoring Relationship (Scale 1-5)	.73***	**.70*** **	**.96**					
10. Learning Orientation (Scale 1-5)	-.08*	.02	-.15***	**.89**				
11. Work-family conflict (Scale 1-5)	-.13**	-.14***	-.11**	.01	**.92**			
12. Family-work conflict (Scale 1-5)	-.10*	-.04	-.05	-.06	.35***	**.89**		
13. Gender Discrimination (Scale 1-5)	-.21***	-.19***	-.18***	-.08	.22***	.24***	**.88**	
14. Gender (1 = Female, 0 = Male)	.02	-.01	.03	-.02	-.06	-.06	.06	**N/A**

Notes. In bold on the diagonal indicate the internal consistency reliability of the scale. For the mentoring relationship measure, assistant coaches' ratings on mentoring relationship were reported.
*** $p < .001$. ** $p < .01$. * $p < .05$

First Phase: Structural Equation Modeling

To analyze the data from the total sample of assistant coaches (*N* = 673), I used structural equation modeling (SEM) with Mplus Version 6.1 (Muthén & Muthén, 2010). The model was tested using a covariance matrix and full-information maximum likelihood (FIML) which handles missing cases under Missing at Random (MAR) assumptions. When the data on all study variables were missing or the data on covariates or group information (i.e., gender in the present study) were missing, the cases were excluded. Following the procedure outlined by Landis, Beal, and Tesluk (2000), I randomly combined items into composites (i.e., parcels) for all constructs, except for outcome expectancy (4 items), supervisor support (4 items), gender discrimination (4 items), and learning orientation (5 items) that had fewer number of items, for which I used all items as indicators. The 10-item mentoring relationship and quality measure was reduced to 4 parcels (one 2-item and one 3-item parcels for each of the two subscales). Assistant coaches' responses on their mentoring relationship with their head coaches were utilized. For feedback, there were three 3-item parcels. For career intention (i.e., intention to advance career), leader self-efficacy, developmental challenge, and motivation to lead, parcels were the theoretical conceptual dimensions identified by their developers. Thus, each of the three dimensions of career intention, five dimensions of leader self-efficacy, five dimensions of developmental challenge, and three dimensions of motivation to lead was represented by a parcel. Work-family (5 items) and family-work conflicts (5 items) were treated as two separate latent constructs, according to the past research that confirmed the two-factor structure (Netemeyer, Boles, & McMurrian, 1996).

Measurement Model Testing

The test of the measurement model excluded any predictive paths against the whole sample of assistant coaches (N = 673). The model fit the data well, χ^2 (N = 673, 1089) = 2152.81, CFI = .95, TLI = .94, RMSEA = .038; however, high correlations between feedback and support (.76), feedback and mentoring relationship (.80), and support and mentoring relationship (.74) were observed. In McCauley et al.'s (McCauley & Van Velsor, 2004; Van Velsor, McCauley, & Ruderman, 2010) model of leader development, these components of developmental experiences, feedback, support, and mentoring relationship, capture interactions and learning from others, who, in the present study, are the head coaches that supervise the assistant coaches. Thus, the decision was made to create a new latent variable "head coach professional support" combining these three factors (i.e., feedback, support, and mentoring relationship) using each composite score as an indicator. The model fit the data well, χ^2 (N = 673, 754) = 1510.44, CFI = .95, TLI = .94, RMSEA = .039. Therefore I proceeded to test the hypothesized model with this congeneric measurement of the hypothesized factors.

Hypothesized Model Testing

Model 1. I began by testing the structural model in which all antecedent variables (i.e., developmental challenges, head coach professional support, learning orientation, work-family and family-work conflicts, and gender discrimination) are indirectly related to career intention through the mediator variables: developmental challenges, head coach professional support, leader self-efficacy, outcome expectancy, and/or motivation to lead (see Model 1 in Table 4.1, 4.2, and 4.3). As indicated in Table 4.1, the results support the hypothesized positive, direct relationship between motivation to lead and

career intention (Hypothesis 2). Outcome expectancy was also positively related to career intention. Developmental challenges and head coach professional support were significantly and positively related to leader self-efficacy, which supports Hypothesis 6. Learning orientation was positively related to developmental challenges and head coach professional support, which supports Hypothesis 9. However, I did not find support for the relationship between leader self-efficacy, and work-family and family-work conflicts and gender discrimination. Thus, Hypothesis 11 was not supported.

Indirect effects were analyzed with the Sobel test (Table 4.2) and bootstrap confidence intervals (Table 4.3). Results provided support for some of the hypothesized indirect effects. The mediating effect of motivation to lead was significant for the relationship between leader self-efficacy and career intention (Hypothesis 4), as well as for the relationship between outcome expectancy and career intention (Hypothesis 5). Also the results showed that developmental challenges and head coach professional support were positively related to motivation to lead through leader self-efficacy (Hypothesis 7). In addition, the indirect relationships between learning orientation and leader self-efficacy through developmental challenges and head coach professional support were supported (Hypothesis 10). However, a mediating influence of leader self-efficacy on the relationships between motivation to lead, and work-family and family-work conflicts and gender discrimination were not significant (Hypothesis 12). The mediating effects of outcome expectancy on the relationship between motivation to lead and work-family and family-work conflicts and gender discrimination were partially supported (Hypothesis 13). The results showed that gender discrimination was negatively related to motivation to lead through outcome expectancy; however, the

mediating influence of outcome expectancy was not found for the relationships between family-work and work-family conflicts and motivation to lead. For the complete results, see Table 4.2.

Overall, the results supported most of the hypothesized direct and indirect paths. The exceptions included (a) the direct relationships between work-family and family-work conflicts and gender discrimination, and leader self-efficacy; (b) the indirect relationships between work-family and family-work conflicts and gender discrimination, and motivation to lead through leader self-efficacy; and (c) the indirect relationship between work-family and family-work conflicts and motivation to lead through outcome expectancy.

Model 2. I then proceeded to add hypothesized direct effects of work-family and family-work conflicts on motivation to lead as indicated in Hypothesis 14 (see Model 2 in Table 4.1, 4.2, and 4.3, and Figure 2). Adding these two direct effects did not make substantial changes in CFI, TLI, and RMSEA (.01, .00, and .00 respectively). The results also showed partial support for Hypothesis 14. The relationship between family-work conflict and motivation to lead was negative and significant, as stated in Hypothesis 14; however, there was no significant relationship between work-family conflict and motivation to lead. All hypothesized direct and indirect paths that were supported in Model 1 remained significant in Model 2, except for the path between family-work conflict and outcome expectancy; there was a small change in the beta coefficient (.01), which changed the p-value from .05 to .07.

Model 3. Next, I added all direct effects from antecedent variables (i.e., developmental challenges, head coach professional support, learning orientation, work-

family and family-work conflicts, gender discrimination) on all outcome and mediating variables, which included career intention, motivation to lead, leader self-efficacy, and outcome expectancy (see Model 3 in Table 4.1, 4.2, and 4.3). This model fit the data well and showed improvement in all the model fit indices, as compared to Model 2. CFI, TLI, and RMSEA differences were .017, .018, and .006, respectively. The relationships shown significant in Model 2 remained significant in Model 3; however, by adding these direct effects, motivation to lead was no longer significantly related to career intention. The corresponding Sobel test and bootstrap results indicated that the indirect effects of leader self-efficacy and outcome expectancy on career intention through motivation to lead were no longer significant.

Estimating the direct effects of five latent variables (i.e., leader self-efficacy, outcome expectancy, developmental challenges, head coach professional support, and gender discrimination) on career intention in Model 3 might have reduced the indirect effects of leader self-efficacy and outcome expectancy on career intention through motivation to lead. Each of these five latent variables had a significant direct relationship with career intention. Comparison was made between the fit of this model (Model 3) and a model in which the relationship between motivation to lead and career intention was set to equal its value obtained in Model 2. Although there was no large decrease in CFI, TLI, and RMSEA (.001, .001, and .001 respectively), the chi-square model fit worsened, $\Delta\chi^2$ (1) = 14.03, $p < .001$. This drop in the model fit may imply that the direct effects of these variables substantially reduced the relationship between motivation to lead and career intention. Thus, it is likely that this hypothesized indirect effects of the antecedent variables became no longer significant due to the substantial weakening of the

relationship between motivation to lead and career intention after estimating the direct effects of these variables on career intention.

I conclude that Model 2 is best supported. First, Model 2 is a more parsimonious model as compared to Model 3, and Model 3's fit was not a considerable improvement over Model 2. In addition, there is no strong theoretical basis to predict that leader self-efficacy, outcome expectancy, developmental challenges, head coach professional support, and gender discrimination have direct relationships with career intention unrelated to motivation to lead. Further, estimating these direct effects substantially reduced the magnitude of relationships between motivation to lead and career intention to a degree that it was no longer significant.

Table 4.1

SEM Model Results

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Direct Effects on CA						
MTL -- > CA	.28***	.27***	.05	.28***	.28***	.28***
LSE -- > CA	-	-	.12*	-	-	-
DC-- > CA	-	-	.18***	-	-	-
FBSUPPMR -- > CA	-	-	-.12**	-	-	-
WFC -- > CA	-	-	-.03	-	-	-
FWC -- > CA	-	-	.01	-	-	-
GD -- > CA	-	-	.13**	-	-	-
LO -- > CA	-	-	.02	-	-	-
OE -- > CA	-	-	.26***	-	-	-
Direct Effects on MTL						
LSE -- > MTL	.42***	.42***	.26***	.45***	.45***	.43***
OE -- > MTL	.33***	.30***	.19***	.27***	.27***	.30***
DC -- > MTL	-	-	-.01	-	-	-
FBSUPPMR -- > MTL	-	-	.11*	-	-	-
WFC -- > MTL	-	.08	.07	.08	.08	.07
FWC -- > MTL	-	-.16**	-.16**	-.13**	-.13**	-.14**
GD -- > MTL	-	-	.01	-	-	-
LO -- > MTL	-	-	.27***	-	-	-
Direct Effects on LSE						
DC -- > LSE	.37***	.37***	.26***	.37***	.37***	.37***
FBSUPPMR -- > LSE	.17**	.17**	.13**	.18***	.18***	.18**
WFC -- > LSE	-.06	-.06	-.07	-.08	-.08	-.06
FWC -- > LSE	.05	.05	.07	.06	.07	.06
GD -- > LSE	-.03	-.03	.00	.01	.01	-.03
LO -- > LSE	.	-	.32***	-	-	-
Direct Effects on OE						
DC -- > OE	-	-	.11**	-	-	-
FBSUPPMR -- > OE	-	-	.01	-	-	-
WFC -- > OE	-.01	-.01	-.06	-.00	-.00	-.02
FWC -- > OE	-.10*	-.09	-.08	-.07	-.07	-.08
GD -- > OE	-.20*	-.20***	-.18***	-.22***	-.22***	-.20***
LO -- > OE	-	-	.11*	-	-	-
LSE -- > OE	-	-	.31***	-	-	-

Table 4.1 (cont'd)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Direct Effect of DC and FBSUPPMR						
DC -- > LO	.22***	.22***	.19***	.23***	.23***	.22***
FBSUPPMR -- > LO	.12**	.12**	.11*	.10*	.10*	.12***
Effects of Gender						
Gender -> CA	-	-	-	-.15***	-.15***	-
Gender -> MTL	-	-	-	.19***	.20***	-
Gender -> LSE	-	-	-	-.11**	-.14**	-
Gender -> OE	-	-	-	.12**	.12**	-
Gender -> DC	-	-	-	-.09*	-.09*	-
Gender -> FBSUPPMR	-	-	-	.03	.03	-
Gender -> WFC	-	-	-	-.05	-.05	-
Gender -> FWC	-	-	-	-.08	-.08	-
Gender -> LO	-	-	-	-.03	-.03	-
Gender -> LSE_I	-	-	-	-	.16***	-
Effects of HCR						
HCR -> CA	-	-	-	-	-	-.01
HCR -> MTL	-	-	-	-	-	.05
HCR -> LSE	-	-	-	-	-	-.07
HCR -> OE	-	-	-	-	-	-.04
HCR -> DC	-	-	-	-	-	.11*
HCR -> FBSUPPMR	-	-	-	-	-	-.01
HCR -> WFC	-	-	-	-	-	-.05
HCR -> FWC	-	-	-	-	-	-.03
HCR -> LO	-	-	-	-	-	.00
	-	-	-	-	-	.02
Fit Statistics						
Chi-Square	1922.31	1913.00	1639.49	2038.85	2012.77	2073.93
Degrees of Freedom	780	778	761	816	815	816
CFI	.923	.924	.941	.912	.914	.915
TLI	.915	.915	.933	.903	.905	.906
RMSEA	.047	.047	.041	.051	.050	.048

Notes. CA = Career intention, MTL = Motivation to lead, LSE = Leader self-efficacy, OE = Outcome expectancy, DC = Developmental challenges, FBSUPPMR = Latent construct combining feedback, support, and mentoring relationship (i.e., head coach professional support), WFC = Work-family conflict, FWC = Family work-conflict, GD = Gender discrimination, LO = Learning orientation, HCR = Head coach ratings available

Table 4.2

Indirect Effects and Significance Using Normal Distribution: Sobel Tests

Sobel Tests	Value	*SE*	*z*	*p*
LSE --> MTL --> CA				
Model 1	.12	.03	4.55	.00
Model 2	.12	.03	4.48	.00
Model 3	.01	.02	.82	.41
Model 4	.13	.03	4.62	.00
Model 5	.13	.03	4.62	.00
Model 6	.12	.03	4.50	.00
OE --> MTL --> CA				
Model 1	.09	.02	4.06	.00
Model 2	.08	.02	3.81	.00
Model 3	.01	.01	.82	.41
Model 4	.08	.02	3.53	.00
Model 5	.08	.02	3.54	.00
Model 6	.08	.02	3.82	.00
DC --> LSE --> MTL				
Model 1	.16	.03	5.55	.00
Model 2	.16	.03	5.57	.00
Model 3	.07	.02	3.48	.00
Model 4	.17	.03	5.72	.00
Model 5	.17	.03	5.72	.00
Model 6	.16	.03	5.60	.00
FBSUPPMR --> LSE --> MTL				
Model 1	.07	.02	3.41	.00
Model 2	.07	.02	3.43	.00
Model 3	.03	.01	2.51	.01
Model 4	.08	.02	3.63	.00
Model 5	.08	.02	3.64	.00
Model 6	.08	.02	3.54	.00
WFC --> LSE --> MTL				
Model 1	-.02	.02	-1.14	.26
Model 2	-.03	.02	-1.24	.21
Model 3	-.01	.01	-1.34	.18
Model 4	-.04	.02	-1.63	.10
Model 5	-.04	.02	-1.66	.10
Model 6	-.03	.02	-1.29	.20
FWC --> LSE --> MTL				
Model 1	.02	.02	.94	.35
Model 2	.02	.02	1.12	.26
Model 3	.01	.01	1.37	.17
Model 4	.03	.02	1.42	.16
Model 5	.03	.02	1.45	.15
Model 6	.03	.02	1.28	.20

Table 4.2 (cont'd)

Sobel Tests	Value	*SE*	*z*	*p*
GD --> LSE --> MTL				
Model 1	-.01	.02	-.55	.59
Model 2	-.01	.02	-.56	.58
Model 3	.00	.01	.04	.97
Model 4	.00	.02	-.22	.83
Model 5	.00	.02	-.22	.83
Model 6	-.01	.02	-.57	.57
WFC-- > OE-- > MTL				
Model 1	.00	.02	-.13	.90
Model 2	-.00	.02	-.03	.82
Model 3	-.01	.01	-1.17	.24
Model 4	-.00	.01	-.08	.94
Model 5	-.00	.01	-.08	.94
Model 6	-.01	.02	-.41	.69
FWC -- > OE -- > MTL				
Model 1	-.03	.02	-1.86	.06
Model 2	-.03	.02	-1.74	.08
Model 3	-.02	.01	-1.54	.13
Model 4	-.02	.01	-1.46	.14
Model 5	-.02	.01	-1.46	.14
Model 6	-.02	.02	-1.59	.11
GD -- > OE -- > MTL				
Model 1	-.07	.02	-3.54	.00
Model 2	-.06	.02	-3.43	.00
Model 3	-.04	.01	-2.73	.01
Model 4	-.06	.02	-3.43	.00
Model 5	-.06	.02	-3.44	.00
Model 6	-.06	.02	-3.49	.00
LO -- > DC -- > LSE				
Model 1	.08	.02	4.02	.00
Model 2	.08	.02	4.02	.00
Model 3	.05	.02	3.31	.00
Model 4	.08	.02	4.04	.00
Model 5	.08	.02	5.05	.00
Model 6	.08	.02	4.06	.00
LO -- > FBSUPPMR -- > LSE				
Model 1	.02	.01	2.20	.03
Model 2	.02	.01	2.20	.03
Model 3	.02	.01	1.97	.05
Model 4	,02	.01	1.89	.06
Model 5	.02	.01	1.89	.06
Model 6	.02	.01	2.23	.03

Table 4.3
Bootstrap Results for Indirect Effects

Indirect Effects	*M*	*SE*	95% CI LL	95% CI UL
LSE --> MTL --> CA				
Model 1	.12	.03	.05	.19
Model 2	.12	.03	.05	.18
Model 3	.01	.02	-.02	.05
Model 4	.13	.03	.02	.20
Model 5	.13	.03	.06	.20
Model 6	.12	.03	.05	.19
OE --> MTL --> CA				
Model 1	.09	.02	.04	.15
Model 2	.08	.02	.03	.14
Model 3	.01	.01	-.02	.04
Model 4	.08	.02	.02	.13
Model 5	.08	.02	.02	.13
Model 6	.08	.02	.03	.14
DC --> LSE --> MTL				
Model 1	.16	.03	.09	.22
Model 2	.16	.03	.09	.22
Model 3	.07	.02	.02	.11
Model 4	.17	.03	.10	.23
Model 5	.17	.03	.10	.23
Model 6	.16	.03	.09	.22
FBSUPPMR --> LSE --> MTL				
Model 1	.07	.02	.02	.12
Model 2	.07	.02	.02	.12
Model 3	.03	.01	.00	.06
Model 4	.08	.02	.03	.13
Model 5	.08	.02	.03	.13
Model 6	.08	.02	.03	.13
WFC --> LSE --> MTL				
Model 1	-.02	.02	-.07	.02
Model 2	-.03	.02	-.07	.02
Model 3	-.01	.01	-.05	.01
Model 4	-.04	.02	-.08	.01
Model 5	-.04	.02	-.08	.01
Model 6	-.03	.02	-.07	.02
FWC --> LSE --> MTL				
Model 1	.02	.02	-.03	.07
Model 2	.02	.02	-.03	.07
Model 3	.01	.01	-.01	.05
Model 4	.03	.02	-.02	.08
Model 5	.03	.02	-.02	.08
Model 6	.03	.02	-.02	.07

Table 4.3 (cont'd)

Indirect Effects	*M*	*SE*	95% CI LL	95% CI UL
GD --> LSE --> MTL				
Model 1	-.01	.02	-.05	.03
Model 2	-.01	.02	-.05	.03
Model 3	.00	.01	-.02	.02
Model 4	.00	.02	-.05	.04
Model 5	.00	.02	-.05	.04
Model 6	-.01	.02	-.05	.03
WFC-- > OE-- > MTL				
Model 1	.00	.02	-.03	.03
Model 2	-.00	.02	-.03	.03
Model 3	-.01	.01	-.03	.01
Model 4	-.00	.01	-.03	.03
Model 5	-.00	.01	-.03	.03
Model 6	-.01	.02	-.03	.02
FWC -- > OE -- > MTL				
Model 1	-.03	.02	-.07	.01
Model 2	-.03	.02	-.06	.01
Model 3	-.02	.01	-.03	.00
Model 4	-.02	.01	-.05	.01
Model 5	-.02	.01	-.05	.01
Model 6	-.02	.02	-.06	.01
GD -- > OE -- > MTL				
Model 1	-.07	.02	-.11	-.02
Model 2	-.06	.02	-.10	-.02
Model 3	-.04	.01	-.07	-.00
Model 4	-.06	.02	-.10	-.02
Model 5	-.06	.02	-.10	-.02
Model 6	-.06	.02	-.10	-.02
LO -- > DC -- > LSE				
Model 1	.08	.02	.03	.14
Model 2	.08	.02	.03	.14
Model 3	.05	.02	.02	.09
Model 4	.08	.02	.03	.14
Model 5	.08	.02	.03	.14
Model 6	.08	.02	.03	.14
LO -- > FBSUPPMR -- > LSE				
Model 1	.02	.01	.00	.05
Model 2	.02	.01	.00	.05
Model 3	.02	.01	.00	.03
Model 4	,02	.01	-.01	.04
Model 5	.02	.01	-.01	.04
Model 6	.02	.01	.00	.05

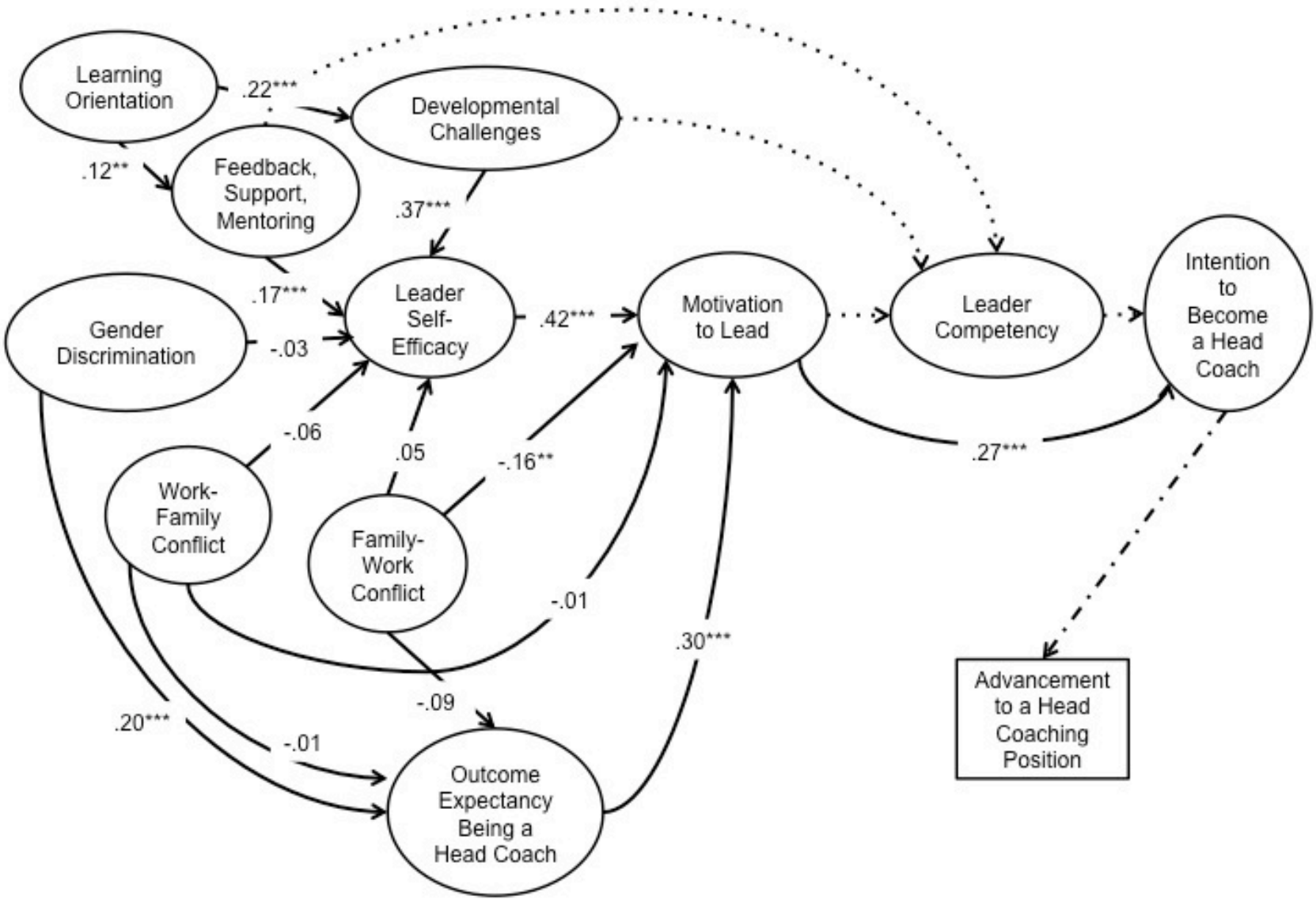

Figure 2. Hypothesized Structural Equation Model Results

MIMIC Model Analysis

MIMIC model analysis tests for the heterogeneity and measurement equivalence between groups, and can be defined as confirmatory analysis with a covariate (Muthén, 1989). The MIMIC model tests mean differences in latent factors and may be a preferable approach to testing measurement equivalence when the sample size is relatively small. MIMIC model analysis results are presented in Table 5.1. Participants who did not indicate their gender in the survey were excluded from the analysis (*n* = 97). To test for the measurement equivalence between samples of male and female assistant coaches, I first regressed all latent variables on gender (Male = 0, Female = 1) in a measurement model (Model 2 in Table 5.1). As shown in Table 5.1, the model fit well to the data, although the model fit significantly worsened from the measurement model that does not include gender as a covariate (Model 1 in Table 5.1). This change in the model fit can be attributed to the increase in degrees of freedom that resulted from adding a covariate in the model. The relationships between gender covariate and each of the latent variables were examined to test for the heterogeneity in factors (i.e., mean differences in latent factors) between male and female assistant coaches (see Table 5.2). The significant relationships between a gender covariate and latent variables indicate that factor means are different between genders. As shown in Table 5.2, there were significant negative relationships between gender and career intention and leader self-efficacy. There were also significant positive relationships between gender and motivation to lead as well as outcome expectancy. These results indicate that male assistant coaches had higher means on career intention and leader self-efficacy factors

as compared to female assistant coaches, while female assistant coaches had higher means on motivation to lead and outcome expectancy factors.

Next, I examined if there were any significant direct relationships between any of the indicators of latent variables and a gender covariate. The modification indices, which indicate a chi-square change if the parameter is freed, were evaluated to see if regressing any of the indicators of latent variables on the gender covariate significantly improved the model fit. A significant direct relationship between the indicator and a covariate not related to the factor and a significant improvement in the model fit by estimating this relationship indicate a measurement non-equivalence (Muthén, 1989). Considering the sample size and biases involved in the chi-square value, only large modification indices (*MI* > 20) with large expected standardized parameter changes (*EPC*) were considered (Saris, Satorra, & Sorbon, 1987). The modification index in Model 2 showed that regressing one of the indicators of leader self-efficacy (i.e., leader self-efficacy about interpersonal skills) on gender could improve the fit of the model (*MI* = 24.42, *EPC* = .16). Thus, in the next model, the direct path from gender to this particular indicator of leader self-efficacy was included (Model 3 in Table 5.1). As Table 5.1 presents, there was a significant chi-square drop in Model 3 as compared to Model 2, $\Delta\chi^2$ (1) = 68.83, $p < .001$, though as Table 5.2 indicates, the magnitudes of the paths between gender and latent factors remained relatively unchanged. The direct path between gender and this indicator (i.e., leader self-efficacy about interpersonal skills) of leader self-efficacy factor was significant and positive, which suggests that female assistant coaches have higher leader self-efficacy about interpersonal skills than their male counterparts. However, as indicated, the relationship between the leader self-

efficacy factor and gender was negative and significant. Given that this indicator of leader self-efficacy about interpersonal skills had a positive loading on the leader self-efficacy factor, females may be expected to have higher means on leader self-efficacy about interpersonal skills than males although females have lower means than males on the overall leader self-efficacy factor. Thus, this particular indicator of leader self-efficacy may not be equivalent between female and male groups. However, it is important to note that the improvement in CFI, TLI, and RMSEA was not substantial (.002, .002, and .000, respectively). Therefore, measurement equivalence between genders may still be supported.

Table 5.1

MIMIC Model Analysis Results

	Chi-Square	Degrees of Freedom	CFI	TLI	RMSEA	Chi-square difference.
Model 1. CFA	1510.44	754	.949	.942	.039	
Model 2. CFA controlled for gender	1553.82	786	.945	.937	.041	43.38*** (32)
Model 3. CFA controlled for gender, with a direct effect of gender on LSE_I	1528.50	785	.947	.939	.041	25.32***(1)

Notes: *** $p < .001$, ** $p < .01$, * $p < .05$

Table 5.2

The Relationships Between Gender and Latent Variables

Direct Effects of Gender	Model 2. CFA controlled for gender	Model 3. CFA controlled for gender, with a direct effect of gender on LSE_I
Gender -> CA	-.11**	-.11**
Gender -> MTL	.16**	.16**
Gender -> LSE	-.14**	-.17***
Gender -> OE	.11*	.11*
Gender -> DC	-.07	-.07
Gender -> FBSUPPMR	.02	.02
Gender -> WFC	-.05	-.05
Gender -> FWC	-.08	-.07
Gender -> GD	.06	.06
Gender -> LO	-.03	-.03
Gender -> LSE_I	-	.16***

Notes: LSE_I = Leader Self-Efficacy about Interpersonal Skills
*** $p < .001$, ** $p < .01$, * $p < .05$

Model 4. Because the results from the MIMIC model analysis showed that latent means may differ between genders, I tested a hypothesized structural model controlling for the effects of gender. Models with and without the direct path from gender to leader self-efficacy about interpersonal skills were examined. The structural model controlled for the effects of gender on latent variables only (Model 4 in Table 4.1, 4.2, and 4.3), which produced an acceptable model fit, χ^2 (N = 576, 816) = 2038.85 CFI = .912, TLI = .903 RMSEA = .050. Gender was significantly and positively related to motivation to lead and outcome expectancy, while gender was significantly and negatively related to career intention, leader self-efficacy, and developmental challenges. In comparing the model (Model 4 in Table 4.1, 4.2, and 4.3) and the model without controlling for gender (Model 2 in Table 4.1, 4.2, and 4.3), it appears that controlling for the effects of gender did not make drastic changes in the magnitude of the hypothesized direct and indirect relationships between the factors. However, the indirect relationship between learning orientation and leader self-efficacy through head coach professional support was no longer significant; there was a slight change in the Sobel test value, from .021 to .018, which made the p-value change from .028 to .059. The bootstrap confidence interval included 0. This may be attributed to the significant, negative direct effects of gender on leader self-efficacy. Female assistant coaches had a lower mean on the leader self-efficacy factor than their male counterparts.

I then proceeded to test a model including a direct path from gender to an indicator of leader self-efficacy: leader self-efficacy about interpersonal skills (Model 5 in Table 4.1, 4.2, and 4.3). Again the relationships between latent factors remained unchanged as compared to Model 2 and Model 4. As in the measurement model

comparison, the chi-square value improved as compared to the model in which gender only related to latent variables (Model 4), $\Delta\chi^2$ (1) = 26.08, $p < .001$. However, the other model fit statistics show only slight improvements (CFI: .002, TLI: .002, and RMSEA: .001).

In sum, the MIMIC model analysis showed that there were some gender differences in latent means. Females showed significantly lower career intention, leader self-efficacy, and developmental challenges, and higher outcome expectancy and motivation to lead. Controlling for gender effects did not make substantial changes in the magnitude of relationships between latent variables in the hypothesized model. There was also a significant direct relationship between one indicator of leader self-efficacy (leader self-efficacy about interpersonal skills) and gender, unrelated to the leader self-efficacy latent factor. However, both the measurement and the structural models showed that adding this direct path did not make substantial changes in the model fit, nor in the relationships between latent factors.

Multiple Group Analysis

In addition to MIMIC model analysis, I tested potential gender differences by conducting multiple group analysis (Joreskog, 1971; Muthén, 1989). Multiple group analysis tests the potential gender differences in measurements (i.e., factor loadings, intercepts) and structures (i.e., latent means, variance, covariance, structural paths). Because multiple group analysis usually requires a large sample size for each group (Muthén, 1989) and the sample size for this study may not have been sufficient and lacked power (Female: n = 360, Male: n = 216), the results are interpreted with cautions.

First, measurement equivalence between two groups (i.e., female and male assistant coaches) was tested. Establishing measurement equivalence should precede testing for structural equivalence (Vandenberg & Lance, 2000). Testing measurement equivalence followed six steps: (a) fitting the model separately in each female and male group to confirm that the model fits to each group; (b) fitting the model in all groups simultaneously, allowing all parameters to be freed; (c) fitting the model in all groups holding factor loadings equal to test the equivalence of factor loadings; (d) fitting the model in all groups holding factor loadings and intercepts equal to test the equivalence of the intercepts; (e) fitting the model in all groups, holding factor loadings, intercepts, factor variance, and covariance equal to test the equivalence of factor and covariance; and (f) fitting the model in all groups, holding factor loadings, intercepts, factor variance, covariance, and latent means equal to test the equivalence of latent means (Muthén & Muthén, 2007). Once measurement equivalence was established, I proceeded to test equivalence in the structural paths, by comparing the constrained model and baseline model where all the structural paths were freely estimated. Models were examined for improvement/worsening in overall fit as evaluated by change in chi-square, CFI, TLI, and RMSEA. The chi-square value is biased to the sample size (Hu & Bentler, 1998); thus, it was interpreted with caution. Although there are no definite cut-points for significant changes in TLI and RMSEA, the change in CFI of .01 was considered a significant change (Vandenberg & Lance, 2000).

The model results for the measurements are presented in Table 6.1. In Step 1, I fit the model to the female and male samples separately. Participants who did not indicate their gender in the survey were excluded from the analysis (n = 98). As

indicated in Table 6.1, the model shows the acceptable fit to both the female and male data. In Step 2, I fit both female and male models simultaneously, allowing all parameters to be freed. The model showed the acceptable fit to the data. In Step 3, the model was fit to both female and male groups, holding factor loadings equal, to test the equivalence of the factor loadings. As shown in the table, worsening in the chi-square difference was significant, $\Delta\chi^2$ (32) = 65.16, $p < .001$; however, there were only slight differences in CFI, TLI, and RMSEA values between the models (.003, .000, and .000, respectively). I concluded that the changes in fit in the constrained model in Step 3 were not substantial; thus, equivalence of the factor loadings between female and male groups was confirmed.

In Step 4, factor loadings as well as intercepts were held constant across groups. Chi-square differences between the model in Step 3 and Step 4 were significant, $\Delta\chi^2$ (32) = 105.398, $p < .001$; however, CFI, TLI, and RMSEA were not significantly affected (changes were .005, .004, and 001 respectively). Thus, I concluded that equivalence for the intercepts across groups was confirmed. Next, in Step 5, I held factor loadings, intercepts, variance, and covariances constant across groups. Change in chi-square from Step 4 was significant, $\Delta\chi^2$ (56) = 95.32, $p < .001$; however, changes in CFI, TLI, and RMSEA were small (.003, .000, and .000, respectively). Thus, the equivalence for variance and covariances were supported. Lastly, in Step 6, factor loadings, intercepts, variance, covariance, and latent means were constrained to be same across groups. Again the chi-square difference was significant, $\Delta\chi^2$ (9) = 58.99, $p < .001$; however, CFI, TLI, and RMSEA differences were small (.003, .003, and 000, respectively). The equivalence of latent means between two groups was confirmed.

Table 6.1

Multiple Group Analysis: Female (n = 360) vs. Male (n = 216)

	Model	Chi-Square	Degrees of Freedom	CFI	TLI	RMSEA	Chi-square difference
Step 1.a.	Male group	1252.39	775	.908	.898	.053	
Step 1.b.	Female group	1485.80	775	.920	.911	.050	
Step 2.	Multiple group (parameters freed)	2738.19	1550	.916	.906	.052	
Step 3.	Multiple group (invariant loading)	2803.35	1582	.913	.906	.052	65.16*** (32)
Step 4.	Multiple group (invariant loading and intercepts)	2908.75	1614	.908	.902	.053	105.40*** (32)
Step 5.	Multiple group (invariant loading, intercept, variance and covariance)	3004.07	1670	.905	.902	.053	95.32*** (56)
Step 6.	Multiple group (invariant loading, variance, covariance, latent mean)	3063.06	1679	.902	.899	.053	58.99*** (9)

Notes. *** $p < .001$, ** $p < .01$, * $p < .05$

Because measurement equivalence between female and male groups was confirmed, I then proceeded to test for the equivalence in the structural paths hypothesized in the study. Results are presented in Table 6.2. First, I tested a model constraining loadings, intercept, variance, covariance, and latent means to be equal across two groups, but freeing the structural paths. As shown in Table 6.1, the model fit was acceptable. Next, I tested a model holding everything including structural paths constant. The chi-square change in this model from Step 1 was significant, $\Delta\chi^2$ (15) = 29.41, p = .01, but the values in CFI, TLI, and RMSEA remained relatively unchanged (.001, .000, and 000, respectively). Thus, I concluded that structural equivalence between male and female groups was supported.

In sum, the multiple group analysis suggested that there was measurement as well as structural equivalence between samples of female and male assistant coaches.

Table 6.2

Multiple Group SEM: Female (n = 360) vs. Male (n = 216)

	Model	Chi-Square	Degrees of Freedom	CFI	TLI	RMSEA	Chi-square difference
Step 1	Multiple group (invariant loadings, intercepts, variance, covariance, and latent mean), structural paths freed	3347.20	1687	.882	.880	.058	
Step 2	Multiple group (invariant loadings, intercepts, variance, covariance, and latent mean), structural paths held constant	3376.61	1702	.881	.880	.058	29.41* (15)

Notes: *** $p < .001$, ** $p < .01$, * $p < .05$

Summary of the First Phase of Analysis

The structural equation model of the total sample of assistant coaches (N = 673) showed that leader self-efficacy and outcome expectancy were related to career intention through motivation to lead. As hypothesized, leader self-efficacy was positively related to developmental challenges and head coach professional support which captured feedback, support, and mentoring from the head coaches. The relationships between these antecedents and motivation to lead were mediated by leader self-efficacy. Gender discrimination was negatively related to motivation to lead through outcome expectancy, and family-work conflict also had a direct and negative relationship with motivation to lead. In addition, learning orientation was positively related to leader self-efficacy through developmental challenges and head coach professional support though the indirect effect of learning orientation on leader self-efficacy through head coach professional support was no longer significant after accounting for the effect of gender. MIMIC model analysis and multiple group analysis generally supported the measurement and structural equivalence between the samples of female and male assistant coaches; however, MIMIC model analysis indicated that there may have been latent mean differences between females and males, and thus this potential gender difference continued to be considered in the analyses in the second phase, where I tested path models with a sample of assistant coaches who had the evaluation of their leadership competency completed by the head coaches.

Second Phase: Path model

Preliminary Testing of the Sample

Prior to proceeding to the path analyses, I tested potential differences between assistant coaches whose leadership skills were evaluated by their head coaches (*n* = 245) and assistant coaches whose leadership skills were not evaluated by their head coaches (*n* = 428). Similar to testing the gender differences, MIMIC model as well as multiple group analysis were conducted.

Assistant coaches who had their leadership skills rated by head coaches were coded as 1, and assistant coaches who did not have their leadership skills rated by head coaches were coded as 0. The MIMIC model analysis results are presented in Table 7.1; there were no substantial changes in model fit as compared to a measurement model that does not include a covariate. Also there were no paths between the factor indicator and a covariate that had a large modification index (*MI* > 20). There was a significant positive relationship between the covariate and head coach professional support, which indicates that assistant coaches who had their leadership skills evaluated by their head coaches had a higher latent mean on this factor. Thus, measurement equivalence between the groups was confirmed; however, the results indicated that there might have been a latent mean difference on this one factor. The structural model results which included this variable as a covariate are presented in Table 4.1, 4.2, and 4.3 (Model 6). There were no substantial changes in the magnitudes of the relationships between the latent factors as compared to the hypothesized model that does not include the covariate. Again, the relationship between the covariate and head coach professional support was positive and significant. In sum, the results indicated that measurement equivalence between these groups can be retained;

however, there may have been a latent mean difference in head coach professional support factor.

Table 7.1

MIMIC Model Analysis Results: AC with Head Coach Ratings (n = 245) vs. AC without Head Coach Ratings (n = 428)

	Chi-Square	Degrees of Freedom	CFI	TLI	RMSEA	Chi-square difference
Model 1. CFA	1510.44	754	.949	.942	.039	
Model 2. CFA controlled for HCR	1555.07	786	.948	.941	.038	44.625 (32), p = .06

Notes. AC = Assistant Coaches

Table 7.2

The Relationship Between HCR (with or without Head Coach Ratings) and Latent Variables

Direct Effects of HCR	Model 2. CFA controlled for HCR
HCR -> CA	.00
HCR -> MTL	.05
HCR -- > LSE	-.06
HCR -> OE	.02
HCR -> DC	-.01
HCR -> FBSUPPMR	.11**
HCR -> WFC	-.01
HCR -> FWC	-.05
HCR -> GD	-.03
HCR -> LO	.00

Notes. See Model 6 in Table 4.1, 4.2, and 4.3 for the structural model results.
*** $p < .001$, ** $p < .01$, * $p < .05$

Multiple group analysis results are presented in Table 8.1 and 8.2. I followed the steps described in Phase 1 in testing measurement and structural equivalence between genders. As indicated in the tables, holding the loadings, intercept, variance and covariance, latent means, and structural paths equal across groups did not make substantial changes in the fit statistics as compared to the less constrained models. Thus, multiple group analysis indicated that the measurements as well as the structural equivalence between the groups of assistant coaches whose leadership skills were rated by their head coaches and those whose leadership was not rated by their head coaches can be retained.

In sum, the results from both the MIMIC model and the multiple group analysis support that there are measurement as well as structural equivalence between the groups of assistant coaches whose leadership skills were rated by their head coaches and whose leadership skills were not rated by their head coaches. However, it is important to note that the MIMIC model results indicated a latent mean difference in head coach professional support. This is considered a limitation of the chosen analysis approach in the second phase of the analyses.

Table 8.1

Multiple Group CFA: AC with Head Coach Ratings (n = 245) vs. AC without Head Coach Ratings (n = 428) Ratings

	Chi-Square	Degrees of Freedom	CFI	TLI	RMSEA	Chi-Square Difference
1.a. AC with HC ratings	1346.84	775	.903	.893	.055	
1.b. Female group	1580.29	775	.913	.903	.049	
2. Multiple group (free parameters)	2927.13	1550	.909	.899	.051	
3. Multiple group model (loading constant across group)	2968.41	1582	.908	.900	.051	41.28 (32)
4. Multiple group (loading and intercept held constant)	3018.90	1614	.907	.901	.051	50.50*(32)
5. Invariant factor variance and covariance	3112.73	1670	.907	.902	.051	93.83**(56)
6. Invariant factor variance, covariance, and mean	3120.90	1679	.905	.902	.051	8.17(9)

Notes. *** $p < .001$, ** $p < .01$, * $p < .05$

Table 8.2

Multiple Group SEM: AC with Head Coach Ratings (n = 245) vs. AC without Head Coach Ratings (n = 428)

	Chi-Square	Degrees of Freedom	CFI	TLI	RMSEA	Chi-Square Difference
1. Multiple group (loading and intercept held constant, variance, covariance, mean), structural path freed	3448.72	1687	.884	.881	.056	
2. Multiple group (loading and intercept held constant, variance, covariance, mean), coefficient held constant	3456.63	1694	.884	.883	.055	7.91 (15)

Notes. *** $p < .001$, ** $p < .01$, * $p < .05$

Path Analysis

For path analysis in the second phase of analyses, a latent variable was created for leader competency which was not included in the first phase, using five subscale scores as indicators. A measurement model was conducted for leader competency. The model fit the data well, χ^2 (N = 244, 4) = 4.36, CFI = 1.00, TLI = .99, RMSEA = .019.

Then, I tested a path model with the sub-sample (n = 245) including a latent factor of leader competency. Composite scores were used for the factors that were confirmed in the first phase. This approach was taken considering the number of free parameters in the model and the small sample size. Measurement errors were calculated for each variable by *(1-alpha coefficient) x variance*, and were controlled in the model by loading the calculated measurement error to each variable. I continued to use a combined latent variable for feedback, support, and mentoring (i.e., "head coach professional support") in this analysis because this was to better represent the construct than simply aggregating these variables. Again, the model fits were evaluated using chi-square, CFI, TLI, and RMSEA. Due to the smaller sample size, the chi-square value was weighed more importantly as compared to Phase 1. Path model results are presented in Table 9.1, and the corresponding indirect effect results are presented in Table 9.2 and 9.3.

The hypothesized model was retested with this smaller sample size (see Model 1 in Table 9.1, 9.2, and 9.3 and Figure 2). The results generally supported the hypotheses supported in the first phase. Motivation to lead was directly and positively related to career intention (Hypothesis 2). Leader self-efficacy and outcome expectancy positively related to career intention through motivation to lead (Hypothesis 4 and 5).

Developmental challenges and head coach professional support were related to leader self-efficacy (Hypothesis 6), and the relationships between these developmental antecedents and motivation to lead were mediated by leader self-efficacy (Hypothesis 7). In addition, learning orientation significantly and positively related to developmental challenges and head coach professional support, which provided support for Hypothesis 9. The indirect effect of learning orientation on leader self-efficacy through developmental challenges was found; however, such indirect effect through head coach professional support was not significant. Thus, Hypothesis 10 was partially supported. Also, there were no significant relationships between leader self-efficacy and work-family and family-work conflicts or gender discrimination (Hypothesis 11), and the relationships between these variable and motivation to lead were not mediated by leader self-efficacy (Hypothesis 12).

The results from the first phase of analyses partially supported Hypothesis 13 by showing that gender discrimination was negatively related to motivation to lead through outcome expectancy. The results from the path analysis in the second phase supported such indirect effects of gender discrimination; however, the indirect effects of work-family and family-work conflicts were still not significant. The direct effect of family-work conflict on motivation to lead remained significant; however, the effect of work-family conflict was still not significant, which again partially supported Hypothesis 14.

Regarding hypotheses involving leader competency, Hypothesis 1, which predicted that motivation to lead positively relates to career intention through leader competency, was not supported. In addition, leader self-efficacy was not positively related to leader competency through motivation to lead. Thus, Hypothesis 3 was not

supported. Further, the results did not support Hypothesis 8, which predicted that developmental challenges and feedback, support, and mentoring relationship (i.e., head coach professional support) directly relate to leader competency. The relationship between developmental challenges and leader competency was not significant. Head coach professional support had a positive, direct relationship with leader competency; however, the coefficient did not reach the significance level (p = .066), which may be attributed to lack of power resulted from a small sample size.

In sum, the results from the path analyses supported the hypothesized paths that were supported in the first phase of the analyses, except for the indirect effect of learning orientation on leader self-efficacy through head coach professional support. The results did not provide support for hypotheses regarding the added variable, leader competency, although I found a positive trend in the relationship between a combined latent factor of feedback, support, and mentoring (i.e., head coach professional support) and leader competency.

Table 9.1

Path Analyses (with Latent Variables of LC and FBSUPPMR), with Measurement Errors Controlled (n = 245)

	Model 1	Model 2	Model 3
Direct Effects on CA			
MTL -- > CA	.22**	.26***	.26**
LC -- > CA	-.03	-.04	-.04
Direct Effects on LC			
MTL -- > LC	.05	.06	.06
DC -- > LC	.01	-.01	-.01
FBSUPPMR -- > LC	.14 (*p* = .057)	.14 (*p* = .054)	.14 (*p* = .052)
Direct Effects on MTL			
LSE -- > MTL	.44***	.47***	.47***
OE -- > MTL	.25**	.22**	.22***
WFC -- > MTL	.04	.03	.03
FWC -- > MTL	-.20**	-.19**	-.19**
Direct Effects on LSE			
Challenges -->LSE	.29**	.28***	.28**
FBSUPPMR --> LSE	.23**	.24***	.24**
WFC -- > LSE	-.06	-.06	-.06
FWC --> LSE	.07	.07	.07
GD --> LSE	.03	.04	.04
Direct Effects on OE			
WFC -- > OE	.03	.02	.02
FWC -- > OE	-.05	-.04	-.04
GD-- > OE	-.23**	-.24**	-.24**
Direct Effects of Challenges and FBSUPPMR			
LO -- > Challenges	.26***	.27***	.27***
LO -- > FBSUPPMR	.15*	.14*	.14*

Table 9.1 (cont'd)

	Model 1	Model 2	Model 3
Effects of Gender			
Gender -> CA		-.18**	-.18**
Gender -> MTL		.21***	.21***
Gender -> LSE		-.05	-.05
Gender - > OE		.14*	.14*
Gender -> DC		-.16*	-.16*
Gender -> FBSUPPMR		.09	.09
Gender -> WFC		-.00	-.00
Gender -> FWC		-.03	-.03
Gender -> LO		.03	.03
Gender -> LC		-.07	-.09
Gender -> LC_COG			.13**
Gender -> LC_I			.11*
Fit Statistics			
Chi-Square	273.66	354.83	344.35
Degrees of Freedom	102	115	113
CFI	.888	.847	.852
TLI	.850	.796	.800
RMSEA	.083	.092	.092

Notes. LC = Leader Competency, LC_COG = Leader Competency about Cognitive Skills, LC_I = Leader Competency about Interpersonal Skills
*** $p < .001$, ** $p < .01$, * $p < .05$

Table 9.2

Indirect Effects and Significance Using Normal Distribution: Sobel Tests (n = 245)

Sobel Tests	Value	*SE*	*z*	*p*
MTL -- > LC -- > CA				
Model 1	-.00	.00	-.37	.71
Model 2	-.00	.01	-.47	.64
Model 3	-.00	.01	-.48	.63
LSE -- > MTL -- > LC				
Model 1	.02	.03	.64	.52
Model 2	.03	.04	.65	.52
Model 3	.03	.04	.79	.43
LSE --> MTL --> CA				
Model 1	.10	.03	2.90	.00
Model 2	.12	.04	3.31	.00
Model 3	.12	.04	3.31	.00
OE --> MTL --> CA				
Model 1	.06	.02	2.29	.02
Model 2	.06	.02	2.30	.02
Model 3	.06	.03	2.30	.02
DC --> LSE --> MTL				
Model 1	.13	.04	3.46	.00
Model 2	.13	.04	3.40	.00
Model 3	.13	.04	3.40	.00
FBSUPPMR --> LSE --> MTL				
Model 1	.10	.03	2.98	.00
Model 2	.11	.04	3.14	.00
Model 3	.11	.04	3.14	.00
WFC --> LSE --> MTL				
Model 1	-.03	.03	-.84	.40
Model 2	-.03	.03	-.80	.42
Model 3	-.03	.03	-.80	.42
FWC --> LSE --> MTL				
Model 1	.03	.03	.94	.35
Model 2	.04	.03	1.02	.31
Model 3	.04	.03	1.02	.31
GD --> LSE --> MTL				
Model 1	.01	.03	.41	.68
Model 2	.02	.03	.58	.56
Model 3	.02	.03	.58	.56
WFC-- > OE-- > MTL				
Model 1	.01	.02	.34	.73
Model 2	.01	.02	.25	.80
Model 3	.01	.02	.25	.80

Table 9.2 (cont'd)

Sobel Tests	Value	*SE*	*z*	*p*
FWC -- > OE -- > MTL				
Model 1	-.01	.02	-.54	.59
Model 2	-.01	.02	-.52	.60
Model 3	-.01	.02	-.52	.60
GD -- > OE -- > MTL				
Model 1	-.06	.03	-2.18	.03
Model 2	-.06	.03	-2.12	.03
Model 3	-.05	.03	-2.12	.03
LO -- > DC -- > LSE				
Model 1	.08	.03	2.59	.01
Model 2	.08	.03	2.59	.01
Model 3	.08	.03	2.59	.01
LO -- > FBSUPPMR -- > LSE				
Model 1	.03	.02	1.72	.09
Model 2	.04	.02	1.69	.09
Model 3	.04	.02	1.69	.09

Notes. *** $p < .001$, ** $p < .01$, * $p < .05$

Table 9.3

Bootstrap Results for Indirect Effects (n = 245)

Indirect Effects	M	*SE*	95% CI LL	95% CI UL
MTL -- > LC -- > CA				
Model 1	-.00	.00	-.01	.01
Model 2	-.00	.01	-.02	.01
Model 3	-.00	.01	-.02	.01
LSE -- > MTL -- > LC				
Model 1	.02	.03	-.04	.08
Model 2	.03	.04	-.04	.10
Model 3	.03	.04	-.04	.10
LSE --> MTL --> CA				
Model 1	.10	.03	.03	.17
Model 2	.12	.04	.04	.20
Model 3	.12	.04	.04	.20
OE --> MTL --> CA				
Model 1	.06	.02	.00	.11
Model 2	.06	.02	.00	.11
Model 3	.06	.03	.00	.11
DC --> LSE --> MTL				
Model 1	.13	.04	.05	.20
Model 2	.13	.04	.05	.21
Model 3	.13	.04	.05	.21
FBSUPPMR --> LSE --> MTL				
Model 1	.10	.03	.02	.19
Model 2	.11	.04	.03	.20
Model 3	.11	.04	.03	.20
WFC --> LSE --> MTL				
Model 1	-.03	.03	-.10	.04
Model 2	-.03	.03	-.10	.04
Model 3	-.03	.03	-.10	.04
FWC --> LSE --> MTL				
Model 1	.03	.03	-.04	.10
Model 2	.04	.03	-.04	.10
Model 3	.04	.03	-.04	.10
GD --> LSE --> MTL				
Model 1	.01	.03	-.05	.08
Model 2	.02	.03	-.05	.09
Model 3	.02	.03	-.05	.09
WFC-- > OE-- > MTL				
Model 1	.01	.02	-.04	.05
Model 2	.01	.02	-.03	.04
Model 3	.01	.02	-.03	.04

Table 9.3 (cont'd)

Indirect Effects	M	*SE*	95% CI LL	95% CI UL
FWC -- > OE -- > MTL				
Model 1	-.01	.02	-.06	.04
Model 2	-.01	.02	-.05	.03
Model 3	-.01	.02	-.05	.03
GD -- > OE -- > MTL				
Model 1	-.06	.03	-.12	.00
Model 2	-.06	.03	-.11	.00
Model 3	-.05	.03	-.11	.00
LO -- > DC -- > LSE				
Model 1	.08	.03	.01	.14
Model 2	.08	.03	.01	.14
Model 3	.08	.03	.01	.14
LO -- > FBSUPPMR -- > LSE				
Model 1	.03	.02	-.02	.09
Model 2	.04	.02	-.02	.09
Model 3	.04	.02	-.02	.09

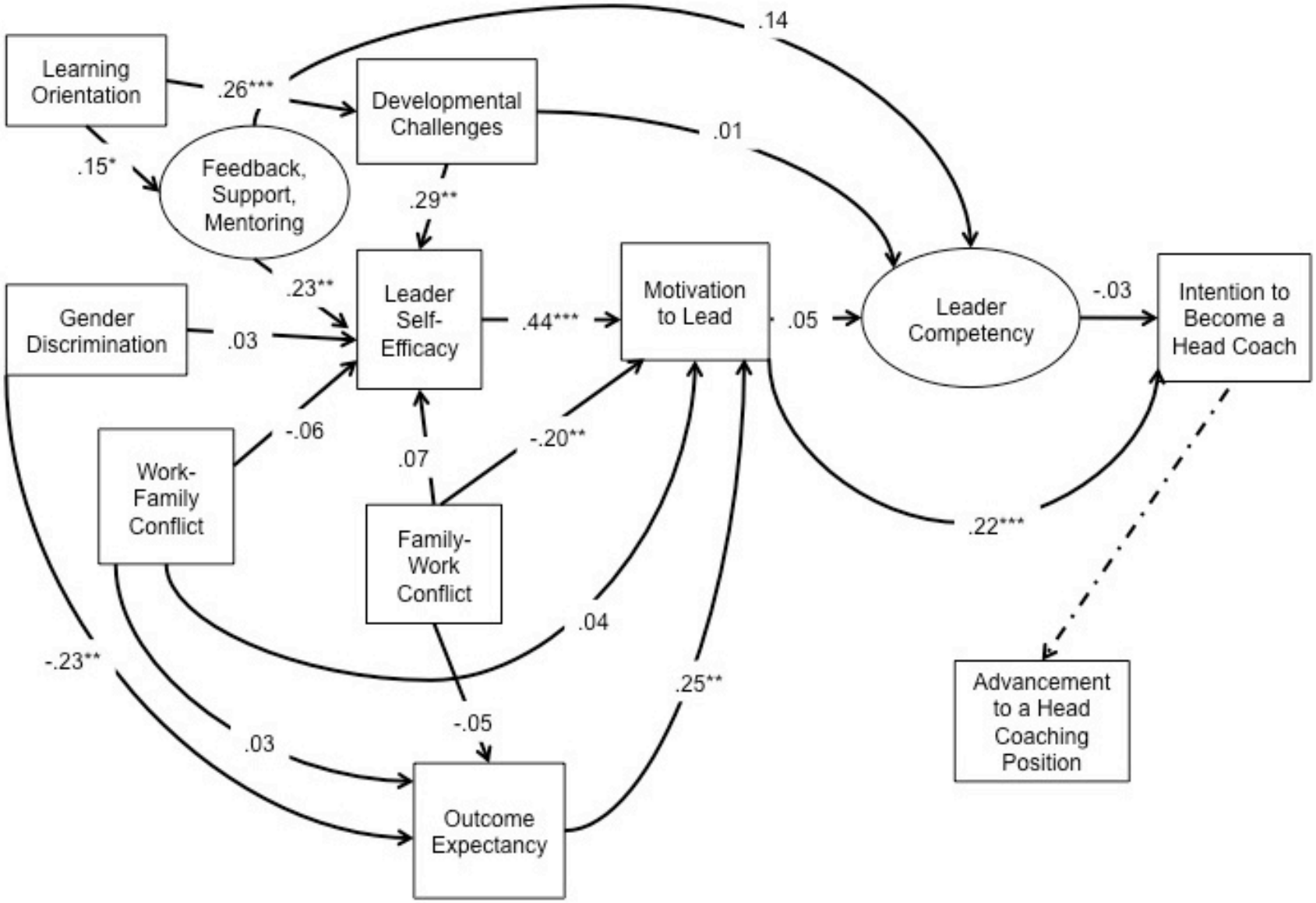

Figure 3. *Hypothesized Path Model Results*

MIMIC Model Analysis

As in the first phase, I tested the measurement and structural equivalence between genders using the MIMIC model as well as multiple group analysis, following the steps described in the first phase. Because the measurement equivalence of leader competency was not established in the first phase, MIMIC analysis was first conducted on this factor. The results are presented in Table 10. As indicated in the table, there were significant chi-square changes when controlling for gender (see Model 2), $\Delta\chi^2$ (4) = 13.69, p = .01. Substantial changes in CFI, TLI, and RMSEA were observed (.012, .021, and .053). Gender was not significantly related to the latent mean of leader competency factor (β = -.05, p = .49). The modification index indicated that there may be a significant chi-square improvement by estimating the path from gender to an indicator of leader competency about cognitive skills (*MI* = 4.22, *EPC* = .09). Estimating this path improved the model fit significantly (see Model 3), $\Delta\chi^2$ (1) = 4.37, p = .04. Again, gender was not significantly related to the latent variable of leader competency (β = -.05, p = .43). The relationship between gender and the indicator of leader competency about cognitive skills was positive and significant (β = .11, p = .04). The model fit index in Model 3 indicated that estimating the path between gender and an indicator of leadership skills competency about interpersonal skills can improve the fit significantly (*MI* = 4.22, *EPC* = .09). Thus, in the next step, I included this path (Model 4). As compared to Model 3, the model fit (Model 4) improved significantly $\Delta\chi^2$ (1) = 5.56, p = .02. CFI, TLI, and RMSEA differences were .006, .006, and .025, respectively. The relationship between gender and the latent variable of leader competency was not significant (β = -.07, p = .32). However, the relationships between gender and the

indicators of leader competency about cognitive skills and interpersonal skills were positive and significant (β = .13, p = .01, β = .11, p = .02, respectively). Thus, the MIMIC analysis results indicated that there may have been some measurement non-equivalence in the leader competency factor. In sum, there was no gender difference in factor mean; however, females may be expected to have higher means on leader competency about cognitive and interpersonal skills.

Table 10

MIMIC Analyses Results on Leader Competency (n = 245)

	Chi-Square	Degrees of Freedom	CFI	TLI	RMSEA	Chi-Square Difference
Model 1. CFA	4.36	4	1.000	.999	.019	
Model 2. CFA controlled for gender	18.05	8	.988	.978	.072	13.69** (4)
Model 3. CFA controlled for gender (regress LC_COG on GENDER)	13.68	7	.992	.983	.063	4.366* (1)
Model 4. CFA controlled for gender (regress LC_COG and LC_I on GENDER)	8.12	6	.998	.994	.038	5.56* (1), 9.925** (2)

Notes. *** $p < .001$, ** $p < .01$, * $p < .05$

MIMIC model results from the first phase of the analyses showed that there may be some latent mean differences in factors. As a next step, I added the effects of gender to the hypothesized model (see Model 2 in Table 9.1, 9.2, and 9.3). In addition to regressing the leader competency factor on gender, the direct paths from gender to two of the factor indicators were added (see Model 3 in Table 9.1, 9.2, and 9.3) because the preceding MIMIC analysis on this factor showed that there may have been measurement non-equivalence on these two indicators. Adding the direct effects of gender did not change the significance of the relationships between variables.

The results from the first phase of the analyses showed that there were negative relationships between gender and career intention, leader self-efficacy, and developmental challenges. As indicated in Table 9.1 (see Model 2 and Model 3), though the relationship between gender and leader self-efficacy was no longer significant, the relationship between gender and career intention and developmental challenges remained negative and significant in the path analysis in the second phase. Thus, female assistant coaches showed lower means on these variables than male assistant coaches. Also the results from the first phase of the analyses indicated that gender was significantly and positively related to motivation to lead and outcome expectancy. Thus, females showed higher means on these factors than males. These relationships remained significant in the path analysis in the second phase. As in the preceding MIMIC analysis on leader competency, the results from Model 2 (see Table 9.1) showed that the relationship between gender and leader competency was not significant, although the relationships between gender and the two indicators of leader competency

(cognitive skills and interpersonal skills) were positive and significant (see Model 3 in Table 9.1).

In sum, adding the direct effect of gender in the path analysis did not make substantial changes in the magnitudes of the hypothesized relationships. Also, there were a few significant direct effects of gender on factors in the model. Yet, it is important to note that the results may need to be interpreted with caution because the model fit significantly worsened out of the acceptable model fit range when including gender, χ^2 (N = 244, 113) = 344.35, CFI = .85, TLI = .80, RMSEA = .092. Regardless, the results seem to be concordant and to supplement the findings from the first phase of the analyses.

Multiple Group Analysis

In addition to MIMIC model, multiple group analysis was conducted. As in the MIMIC model, multiple group analysis was first conducted on leader competency in order to establish the measurement equivalence. The results are presented in Table 11. Unlike the multiple group analysis conducted in the first phase of the analyses, chi-square differences were considered more important in this analysis given the smaller sample size. As indicated in the table, holding intercept of leader competency factor worsens the model fit significantly as compared to less constrained model, $\Delta\chi^2$ (4) = 14.55, p = .01; CFI, TLI, and RMSEA differences were .012, .008, and .014, respectively (see Step 4 in Table 11). Thus, freeing intercepts was considered. The modification index showed that freeing the intercept of one indicator of leadership skills competency (i.e., cognitive skills) may improve the model fit (*MI* = 6.20, *EPC* = .07). Thus, in the next step (Step 4.a. in Table 11), this intercept was freed. The model fit improved; however,

the chi-square difference was still significant, $\Delta\chi^2$ (3) = 8.18, p = .05. CFI, TLI, and RMSEA differences were .006, .003, and .005. The modification index showed that freeing an additional intercept (i.e., interpersonal skills) may further improve the model fit (*MI* = 5.60, *EPC* = .08). Freeing this intercept (Step 4.b. in Table 11) did improve the model fit. The chi-square difference was no longer significant, $\Delta\chi^2$ (2) = 2.46, p = .29. CFI, TLI, and RMSEA differences were .000, .002, and .005. Thus, partial intercept equivalence between genders was established. Factor and latent mean equivalence was established in the next steps. Thus, the results from multiple group analysis support the partial measurement equivalence between genders for leader competency.

Table 11

Multiple Group CFA, LC only, Female (n = 163) vs. Male (n = 80)

	Chi-Square	Degrees of Freedom	CFI	TLI	RMSEA	Chi-Square Difference
1.a. Female group	13.95	5	.985	.971	.105	
1.b. Male group	15.11	5	.959	.918	.158	
2. Multiple group (free parameters)	27.63	10	.980	.959	.120	
3. Multiple group model (invariant loading)	29.33	14	.982	.975	.095	1.70 (4)
4. Multiple group (invariant loading and intercept)	43.88	18	.970	.967	.109	14.55***(4)
4.a. Multiple group (invariant loading and intercept except for LC_COG)	37.51	17	.976	.972	.100	8.18* (3)
4.b. Multiple group (invariant loading and intercept except for LC_COG and LC_I)	31.79	16	.982	.977	.090	2.46 (2)
5. Multiple group (invariant factor variance)	34.68	17	.980	.977	.093	2.89 (1)
6. Multiple group (invariant factor variance and factor mean)	35.77	18	.979	.977	.090	1.10 (1)

Notes. *** $p < .001$, ** $p < .01$, * $p < .05$

In the next step, I tested the equivalence in the hypothesized paths between genders. As in the path analysis (n = 245), composite variables were used for the factors that were established in the first phase, except for a combined latent variable of feedback, support, and mentoring (i.e., head coach professional support). The latent variable of leader competency was included and the intercepts of cognitive skills and interpersonal skills were freed, considering the results from the preceding measurement model. The results are presented in Table 12. First, loadings, intercepts (except for leadership skills about cognitive and interpersonal skills), factor variance, and latent means were held equal while freeing all coefficients. In Step 2, still freeing all hypothesized coefficients, factor covariances were held equal in addition to all other parameters. Constraining covariance did not make significant changes in the chi-square, $\Delta\chi^2$ (6) = .95, p = .99, or in any other fit statistics (CFI, TLI, and RMSEA differences were .004, .008, and .003 respectively). Thus, factor covariance equivalence was supported. In Step 3, all hypothesized coefficients and other parameters were constrained to be equal. This made significant changes in the model fit, $\Delta\chi^2$ (19) = 40.84, p = .003 and other fit statistics (CFI, TLI, and RMSEA differences were .015, .003, and .001, respectively). Thus, each hypothesized path was freed one by one to examine where this difference could be attributed.

As Table 12 shows, there were significant improvements in the model fit when I freed (a) the path from family-work conflict to outcome expectancy, and (b) the path from gender discrimination to outcome expectancy. Freeing these two paths in the model significantly improved the model fit, $\Delta\chi^2$ (2) = 11.06, p = .001 (CFI, TLI, and RMSEA differences were .006, .005, and .001, respectively). Family-work conflict was

not significantly related to outcome expectancy for females (*b* =.03, *p* = .46), while for males, the relationship was negative and significant (*b* = -.14, *p* = .03). In addition, there was no significant relationship between gender discrimination and outcome expectancy for females (*b* = -.08, *p* = .13); however, the relationship was negative and significant for males (*b* = -.28, *p* = .001).

In sum, the multiple group analysis seems to suggest that there may be gender differences in the paths between (a) outcome expectancy and family-work conflict, and (b) outcome expectancy and gender discrimination. However, it is important to note that the fit of the model was not satisfactory, and these patterns were not found in the first phase of the analyses where I tested the model on the whole sample of assistant coaches. Also, although I made the effort to lower the number of free parameters in the model by using composite variables, sample size was small and there were twice as many female assistant coaches (*n* = 163) as male assistant coaches (*n* = 80). Multiple group model analysis requires a sufficient size of the sample in all groups (Muthén & Muthén, 2007); thus, the results need to be interpreted with caution.

Table 12

Multiple Group Path Analyses, Female (n = 163), Male (n = 80)

	Chi-Square	Degrees of Freedom	CFI	TLI	RMSEA	Chi-Square Difference
1. Multiple group (invariant loading, intercept, except for LC_COG, LC_I, invariant variance and latent means, and invariant variance, means for latent variables) all coefficient freed.	447.64	229	.856	.837	.089	
2. Multiple group (invariant loading, intercept, except for LC_COG, LC_I, invariant variance, covariance and latent means) all hypothesized coefficient freed.	448.60	235	.860	.845	.086	.95 (6)
3. Multiple group (invariant loading, intercept, except for LC_COG, LC_I, invariant variance, covariance and latent means), ALL hypothesized paths held constant.	489.44	254	.845	.842	.087	40.84 (19)**
4. CA ON MTL (1) freed	489.43	253	.845	.840	.088	.002 (1)
5. CA ON LC (2) freed	488.05	253	.846	.841	.087	1.39 (1)
6. LC ON MTL (3) freed	487.98	253	.846	.841	.087	1.45 (1)
7. LC ON FBSUPPMR (4) freed	488.56	253	.845	.841	.088	.87 (1)
8. LC ON DC (5) freed	487.32	253	.846	.842	.087	2.12 (1)

Table 12 (cont'd)

	Chi-Square	Degrees of Freedom	CFI	TLI	RMSEA	Chi-Square Difference
9. LSE ON DC (6) freed	489.08	253	.845	.841	.088	.36 (1)
10. LSE ON FBSUPPMR (7) freed	486.29	253	.847	.842	.087	3.14 (1)
11. LSE ON WFC (8) freed	488.34	253	.845	.841	.087	1.10 (1)
12. LSE ON FWC (9) freed	488.89	253	.845	.841	.088	.54 (1)
13. LSE ON GD (10) freed	489.10	253	.845	.841	.088	.34 (1)
14. MTL ON LSE (11) freed	486.10	253	.847	.843	.087	3.34 (1)
15. MTL ON OE (12) freed	485.93	253	.847	.843	.087	3.51 (1)
16. MTL ON WFC (13) freed	488.84	253	.845	.841	.088	.59 (1)
17. MTL ON FWC (14) freed	489.42	253	.845	.840	.088	1.02 (1)
18. OE ON WFC (15) freed	488.27	253	.845	.841	.087	1.17 (1)
19. OE ON FWC (16) freed	482.33	253	.849	.845	.086	7.11** (1)
20. OE ON GD (17) freed	483.47	253	.849	.844	.087	5.96* (1)
21. DC ON LO (18) freed	487.26	253	.846	.842	.087	2.18 (1)
22. FBSUPPMR ON LO (19) freed	487.57	253	.846	.842	.087	1.87 (1)
23. OE ON FWC (16) and OE ON GD (17) freed	478.37	252	.851	.847	.086	11.06** (2)

Notes. *** $p < .001$, ** $p < .01$, * $p < .05$

Summary of the Second Phase of the Analyses

With a sample of assistant coaches who had the evaluation of leadership skills by their head coaches (*n* = 245), I tested a path model using the composite scores of the factors confirmed in the first phase of the analyses and a latent factor of leader competency, as well as a combined factor of feedback, support, and mentoring (i.e., head coach professional support). The results provided support for hypotheses that were supported in the first phase, except for the hypothesis regarding the indirect effect of learning orientation on leader self-efficacy through head coach professional support. There were no significant relationships between leader competency and motivation to lead, career intention, leader self-efficacy, or developmental challenges. Leader competency was also positively and directly predicted by head coach professional support when controlled for the effect of gender.

The results from the MIMIC model and the multiple group analysis were consistent in suggesting that there was measurement non-equivalence on leadership skills competency between genders, specifically on the cognitive skills and interpersonal skills indicators. Further, the MIMIC model suggested that there were gender differences in means of career intention, motivation to lead, developmental challenges, and outcome expectancy. Females had lower career intention and developmental challenges, and higher motivation to lead and outcome expectancy. In addition, multiple group analysis suggested that outcome expectancy was negatively significantly related to family-work conflict and gender discrimination for males, but not for females. Considering the small sample size and the unsatisfactory model fit, these results need

to be interpreted with caution although they provide insights into possible gender differences in the career advancement process.

Post-Hoc Supplementary OLS Regression Analyses

I also conducted *post-hoc* supplementary analyses of plausible curvilinear relationships as well as interaction effects using OLS regression analyses. Specifically, I tested (a) curvilinear relationships between leader self-efficacy and motivation to lead, leader competency, and career intention; (b) curvilinear relationships between developmental challenges and leader self-efficacy, motivation to lead, leader competency, and career intention; (c) interaction effects of learning orientation and developmental challenges on leader self-efficacy, motivation to lead, leader competency and career intention, and (d) interaction effects of developmental challenges, and support, feedback, and mentoring on leader self-efficacy, motivation to lead, leader competency, and career intention.

Curvilinear Effects of Leader Self-Efficacy

Scholars claim that leader self-efficacy generally has positive impacts; however, an extremely high level of leader self-efficacy can potentially be detrimental to leaders' development because it may inhibit their efforts in development activities (Machida & Schaubroeck, 2011; Shipman & Mumford, 2011). Thus, using OLS regression analyses, I tested the curvilinear relationships between leader self-efficacy and three key dependent variables in the present study: (a) motivation to lead, (b) leader competency, and (c) career intention. After first entering leader self-efficacy, I entered the square of leader self-efficacy in the second step. Squared leader self-efficacy did not significantly increase the amount of variance explained in motivation to lead (ΔR^2 = .002, p = .26

ns), leader competency (ΔR^2 = .001, *p* = .66 *ns*), or career intention (ΔR^2 = .002, *p* = .29 *ns*), after controlling for the effect of leader self-efficacy. I also tested for the potential direct effect of gender on the relationship. Entering the effect of gender in the first step did not change the magnitude of the effect of squared term of leader self-efficacy on motivation to lead, leader competency, or career intention (See Table 13 for complete results).

Table 13

Curvilinear Effects of Leader Self-Efficacy

Dependent Variable		B	SE	β	ΔR^2	R^2
Motivation to Lead	Step 1 (*N* = 592)					.124***
	LSE	.27***	.03	.35***		
	Step 2				.002	.125***
	LSE	-.09	.32	-.11		
	LSE squared	.05	.04	.47		
	Step 1 (*N* = 573)					.157***
	LSE	.29***	.03	.38***		
	Gender	.13***	.03	.17***		
	Step 2				.004	.161***
	LSE	-.21	.31	-.28		
	Gender	.13***	.03	.17***		
	LSE squared	.06	.04	.66		
Leader Competency						
	Step 1 (*N* = 243)					.002
	LSE	.01	.08	.05		
	Step 2				.001	.003
	LSE	-.30	.81	-.25		
	LSE squared	.05	.10	.30		
	Step 1 (*N* = 243)					.002
	LSE	.06	.08	.05		
	Gender	-.01	.08	-.01		
	Step 2				.001	.003
	LSE	-.30	.81	-.26		
	Gender	-.01	.08	-.01		
	LSE squared	.05	.10	.30		

Table 13 (cont'd)

Dependent Variable		B	SE	β	ΔR^2	R^2
Career Intention						
	Step 1 (*N* = 595)					.048
	LSE	.70***	.13	.22***		
	Step 2				.002	.050
	LSE	-.74	1.36	-.23		
	LSE squared	.18	.17	.45		
	Step 1 (*N* = 573)					.056
	LSE	.64***	.13	.20***		
	Gender	-.32*	.13	-.10*		
	Step 2				.002	.057
	LSE	-.70	1.36	-.22		
	Gender	-.32*	.13	-.10*		
	LSE squared	.17	.17	.43		

Notes. LSE = Leader Self-Efficacy
*** $p < .001$, ** $p < .01$, * $p < .05$

Curvilinear Effects of Developmental Challenges

Based on DeRue and Wellman's (2009) study, which reported a curvilinear, inverted U-shaped relationship between developmental challenges and managers' leadership skills development, I also tested the curvilinear effects of developmental challenges on the key dependent variables: (a) leader self-efficacy, (b) motivation to lead, (c) leader competency, and (d) career intention. The developmental challenges variable was entered in the first step, followed by the square of this variable in the second step. The squared variable did not significantly increase the amount of variance explained in leader self-efficacy ($\Delta R^2 = .002$, $p = .31$ *ns*) or motivation to lead ($\Delta R^2 = .000$, $p = .80$ *ns*), although it significantly increased the amount of variance explained in leader competency ($\Delta R^2 = .022$, $p = .02$) and career intention ($\Delta R^2 = .017$, $p = .00$). This

indicates a curvilinear relationship between developmental challenges and leader competency and career intention. Though the variance explained in leader competency by the model was too small to reach the significance (R^2 = .022, *p* = .07), the results suggested that there was a U-shaped relationship between developmental challenges and leader competency, which is indicated by a non-significant beta coefficient between non-squared term of developmental challenges and leader competency in the first step (β = -.02, *p* = .79), and a negative beta coefficient between non-squared term of developmental challenges and leader competency (β = -.88, *p* = .02) and a positive beta coefficient between squared developmental challenges and leader competency in the second step (β= .88, *p* = .02). On the other hand, the results suggest that the relationship between developmental challenges and career intention is a predominantly positive, inverted U-relationship, which is indicated by a positive beta coefficient between non-squared developmental challenges and career intention in the first step (β = .21, *p* = .00) and the second step (β = 1.00, *p* < .001), and a negative beta coefficient between the squared term of developmental challenges and career intention (β = -.81, *p* = .001) in the second step. These curvilinear relationships between developmental challenges and leader competency and career intention were also observed when gender was included in the analysis (See Table 14).

Table 14

Curvilinear Effects of Developmental Challenges

Dependent Variable		B	SE	β	ΔR^2	R^2
Leader Self-Efficacy	Step 1 (*N* = 584)					.043
	DC	.04***	.01	.21***		
	Step 2				.002	.045
	DC	-.01	.04	-.04		
	DC squared	.00	.00	.25		
	Step 1 (*N* = 570)					.052
	DC	.03***	.01	.20***		
	Gender	-.10*	.04	-.10*		
	Step 2				.001	.053
	DC	-.00	.04	-.03		
	Gender	-.10*	.04	-.10*		
	DC squared	.00	.00	.22		
Motivation to Lead	Step 1 (*N* = 586)					.008
	DC	.01*	.01	.09*		
	Step 2				.000	.008
	DC	.00	.03	.03		
	DC squared	.00	.00	.06		
	Step 1 (*N* = 571)					.023
	DC	.01*	.01	.10*		
	Gender	.10*	.03	.13**		
	Step 2				.000	.024
	DC	.01	.03	.04		
	Gender	.10**	.03	.13**		
	DC squared	.00	.00	.06		
Leader Competency	Step 1 (*N* = 243)					.000
	DC	-.00	.01	-.02		
	Step 2				.022*	.022
	DC	-.19*	.08	-.88*		
	DC squared	.01*	.00	.88*		
	Step 1 (*N* = 242)					.000
	DC	.00	.01	-.02		
	Gender	-.01	.08	-.01		
	Step 2				.022*	.023
	DC	-.19*	.08	-.89*		
	Gender	-.02	.08	-.02		
	DC squared	.01*	.00	.87*		

Table 14 (cont'd)

Dependent Variable		B	SE	β	ΔR^2	R^2
Career Intention	Step 1 (*N* = 591)					.042
	DC	.11***	.02	.21***		
	Step 2				.017**	.059
	DC	.54***	.13	1.00***		
	DC squared	-.02**	.01	-.81**		
	Step 1 (*N* = 571)					.051
	DC	.10***	.02	.19***		
	Gender	-.32*	.13	-.10*		
	Step 2				.021***	.072
	DC	.58***	.13	1.07***		
	Gender	-.32*	.13	-.10*		
	DC squared	.02***	.01	-.89***		

Notes. DC = Developmental Challenges
*** $p < .001$, ** $p < .01$, * $p < .05$

Interaction Effects of Developmental Challenges and Learning Orientation

DeRue and Wellman (2009) and Dragoni, Tesluk, and Oh (2009) suggested that learning orientation may moderate the relationship between developmental challenges and leadership skill development. Thus, I also tested the interaction effects of learning orientation and developmental challenges on (a) leader self-efficacy, (b) motivation to lead, (c) leader competency, and (d) career intention. The independent (i.e., developmental challenges) and the moderator (i.e., learning orientation) variables were mean centered. The interaction terms were created between centered scores of developmental challenge and learning orientation. After first entering the main effects of the developmental challenges and learning orientation, I entered an interaction variable in the second block. The block of interaction did not significantly increase the amount of

variance explained in leader self-efficacy (ΔR^2 = .000, *p* = .61 *ns*), motivation to lead (ΔR^2 = .001, *p* = .34 *ns*), or leader competency (ΔR^2 = .001, *p* = .66 *ns*); however, entering the interaction term significantly increased the amount of variance explained in career intention (ΔR^2 = .008, *p* = .02). Developmental challenges as well as learning orientation had significant positive relationships with career intention, although the interaction terms of developmental challenges and learning orientation had a negative relationship with career intention. The interaction effect of developmental challenges and learning orientation on career intention is plotted in Figure 4. This interaction effect remained significant when gender was included in the model (see Table 15).

Table 15

Interaction Effects of Developmental Challenges and Learning Orientation

Dependent Variable		B	SE	β	ΔR^2	R^2
Leader Self-Efficacy	Step 1 (*N* = 584)					.139***
	DC	.03***	.01	.16***		
	LO	.26***	.03	.31***		
	Step 2				.000	.139***
	DC	.03***	.01	.16***		
	LO	.26***	.03	.31***		
	DCxLO	.01	.01	.02		
	Step 1 (*N* = 570)					.153***
	DC	.03***	.01	.15***		
	LO	.27***	.03	.32***		
	Gender	-.09*	.04	-.09*		
	Step 2				.000	.153***
	DC	.03***	.01	.15***		
	LO	.26***	.03	.32***		
	Gender	-.09*	.04	-.09*		
	DCxLO	.01	.01	.02		
Motivation to Lead	Step 1 (*N* = 582)					.129***
	DC	.01	.01	.05		
	LO	.22***	.03	.35***		
	Step 2				.001	.130***
	DC	.01	.01	.05		
	LO	.23***	.03	.36***		
	DCxLO	-.01	.01	-.04		
	Step 1 (*N* = 571)					.151***
	DC	.01	.01	.05		
	LO	.23***	.03	.36***		
	Gender	.11**	.03	.14**		
	Step 2				.002	.154***
	DC	.01	.01	.04		
	LO	.23***	.03	.37***		
	Gender	.10**	.03	.14**		
	DCxLO	-.01	.01	-.05		

Table 15 (cont'd)

Dependent Variable		B	SE	β	ΔR^2	R^2
Leader Competency	Step 1 (*N* = 243)					.002
	DC	-.01	.01	-.03		
	LO	.05	.07	.05		
	Step 2				.001	.003
	DC	-.01	.01	.03		
	LO	.05	.07	.05		
	DC xLO	.01	.02	.03		
	Step 1 (*N* = 242)					.003
	DC	-.01	.01	-.03		
	LO	.05	.07	.05		
	Gender	-.02	.08	-.01		
	Step 2				.000	.003
	DC	-.01	.01	-.03		
	LO	.05	.07	.05		
	Gender	-.02	.08	-.01		
	DC xLO	.01	.02	-.03		
Career Intention	Step 1 (*N* = 589)					.070
	DC	.10***	.02	.19***		
	LO	.42***	.10	.16***		
	Step 2				.008*	.078
	DC	.10***	.02	.18***		
	LO	.48***	.11	.18***		
	DC xLO	-.07*	.03	-.10*		
	Step 1 (*N* = 571)					.077***
	DC	.09***	.02	.17***		
	LO	.42***	.11	.16***		
	Gender	-.32*	.13	-.10*		
	Step 2				.009*	.085***
	DC	.09***	.02	.16***		
	LO	.47***	.11	.18***		
	Gender	-.32*	.13	-.10*		
	DCxLO	-.07*	.03	-.10*		

Notes. DC = Developmental Challenges, LO = Learning Orientation
*** $p < .001$, ** $p < .01$, * $p < .05$.

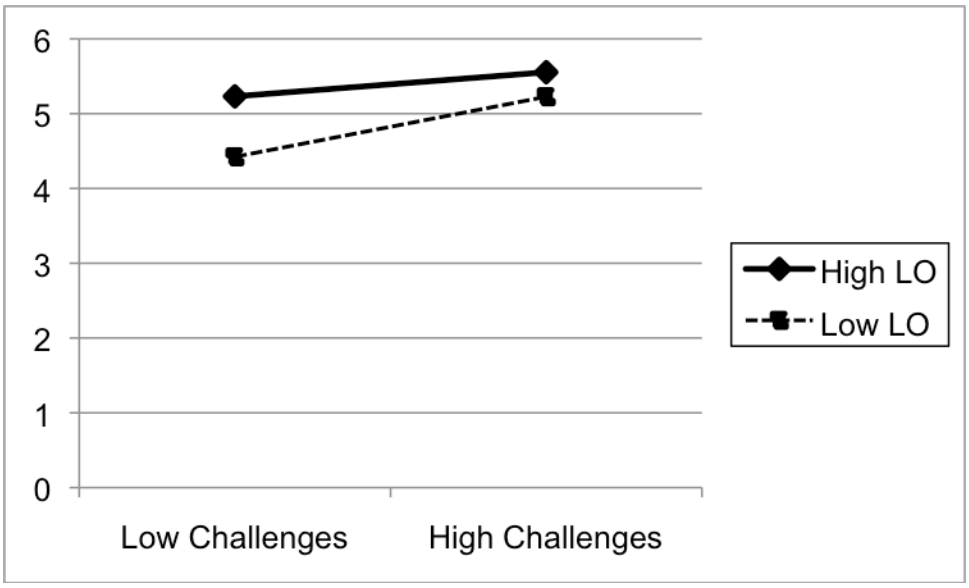

Figure 4. Interaction Effect of Developmental Challenges and Learning Orientation on Career Intention

Interaction Effects of Developmental Challenges and Feedback, Support, and Mentoring

McCauley and colleagues (McCauley & Van Velsor, 2004; Van Velsor, McCauley & Ruderman, 2010) and the study by DeRue and Wellman (2009) suggested that feedback, support, and mentoring may moderate the relationship between developmental challenges and leader development. Thus, I also tested the interaction effects of learning orientation and developmental challenges on (a) leader self-efficacy, (b) motivation to lead, (c) leader competency, and (d) career intention. Feedback, support, and mentoring relationship variables were aggregated due to the observation in the main analyses that there may be a multicollinearity problem. The independent (i.e., developmental challenges) and the moderator (i.e., feedback/support/mentoring) variables were mean centered. I created an interaction variable between centered

scores of developmental challenges and feedback/support/mentoring. After first entering the main effects of the developmental challenges and feedback/support/mentoring, I entered the interaction variable in the second block. The block of interaction did not significantly increase the amount of variance explained in leader self-efficacy (ΔR^2 = .002, p = .29 *ns*), motivation to lead (ΔR^2 = .003, p = .21 *ns*), leader competency (ΔR^2 = .009, p = .14 *ns*), or career intention (ΔR^2 = .003, p = .15). Controlling for gender also did not make significant changes in the relationships (see Table 16 for the complete results). Thus, the results suggest that the interaction effects of feedback, support, and mentoring and developmental challenges were not significant.

Table 16

Interaction Effects of Developmental Challenges and Feedback, Support, and Mentoring

Dependent Variable		B	SE	β	ΔR^2	R^2
Leader Self-Efficacy	Step 1 (*N* = 576)					.074***
	FBSUPPMR	.03***	.01	.17***		
	DC	.04***	.01	.22***		
	Step 2				.002	.076***
	FBSUPPMR	.04***	.01	.19***		
	DC	.04***	.01	.23***		
	DCxFBSUPPMR	-.00	.00	-.05		
	Step 1 (*N* = 569)					.082***
	FBSUPPMR	.03***	.01	.17***		
	DC	.04***	.01	.21***		
	Gender	-.10*	.04	-.10*		
	Step 2				.002	.083***
	FBSUPPMR	.04***	.01	.19***		
	DC	.04***	.01	.22***		
	Gender	-.10*	.04	-.09*		
	DCxFBSUPPMR	-.00	.00	-.04		
Motivation to Lead	Step 1 (*N* = 575)					.041***
	FBSUPPMR	.03***	.01	.18***		
	DC	.01*	.01	.10*		
	Step 2				.003	.044***
	FBSUPPMR	.03***	.01	.20***		
	DC	.02**	.01	.11**		
	DCxFBSUPPMR	-.00	.00	-.05		
	Step 1 (*N* = 570)					.056***
	FBSUPPMR	.03***	.01	.18***		
	DC	.02**	.01	.11**		
	Gender	.10**	.03	.13**		
	Step 2				.002	.058***
	FBSUPPMR	.03***	.01	.20***		
	DC	.02**	.01	.12**		
	Gender	.10**	.03	.13**		
	DCxFBSUPPMR	-.00	.00	-.05		

Table 16 (cont'd)

Dependent Variable		B	SE	β	ΔR^2	R^2
Leader Competency	Step 1 (*N* = 243)					.019
	FBSUPPMR	.04	.02	.14		
	DC	-.00	.01	-.01		
	Step 2				.009	.028
	FBSUPPMR	.04	.02	.17		
	DC	.00	.01	.02		
	DCxFBSUPPMR	-.01	.01	-.10		
	Step 1 (*N* = 242)					.020
	FBSUPPMR	.04*	.02	.14*		
	DC	-.00	.01	-.02		
	Gender	-.03	.08	-.02		
	Step 2				.009	.028
	FBSUPPMR	.04*	.02	.17*		
	DC	.00	.02	.02		
	Gender	-.01	.08	-.00		
	DCxFBSUPPMR	-.01	.01	-.10		
Career Intention	Step 1 (*N* = 577)					.045***
	FBSUPPMR	-.03	.03	-.05		
	DC	.11***	.02	.20***		
	Step 2				.003	.048***
	FBSUPPMR	-.04	.03	-.07		
	DC	.10***	.02	.19***		
	DCxFBSUPPMR	.01	.01	.06		
	Step 1 (*N* = 571)					.054***
	FBSUPPMR	-.04	.03	-.06		
	DC	.10***	.02	.19***		
	Gender	-.32*	.13	-.10*		
	Step 2				.004	.058***
	FBSUPPMR	-.05	.03	-.08		
	DC	.10***	.02	.18***		
	Gender	-.33*	.13	-.10*		
	DCxFBSUPPMR	.01	.01	-.06		

Notes. DC = Developmental Challenges, FBSUPPMR = Feedback, Support, and Mentoring
*** $p < .001$, ** $p < .01$, * $p < .05$.

In sum, the post-hoc supplementary OLS regression analyses showed that the curvilinear effects of developmental challenges on leader competency and career intentions were significant. The results suggested that there was a U-shaped relationship between developmental challenges and leader competency while there was a predominantly positive, inverted U-shaped relationship between developmental challenges and career intention. Interaction effects of learning orientation and developmental challenges were not significant except the interaction effect of learning orientation and developmental challenges on career intention. This effect was also significant when controlled for the effect of gender. The results also show that developmental challenges and learning orientation had positive effects on career intention, and the interaction of developmental challenges and learning orientation had a negative effect on career intention.

Chapter V

DISCUSSION

Although there has been a significant increase in women's sport participation since Title IX was enacted, scholars have shown that there has been a decline in women's representation in the collegiate coaching profession (Acosta & Carpenter, 2012). Informed by the existing literature (e.g., DeRue & Wellman, 2009; Dragoni, Tesluk, & Oh, 2009; Machida, Schaubroeck, & Feltz, 2012; Moran-Miller & Flores, 2011) and theories (Bandura, 1997; Van Velsor, McCauley, & Ruderman, 2010), the purpose of the present study was to examine a model of career advancement of collegiate assistant coaches, having intention to advance career (i.e., career intention) as the proximate predictor of coaches' career advancement. Past studies indicate that women may have lower intention to advance their careers, which may contribute to their underrepresentation in higher leadership positions (Gupta, Turban, & Bhawe, 2008; van Vianen & Keizer, 1996). However, no study to date has simultaneously examined a wide array of possible facilitating and inhibiting antecedents of career intention for female and male coaches. The present study investigated possible gender differences in the roles of antecedents in predicting career intention. In this chapter, I discuss the results in relation to the hypotheses, and I highlight gender differences that emerged in findings.

Theoretical and Research Implications

Antecedents of Career Intention

Scholars (e.g., Ajzen, 1991; Armitage & Conner, 2001; Gordin & Kok, 1996) have suggested that intention is the best predictor of many behaviors. The present study

investigated career intention as a proximate predictor of coaches' career advancement and examined its antecedents. The results of the first phase of analyses on the whole sample of assistant coaches (N = 673) and the second phase of analyses on the sub-sample of assistant coaches (n = 245), which included their head coaches' participation in the study, suggested that although leader competency did not mediate the relationship between motivation to lead and assistant coaches' career intention as hypothesized, motivation to lead was directly and positively related to career intention. Moreover, the present study suggested that leader self-efficacy and outcome expectancy play an important mediating role in coaches' career advancement. The results indicate that leader self-efficacy may influence coaches' career intention through its effect on motivation to lead. In addition, there was a separate influence of outcome expectancy on career intention, and the results also indicate that this effect of outcome expectancy on career intention may be mediated by motivation to lead.

Bandura (1997) argued that self-efficacy and outcome expectancy are conceptually different; individuals can be highly efficacious about their abilities but may not expect that they will be able to obtain desirable outcomes because of external factors that are outside of their control (e.g., family, discrimination/biases). Self-efficacy and outcome expectancy may have separate influences on individuals' motivation and behaviors. The present study supports Bandura's claim. The link between leader self-efficacy and motivation to lead is well established (Chan & Drasgow, 2001; Machida et al., 2012), and past research showed that outcome expectancy is related to career intention (van Vianen, 1999). The present study advances the literature by examining leader self-efficacy and outcome expectancy simultaneously, showing their unique

contribution to increases in career intention through their effects on motivation to lead. Further, the present study shows that these indirect effects of leader self-efficacy and outcome expectancy on career intention through motivation to lead are present even after accounting for possible gender differences.

The present study found no relationships between motivation to lead and leader competency, or between leader competency and career intention. Thus, the mediating role of leader competency in the relationship between motivation to lead and career intention was not supported. This finding may be attributed to the small sample size (n = 245) and its lack of power. In addition, it is possible that the assistant coaches were in the midst of the process of developing their leader competency; thus, motivation to lead is a better predictor of their career intention. Also, a leader's end-state competency, which indicates a leader's potential (Spreitzer et al., 1997), or the leadership potential measure used by Chan and Drasgow (2001), may have a different relationship with motivation to lead and career intention, and future studies should investigate this relationship further by using multiple measures of leader competency.

In the post-hoc analyses, I examined the curvilinear effects of leader self-efficacy on the key dependent variables (i.e., motivation to lead, leader competency, and career intention), according to Bandura's (1997) and scholars' claims that very high levels of self-efficacy may hinder a leader's effectiveness and development (Shipman & Mumford, 2011; Machida & Schaubroeck, 2011). The present study does not support such curvilinear effects, even after controlling for the effect of gender. The findings are consistent with the results from Machida et al. (2012), which also did not find a curvilinear effect of leader self-efficacy on motivation to lead or on career ascendance in

women leaders in athletics. Shipman and Mumford (2011) found that leaders' awareness of their own deficiencies is important for their performance during tasks such as planning and vision formulation. Machida and Schaubroeck (2011) also argued that it is critical for leaders to manage their self-efficacy for optimal leader development. Future studies should further investigate the roles that leader self-efficacy plays in leader development and career advancement.

Developmental Experiences

The results from the present study indicated that developmental experiences, which consist of developmentally challenging job assignments and head coach professional support (i.e., feedback, support, and mentoring relationship), were positively related to assistant coaches' leader self-efficacy. This result suggests that developmental challenges and head coach professional support are important sources of self-efficacy information for coaches' leader self-efficacy. Machida et al. (2012) reported a similar relationship in a sample of women leaders in athletic administration. Further, in the present study, similar findings were observed after controlling for the effects of gender.

The present study also supports the mediating role of leader self-efficacy in the relationship between developmental experiences and motivation to lead. The results show that higher degrees of developmental experiences have positive influences on leader self-efficacy, which in turn, have a positive impact on motivation to lead, even after taking account of the influences of gender. This finding is consistent with Bandura's (1997) claim that self-efficacy is a cognitive mechanism which explains the relationship between self-appraisal information (i.e., sources) and individuals'

motivation. It also provides further support for Machida et al.'s (2012) finding that leader self-efficacy mediates the relationship between developmental experiences and motivation to lead of women in athletic administration.

In addition, the post-hoc analyses suggest that there is a U-shaped relationship between developmental challenges and leader competency. This relationship was supported even when controlled for the effect of gender. Past study by DeRue and Wellman (2009) suggested that managers experience the most development when they are moderately challenged at work, and there is a decline in development at the low and high levels of challenges; thus, there was an inverted U-shaped relationship between developmental challenges and development. The result from the present study is inconsistent with the past research finding in showing that coaches demonstrate the lowest leader competency when they experience the moderate level of developmental challenges. This result is difficult to interpret from a theoretical perspective. The present study employed a cross-sectional research design; thus, it only measured the current competency of coaches and did not measure the "development" of the competency. As DeRue and Wellman showed, the relationship between developmental challenges and leader "development" may be an inverted-U shaped relationship for coaches, although the relationship between developmental challenges and the "current" competency may not mirror this relationship. Future study should consider a longitudinal study to help clarify the relationship.

Further, the post-hoc regression analyses indicate that there is an inverted U-shaped relationship between developmental challenges and career intention. The result is interpretable from a leader development perspective. Developmental challenges are

generally positively related to leaders' career intention; however, when leaders experience a great deal of challenges, they may reduce their intent to advance their careers. This diminishing return of developmental challenge is supported in Derue and Wellman (2009) which showed a predominantly positive, inverted U-shaped relationship between developmental challenges and managers' leader skill development. However, as noted, in the present study, developmental challenges had a U-shaped relationship with coaches' current leader competency. The role of developmental challenges warrants further investigation.

Learning Orientation

The present study hypothesized that coaches' learning orientation positively relates to their engagement in developmental experiences (i.e., developmental challenges and head coach professional support which include feedback, support, and mentoring relationship). This hypothesis was fully supported even after accounting for gender differences. This result is consistent with scholars' claim that individuals' capacity to learn, or their learning orientation, significantly affects individuals' learning in the developmental process (Dweck, 1975, 1986; McCauley & Van Velsor, 2004; Van Velsor, McCauley & Ruderman, 2010), and with the findings from past research (e.g., Birdi, Allan, & Warr, 1997; VandeWalle, Ganesan, Challagalla, & Brown, 2000) which also showed the positive link between learning orientation and engagement in developmental activities.

Individuals' learning orientation has been linked to higher self-efficacy (e.g., Bell & Kozolowski, 2002; VandeWalle, Cron, & Slocum, 2001; Vosloo, Ostrow, & Watson, 2009). However, the mechanism by which learning orientation results in increased self-

efficacy has not been examined in past research. In the present study, I hypothesized the meditating roles of developmental experiences in the relationship between learning orientation and leader self-efficacy. This hypothesis was partially supported; the indirect effect of learning orientation on leader self-efficacy through developmental challenges was significant. However, such an indirect effect, through head coach professional support was no longer significant after controlling for the effect of gender and in the path analyses with a sub-sample of assistant coaches (*n* = 245). The direct effect of gender on leader self-efficacy may have made changes in the relationship. Gender is significantly related to leader self-efficacy; female assistant coaches reported lower self-efficacy beliefs than male assistant coaches. Though it did not reach the significance level, follow-up multiple group analysis suggests that head coach professional support may have a positive relationship with female coaches' leader self-efficacy, but not male coaches'. This result needs to be interpreted with caution; however, it is possible that female assistant coaches may benefit more from receiving head coach professional support in increasing their self-efficacy than male assistant coaches do in the field of athletic coaching, which is historically male-dominated. As the results indicate, leader self-efficacy may have a significant impact on coaches' career intention. Thus, it may be crucial for assistant coaches, especially female coaches, to receive quality professional support from head coaches to increase their self-efficacy, which may have a great impact on their career. The different roles that professional support from supervisors (i.e., feedback, support, and mentoring) play in women's and men's leader development and career advancement need to be further investigated.

Work-Family and Family-Work Conflicts and Gender Discrimination

The results from the present study show that challenges such as work-family and family-work conflicts and gender discrimination are not significant sources of leaders self-efficacy information even though they are often identified as significant challenges for women to advance their career to leadership positions (e.g., Bracken, 2009; Eagly & Carli, 2007). Machida et al. (2012) also reported that work-family and family-work conflicts and gender discrimination do not significantly relate to leader self-efficacy of women leaders in athletics. The findings suggest that both women and men may be able to maintain their confidence to lead in the face of these challenges.

Though these challenges do not have substantial impacts on leader self-efficacy, they seem to significantly affect coaches' outcome expectancy and motivation to lead. I hypothesized that family-work and work-family conflicts and perception of gender discrimination negatively relate to outcome expectancy, which in turn, relates to motivation to lead. This hypothesis was partially supported; I found a significant indirect effect of gender discrimination on motivation to lead through outcome expectancy, although such indirect effects were not found for work-family and family-work conflicts. I found similar results after controlling for the effect of gender. It is possible that women and men who are in the coaching professions have been prepared to deal with these conflicts related to family duties, and thus consider these challenges as manageable, which assists them in maintaining high expectations to obtain desirable outcomes (i.e., head coaching position) in the future. However, perception that an uncontrollable factor such as gender may be a hindrance to their career may significantly reduce their expectations, which, in turn, may diminish their motivation to lead.

The follow-up multiple group analysis in the second phase of the analyses, with a sub-sample of assistant coaches, suggests that the relationship between family-work conflict and perception of gender discrimination and outcome expectancy may differ between genders. Family-work conflict and gender discrimination are negatively related to men's outcome expectancy, but not for women. However, as indicated in Chapter 4, the results need to be interpreted with caution because of the small sample size in the analysis (Female: *n* = 163; Male: *n* = 80) and such patterns were not found in the first phase of the study, which utilized the whole sample of assistant coaches (Female: *n* = 360; Male: *n* = 216). Future studies should further investigate the roles of these challenges in the outcome expectancy of women and men.

Though the results did not support the hypotheses that work-family and family-work conflicts negatively affect leader self-efficacy or outcome expectancy, which in turn affect motivation to lead, I found that family-work conflict was negatively and directly related to motivation to lead. This result is consistent with the findings from Machida et al. (2012), which found a similar relationship between family-work conflict and motivation to lead in a sample of women leaders. The present study further suggests that this relationship may hold for both women and men; women's and men's desire to lead others may be equally affected by such conflicts. Women and men in coaching professions may be able to maintain their self-efficacy and expectation for a desirable outcome; however, the perception that family may interfere with work may significantly decrease their motivation to persist as leaders. Regardless of gender, such conflict may make it difficult for individuals to take on leadership roles.

Gender Differences in Antecedents of Career Intentions

Overall, taking account of the effect of gender did not significantly affect the relationships among the factors in the model except for the indirect relationship between learning orientation and leader self-efficacy through head coach professional support in the first phase of the analyses, and except for the direct relationships between family-work conflict and perception of gender discrimination and outcome expectancy in the second phase of the analyses. However, multiple indicators multiple causes (MIMIC) models indicated that there are significant gender differences observed in the factor means. Being consistent with past research findings (Cunningham, Sagas, & Ashley, 2003; Gupta et al., 2008; Pallier, 2003; van Vianen & Keizer, 1996), women reported lower career intention and leader self-efficacy. In addition, women reported lower exposure to developmental challenges, which has not been empirically tested in past research, but is consistent with scholars' claim that women may be given fewer opportunities to participate in developmentally challenging experiences (Betz, 2007; Hackett & Betz, 1981). However, female coaches reported higher motivation to lead and outcome expectancy than their male counterparts. Though such gender difference in motivation to lead has not been empirically investigated, this finding of gender difference in outcome expectancy contradicts the results from the past research (Cunningham Doherty, & Gregg, 2007). This gender difference in outcome expectancy may be attributed to the context in which the study took place. The present study only focused on assistant coaches who coach women's teams. Men may have felt disadvantaged due to the assumption that women are favored for the coaching positions in women's teams.

Practical Implications

The findings from the present study offer several implications for practices in the field. First, the results suggest that leader self-efficacy may have a significant effect on assistant coaches' career intention through its effect on motivation to lead, and leader self-efficacy may be a stronger predictor of assistant coaches' career intention than their actual leader competency. Thus, for coaches who are in a developmental phase, especially females who tend to underestimate their abilities, it may be crucial for head coaches and administrators to engage in deliberate efforts to increase their self-efficacy beliefs, in order to facilitate their development and advancement in their coaching career.

In increasing coaches' leader self-efficacy, the present study shows that developmental challenges, feedback, support, and the mentoring relationship can be important sources of both women's and men's leader self-efficacy, which may play an important role in increasing their motivation to lead, which in turn increases their intention to advance their career in the coaching profession. The results also suggest that female coaches may benefit more from receiving quality feedback, support, and mentoring. Also, supporting scholars' claims (Betz, 2007; Hackett & Betz, 1981), the present study indicates that female coaches may be less exposed to developmentally challenging job assignments, the result of which may have, in part, contributed to their lower level of self-efficacy and career intention as compared to their male counterparts. Thus, especially for female assistant coaches' career advancement, it is imperative for those who are mentoring them to give regular feedback and continuous support, and to make conscious efforts to provide them with developmentally challenging experiences

(e.g., providing them with new and greater responsibilities, the opportunities to create changes and work with diverse group of people) that can nurture their self-efficacy.

Further, the findings suggest that fostering a learning orientation may be critical for leaders' development. Consistent with scholars' claims (McCauley & Van Velsor, 2004; Van Velsor et al., 2010), the present study suggests that individuals' learning orientation may significantly impact one's extent of engagement in developmental activities, which may be important in fostering self-efficacy beliefs and leader competency. Highly learning oriented individuals may seek more developmental experiences than less learning oriented individuals. Especially for collegiate coaching professions where winning and competitive records are highly emphasized, it is critical for the organization, higher management, and direct supervisors (e.g., head coaches) to emphasize mastery and learning in the work environment, rather than just the tangible outcomes and short-term successes of assistant coaches.

In addition, the results from the present study indicate that both female and male coaches may be able to maintain their self-efficacy in the face of challenges such as family-work and work-family conflicts and gender discrimination. This result is encouraging in that it indicates their capability to deal effectively with these challenges, which are often cited as significant barriers in the workplace (e.g., Carlson et al., 2000; Heilman et al., 2004; Netemeyer et al., 1996; Sartore & Cunningham, 2007; Sayer et al., 2004). However, there is a significant negative effect of perceived gender discrimination on motivation to lead through outcome expectancy, and family-work conflict is directly and negatively related to motivation to lead, which is significantly related to career intention.

The past research suggests that organization-wide initiatives to reduce these challenges for employees may be effective. For example, Kelly, Moen, and Tranby (2011) showed that the ROWE (Results-Only Work Environment) initiative at one of the Fortune 500 companies is effective in reducing employees' work-family conflict and in improving work-family fit. The ROWE initiative aims at shifting the organizational culture to a more flexible one in terms of "when and where employees do their work" (Kelly et al., 2011, p.269). Kelly et al. suggested that ROWE impacts employees' perceptions about schedule control, which has a significant influence on reducing work-family conflicts. Also, as noted, men often perceive affirmative action programs to be institutionalized discrimination toward men (Greenhil, et al., 2009; Leonard, 1989), and such attitudes may limit acceptance of women in coaching profession. Through a meta-analysis of past studies on attitudes toward affirmative action programs, Harrison, Kravitz, Mayer, Leslie, and Lev-Arey (2006) showed that organizations' justification for affirmative action programs is related to employees' positive attitude toward such programs. Thus, Harrison et al. suggested that organizations should openly discuss any affirmative action policy which is taking place in the organization in order to increase the positive attitudes of employees toward such a policy, rather than merely pointing out the underrepresentation of certain groups; providing the justification and reasoning for increasing organizational diversity is critical. Therefore, organization-wide practices such as ROWE and an open discussion of increasing diversity in the organization may be encouraged in order to assist coaches to maintain their motivation to lead, which is critical for their career advancement.

Study Limitations

No study is without limitations. Although this study was based on well-established theories, multiple sources of data (i.e., both assistant coaches and head coaches), and a diverse sample of participants (e.g., both genders, various sport teams, various coaching experiences), there are limitations to the study that need to be addressed. First is the present study's limited sample size. Although I was able to obtain a rather large sample of assistant coaches, I experienced difficulty with obtaining their head coaches' participation, which limited the choice of analytical procedures. The findings from the first phase of the analyses, which utilized structural equation model analyses on the whole sample of assistant coaches, were generally consistent with the findings from the path analyses, which utilized the composite scores of the variables confirmed in the first phase with a sub-sample of assistant coaches whose head coaches also participated in the study. However, the sample may have been biased; the present study shows that assistant coaches in this sub-sample perceived better quality professional support from their head coaches. In addition, the path analyses in the second phase show less than an acceptable fit and lack power; thus they need to be interpreted with caution. Future study should consider using a larger sample in order to have a more comprehensive understanding of the plausible factors that influence coaches' career advancement.

In addition, the present study only used supervisors' (i.e., head coaches') evaluations as a measure of leader competency. This method of measurement may be subject to biases, and such biases may have affected the results of the present study, which showed that there were very small relationships between leader competency and other study variables, although the hypotheses were based on established theories and

past research findings. Future study should consider multiple measurements of leader competency, which could include others' (e.g., athletes, an athletic department) evaluations of leader competency, and alternative measures such as leader end-state competency (Spreitzer et al., 1997), which indicates a leader's potential to be successful in future leadership positions, and field behavioral observations and assessments (Patton, 2003) of leadership skills. Developing a leader competency measure specific to the coaching profession should also provide significant research and practical implications.

Although the study examined a wide range of factors and underlying mechanisms by which leader development may occur and through which coaches increase their intentions to advance their careers, there might be other factors that directly influence the process, or mediate or moderate the relationships. For example, variables proposed in the Theory of Planned Behaviors (TPB: Ajzen, 1991; Hurtz & Willias, 2009) could have impact on assistant coaches' intentions to advance their career. The TPB posits that the intention is influenced by three factors: attitude toward the action, subjective norms, and perceived control (Ajzen, 1991; Hurtz & Williams, 2009). The TPB model has been supported in predicting individuals' intentions and behaviors in various settings, such as exercise (Hagger, Chatzisarantis, & Biddle, 2001; Dzewaltowski, Noble, & Shaw, 1990) and health (e.g., Gordin & Kok, 1996; Elliot, Armitage, & Baugham, 2003), and in business and organizational settings (e.g., Hurtz & Williams, 2009; Kolvereid, 1996; Krueger, Reilly, & Carsrud, 2000; Maurer & Palmer, 1999; McCarthy & Garavan, 2006). Future studies need to investigate how these TPB related factors play roles in one's career advancement.

Scholars and a considerable number of studies indicate that an intention is the best predictor of behavior (Ajzen, 1991; Armitage & Conner, 2001; Gordin & Kok, 1996), and the present study measured career intention as a proximate predictor of career advancement of assistant coaches. However, an ultimate goal of researchers and practitioners is to predict actual behaviors, and the present study is limited in its ability to make this connection between intention and actual career advancement. Although difficult, longitudinal study which follows the career paths of assistant coaches would be beneficial in investigating this relationship.

Lastly, because of the cross-sectional nature of the study, strong causational conclusions cannot be made. For example, it is possible that assistant coaches engage in more developmentally challenging job assignments because they are highly efficacious about their leadership skills, rather than that their high exposure to developmentally challenging job assignments leads to higher self-efficacy. This possibility cannot be ruled out by the research design employed in the present study. Longitudinal study such as described above may be useful in clarifying this causal relationship.

Conclusion

In various work contexts, women are significantly underrepresented in higher leadership positions (e.g., Acosta & Carpenter, 2012; Eagly & Carli, 2007) although they are, in fact, equally competent as men as leaders (e.g., Eagly et al., 2003). This trend may be more evident in a male-dominated field such as athletics. Past research indicates that women may have lower intention to advance their career as compared to men in general business (Gupta et al., 2008; van Vianen & Keizer, 1996), as well as in

athletic settings (Cunningham et al., 2003, 2007), and this lower intention may be contributing to women's limited representation in leadership positions.

Although women's sport participation has significantly increased since Title IX, women's representation in collegiate coaching has shown a decline in the past three decades (Acosta & Carpenter, 2012). The results from the present study suggest that developmental experiences, which consist of developmental challenges, feedback, support, and mentoring relationship, are critical in increasing the leader self-efficacy of collegiate coaches, which is, in turn, related to their desire to lead others, and ultimately their career intention. Also, learning orientation is positively related to engagement in developmental experiences. In addition, the present study found that challenges such as family-work conflict and gender discrimination may significantly and negatively affect their outcome expectancy and motivation to lead, which in turn affects their career intention.

The findings from the present study also suggest possible gender differences in the factors examined. Although women have higher outcome expectancy and motivation to lead than men, women express lower career intention, leader self-efficacy, and developmental challenges than men. Further investigations into the process of coaches' career advancement are warranted; however, the present study provides significant insights into facilitating as well as inhibiting factors of both women's and men's advancement in leadership careers, and it provides practical implications for leader development practices, both in general business and in the athletic context.

APPENDIX A: ASSESSMENT INSTRUMENTS

Appendix A-1: Demographic Questionnaire

For assistant coaches

1. Sport (check sport that you currently coach)
    a. Baseball
    b. Basketball
    c. Bowling
    d. Cross Country
    e. Fencing
    f. Field Hockey
    g. Football
    h. Golf
    i. Gymnastics
    j. Ice Hockey
    k. Lacrosse
    l. Rifle
    m. Rowing
    n. Skiing
    o. Soccer
    p. Softball
    q. Swimming & Diving
    r. Tennis
    s. Track & Field (Indoor)
    t. Track & Field (Outdoor)
    u. Volleyball
    v. Water Polo
    w. Wrestling
    x. Other

2. Team that you coach is
    a. Men's team
    b. Women's team
    c. Both men and women's teams

3. My position as an assistant coach is
    a. Volunteer (Unpaid)
    b. Full time (Paid)
    c. Part time (Paid)
    d. My Graduate Assistantship
    e. Other

4. Do you have any employment other than your assistant coaching position?
    a. No
    b. Yes _____

5. Years in collegiate sport coaching (counting this year) _____

6. Years coaching the current team (counting this year) _____

7. Years working for the current head coach (counting this year)
   _____

8. Name of the head coach _____ (this information is only used for this particular research purpose. Your responses to the questions on this survey will NOT be revealed)

9. Contact information (email) of the head coach _____ (this information is only used for this particular research purpose. Your responses to the questions on this survey will NOT be revealed)

10. Your Age _____

11. Your Gender _____

12. Your Ethnicity
    a. African American
    b. Asian
    c. Caucasian
    d. Hispanic
    e. Native American
    f. Pacific Islander
    g. Interracial
    h. Others _____

13. What is the level of your most recent educational attainment?
    a. High School Diploma or GED
    b. Associate Degree
    c. Bachelor's Degree
    d. Master's Degree
    e. Doctoral Degree
    f. Other

14. The team you currently work for is in:
    a. NCAA Division I institution
    b. NCAA Division II institution
    c. NCAA Division III institution
    d. Other _____

15. Number of athletes in the team you coach _____

16. Number of athletes you directly oversee _____

17. Your marital status
    a. Single
    b. Married or cohabiting
        i. For how long? _____

18. Number of children you have
    a. None
    b. 1
    c. 2
    d. 3
    e. 4
    f. Other _____

Demographic Questionnaire

For head coaches

1. Name of assistant you evaluated: _____ (this information is only used for this particular research purpose. Your responses to the questions on this survey will NOT be revealed)

2. Do you have any employment other than your head coaching position?
    a. No
    b. Yes _____

3. Years in collegiate sport coaching (counting this year) _____

4. Years coaching the current team (counting this year) _____

5. Number of assistant coaches you over see _____

6. Your Age _____

7. Your Gender _____

8. Your Ethnicity
    a. African American
    b. Asian
    c. Caucasian
    d. Hispanic
    e. Native American
    f. Pacific Islander
    g. Interracial
    h. Others _____

9. What is the level of your most recent educational attainment?
    a. High School Diploma or GED
    b. Associate Degree
    c. Bachelor's Degree
    d. Master's Degree
    e. Doctoral Degree
    f. Other

10. Number of athletes in the team you coach _____

11. Number of athletes you directly oversee _____

12. Your marital status
    a. Single
    b. Married or cohabiting

i. For how long? _____

13. Number of children you have
    a. None
    b. 1
    c. 2
    d. 3
    e. 4
    f. Other _____

Appendix A-2: Intention to Advance Career

For assistant coaches

General Feelings about Becoming a University Head Coach in Future

		Strongly disagree		Slightly disagree		Slightly agree		Strongly agree
1	I want to become a university head coach during my career in athletics.	1	2	3	4	5	6	7
2	I would like to become a university head coach during my career in athletics.	1	2	3	4	5	6	7
3	I'm not very motivated to become a university head coach during my career in athletics..	1	2	3	4	5	6	7
4	It is likely that I will actively seek opportunities to become a university head coach during my career in athletics.	1	2	3	4	5	6	7
5	I intend to become a university head coach during my career in athletics..	1	2	3	4	5	6	7
6	I will definitely become a university head coach during my career in athletics.	1	2	3	4	5	6	7
7	It is my duty as an assistant coach to become a university head coach during my career in athletics.	1	2	3	4	5	6	7
8	I would feel guilty if I did not become a university head coach during my career in athletics.	1	2	3	4	5	6	7
9	Every assistant coach should become a university head coach during his/her career in athletics..	1	2	3	4	5	6	7

Appendix A-3: Leader Competency Scale

For head coaches

To what extent does this assistant coach show the competence in each of these skills?

		Not at all				To a very large extent
	Cognitive skills	1	2	3	4	5
1	Speaking (talking to others to convey information effectively)	1	2	3	4	5
2	Active listening (listening to what other people are saying and asking questions as appropriate)	1	2	3	4	5
3	Writing (communicating effectively in writing as appropriate for the needs of the audience)	1	2	3	4	5
4	Reading comprehension (understanding written sentences and paragraphs in work related documents, such as compliance documents)	1	2	3	4	5
5	Active learning (working with new information to grasp its implications)	1	2	3	4	5
6	Critical thinking (using logic and analysis to identify the strengths and weaknesses of different approaches)	1	2	3	4	5
	Interpersonal skills	1	2	3	4	5
7	Social perceptiveness (being aware of others' reactions and understanding why they react as they do)	1	2	3	4	5
8	Coordination (adjusting actions in relation to others' actions)	1	2	3	4	5
9	Negotiation (bringing others together to reconcile differences)	1	2	3	4	5
10	Persuasion (persuading others to change their minds or behavior)	1	2	3	4	5

	Business skills					
11	Operations analysis (analyzing team needs and performance requirements to create a successful program)	1	2	3	4	5
12	Management of personnel resources (motivating, developing, and directing others)	1	2	3	4	5
13	Management of financial resources (determining how money will be spent to have a successful program)	1	2	3	4	5
14	Management of material resources (obtaining and seeing to the appropriate use of equipment, facilities, and materials needed to have a successful program)	1	2	3	4	5
	Strategic skills					
15	Visioning (developing an image of how a program should work under ideal conditions)	1	2	3	4	5
16	Program perception (determining when important changes have occurred in a program or are likely to occur)	1	2	3	4	5
17	Program evaluation (looking at many indicators of a team's performance, taking into account their accuracy)	1	2	3	4	5
18	Identification of downstream consequences (determining the long-term outcomes of a change in a program)	1	2	3	4	5
19	Identification of key causes (identifying the things that must be changed to achieve a goal)	1	2	3	4	5
20	Problem identification (identifying the nature of problems)	1	2	3	4	5
21	Solution appraisal (observing and evaluating the outcomes of problem solution to identify lessons learned or redirect efforts)	1	2	3	4	5
	Coaching Skill					

1	Motivates his or her athletes	1	2	3	4	5
2	Makes critical decision during competition	1	2	3	4	5
3	Develops athletes' ability	1	2	3	4	5
4	Instill attitudes of respect for others	1	2	3	4	5

Appendix A-4: Motivation to Lead Measure

For assistant coaches

Please indicate the extent of your agreement to each of the statement:

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	Most of the time I prefer being a leader rather than a follower when working in a group.	1	2	3	4	5
2	I am only interested in leading a group if there are clear advantages for me.	1	2	3	4	5
3	I feel that I have a duty to lead others if I am asked.	1	2	3	4	5
4	I am the type of person who is not interested in leading others.	1	2	3	4	5
5	I will never agree to lead if I cannot see any benefits of accepting that role.	1	2	3	4	5
6	I agree to lead whenever I am asked or nominated by the other members.	1	2	3	4	5
7	I am definitely not a leader by nature.	1	2	3	4	5
8	I would only agree to be a group leader if I know I can benefit from that role.	1	2	3	4	5
9	I was taught to believe in the value of leading others.	1	2	3	4	5
10	I am the type of person who likes to be in charge of others.	1	2	3	4	5
11	I would agree to lead others even if there are no special rewards or benefits with that role.	1	2	3	4	5
12	It is appropriate for people to accept leadership roles or positions when they are asked.	1	2	3	4	5
13	I believe I can contribute more to a group if I am a follower rather than a leader.	1	2	3	4	5

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
14	I would want to know 'what's in it for me' if I am going to agree to lead a group.	1	2	3	4	5
15	I have been taught that I should always volunteer to lead others if I can.	1	2	3	4	5
16	I usually want to be the leader in the groups that I work in.	1	2	3	4	5
17	I never expect to get more privileges if I agree to lead a group.	1	2	3	4	5
18	It is not right to decline leadership roles.	1	2	3	4	5
19	I am the type who would actively support a leader but prefers not to be appointed as leader.	1	2	3	4	5
20	If I agree to lead a group, I would never expect any advantages or special benefits.	1	2	3	4	5
21	It is an honor and privilege to be asked to lead.	1	2	3	4	5
22	I have a tendency to take charge in most groups or teams that I worked in.	1	2	3	4	5
23	I have more of my own problems to worry about than to be concerned about the rest of the group.	1	2	3	4	5
24	People should volunteer to lead rather than wait for others to ask or vote for them.	1	2	3	4	5
25	I am seldom reluctant to be the leader of a group.	1	2	3	4	5
26	Leading others is really more of a dirty job than rather than an honourable one.	1	2	3	4	5
27	I would never agree to lead just because others voted for me.	1	2	3	4	5

Appendix A-5: Leader Self-Efficacy

For assistant coaches

How confident are you in these skills?

		Not at all				To a very large extent
	Cognitive skills	1	2	3	4	5
1	Speaking (talking to others to convey information effectively)	1	2	3	4	5
2	Active listening (listening to what other people are saying and asking questions as appropriate)	1	2	3	4	5
3	Writing (communicating effectively in writing as appropriate for the needs of the audience)	1	2	3	4	5
4	Reading comprehension (understanding written sentences and paragraphs in work related documents, such as compliance documents)	1	2	3	4	5
5	Active learning (working with new information to grasp its implications)	1	2	3	4	5
6	Critical thinking (using logic and analysis to identify the strengths and weaknesses of different approaches)	1	2	3	4	5
	Interpersonal skills	1	2	3	4	5
7	Social perceptiveness (being aware of others' reactions and understanding why they react as they do)	1	2	3	4	5
8	Coordination (adjusting actions in relation to others' actions)	1	2	3	4	5
9	Negotiation (bringing others together to reconcile differences)	1	2	3	4	5
10	Persuasion (persuading others to change their minds or behavior)	1	2	3	4	5

	Business skills					
11	Operations analysis (analyzing team needs and performance requirements to create a successful program)	1	2	3	4	5
12	Management of personnel resources (motivating, developing, and directing others)	1	2	3	4	5
13	Management of financial resources (determining how money will be spent to have a successful program)	1	2	3	4	5
14	Management of material resources (obtaining and seeing to the appropriate use of equipment, facilities, and materials needed to have a successful program)	1	2	3	4	5
	Strategic skills					
15	Visioning (developing an image of how a program should work under ideal conditions)	1	2	3	4	5
16	Program perception (determining when important changes have occurred in a program or are likely to occur)	1	2	3	4	5
17	Program evaluation (looking at many indicators of a team's performance, taking into account their accuracy)	1	2	3	4	5
18	Identification of downstream consequences (determining the long-term outcomes of a change in a program)	1	2	3	4	5
19	Identification of key causes (identifying the things that must be changed to achieve a goal)	1	2	3	4	5
20	Problem identification (identifying the nature of problems)	1	2	3	4	5
21	Solution appraisal (observing and evaluating the outcomes of problem solution to identify lessons learned or redirect efforts)	1	2	3	4	5
	Coaching Skill					

1	Motivating your athletes	1	2	3	4	5
2	Making critical decision during competition	1	2	3	4	5
3	Developing athletes' ability	1	2	3	4	5
4	Instilling attitudes of respect for others in your athletes	1	2	3	4	5

Appendix A-6: Outcome Expectancy Measure

For assistant coaches

Please indicate your agreement to the following statement.

		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	If I had the skills to be a head coach, I will be able to get a head coaching job in the future.	1	2	3	4	5
2	In the future, I will not be able to be a head coach even if I have the skills to be one.	1	2	3	4	5
3	Having good leadership skills can help me get a head coaching job in the near future.	1	2	3	4	5
4	If I were to seek a head coaching position in the future, I am sure I can get one.	1	2	3	4	5

Appendix A-7: Developmental Challenge Profile

For assistant coaches

Please indicate the extent of which the item describes your current job as an assistant coach for your team:

		Not at all descriptive	Slightly Descriptive	Moderately Descriptive	Quite Descriptive	Extremely descriptive
1	You lack experience important to carrying out some aspect of your job. (e.g., financial analysis, negotiation, or budgeting)	1	2	3	4	5
2	You have to carry out a major reorganization as a result of a budget cut, downsizing, or rapid growth.	1	2	3	4	5
3	You inherited widespread morale problems.	1	2	3	4	5
4	Your direct reports resist your initiatives.	1	2	3	4	5
5	Your success or failure in this job will be evident to higher management (i.e., athletic directors).	1	2	3	4	5
6	This job is a dramatic increase in scope for you (managing significantly more people, dollars, sites, functions, and so forth)	1	2	3	4	5
7	The customer base (e.g., supporters, fans, alums) you work with is extremely varied.	1	2	3	4	5
8	You have to coordinate action across dispersed sites over which you have no direct authority.	1	2	3	4	5
10	In terms of demographic variables, you have a diverse group of direct reports (i.e., athletes).	1	2	3	4	5
11	You have to manage something, such as a function, technology, or market, with which you are unfamiliar.	1	2	3	4	5
12	You have to make major strategic changes in the program – its direction, structure, technology systems, or operations.	1	2	3	4	5

13	You need to restore the credibility of your team with the rest of the department.	1	2	3	4	5
14	There is an interpersonal conflict between you and at least one of your key direct reports (i.e., athletes).	1	2	3	4	5
15	You are responsible for decisive action in a highly charged or pressured environment.	1	2	3	4	5
16	The job is potentially more than even a good delegator can handle.	1	2	3	4	5
17	To achieve your most important goals, you must influence people outside the program (e.g., supporters, suppliers)	1	2	3	4	5
18	To achieve your most important goals, you must influence peers at similar levels in other units, teams, divisions, and so forth.	1	2	3	4	5
20	You are part of a diverse work group.	1	2	3	4	5
21	Others question whether you are “ready” for this job.	1	2	3	4	5
22	You are trying something the program has never tried before; no one knows for sure how to do it or how it will come out.	1	2	3	4	5
23	To succeed in this job you have to dismantle the strategy your predecessor has established.	1	2	3	4	5
24	Your athletes are used to doing things the way they have always been done and are reluctant to change.	1	2	3	4	5
25	You are being tested by higher management (i.e., athletic directors)	1	2	3	4	5
26	You are responsible for numerous different technologies, or services.	1	2	3	4	5
27	You manage relationships with conference officials or regulatory agencies.	1	2	3	4	5
28	Achieving your goals depends on how well you handle internal politics.	1	2	3	4	5
30	You are responsible for developing leaders from different ethnic groups of athletes.	1	2	3	4	5

31	Compared to previous job incumbents, you do not have the credentials, background, or experience expected for this job.	1	2	3	4	5
32	This job includes launching new program ventures, such as, new functions or groups, new plans or concepts, or new facilities.	1	2	3	4	5
33	Your team unit has a record of poor performance.	1	2	3	4	5
34	Key members of your team unit are incompetent, demotivated, or performing poorly.	1	2	3	4	5
35	There are clear deadlines by which your key objectives in the program must be accomplished.	1	2	3	4	5
36	You are responsible for multiple functions or groups.	1	2	3	4	5
37	You must deal with diverse supporters, fans, or alums.	1	2	3	4	5
38	To accomplish a major portion of your program's goals, you must influence and work with executives (e.g., athletic directors) higher than your immediate boss.	1	2	3	4	5
39	You manage parts of the business that are scattered across the world.	1	2	3	4	5
40	You have to get athletes from different racial, religious, cultural, or ethnic backgrounds to work together.	1	2	3	4	5
41	This job is no less than a change in your career direction, that is, you are doing a type of work dramatically different from what you have done before.	1	2	3	4	5
42	You have to create or establish new policies or procedures.	1	2	3	4	5
43	You must solve major problems a predecessor created.	1	2	3	4	5
44	Some of your key direct reports (i.e., athletes) lack the experience to do their jobs without close supervision from	1	2	3	4	5

	you.					
45	There is pressure to complete a major piece of your job quickly.	1	2	3	4	5
46	This job puts you under constant pressure; there are seldom any periods to “catch your breath”.	1	2	3	4	5
47	You have to carry out formal negotiations with an outside body, such as, conference officials, supporters, or regulatory agencies	1	2	3	4	5
48	A great deal of coordination with other department’s units or functions is required.	1	2	3	4	5
49	Your job requires understanding the traditions and values of people from different cultures.	1	2	3	4	5
50	You must make personnel decisions about athletes who differ from you in background.	1	2	3	4	5

Appendix A-8: Feedback Measure

For assistant coaches

The feedback I receive from a head coach at work has tended to be …

	1	2	3	4	5	6	7	
Fair*								Unfair
Weak								Strong
Good*								Bad
Soft								Hard
Valuable*								Worthless
Pleasant*								Unpleasant
Vague								Clear
Supportive*								Unsupportive
Frequent*								Infrequent

*reverse scoring

Appendix A-9: Support Measure

For assistant coaches

The following questions ask about the extent to which your head coach provides you with help or support.

To what extent can you:		Not at all	To a small extent	Neither great nor small extent	To a great extent	Completely
1	Count on your head coach to listen to you when you need to talk about problems at work?	1	2	3	4	5
2	Count on your head coach to back you up at work?	1	2	3	4	5
3	Count on your head coach to help you with a difficult task at work?	1	2	3	4	5
4	Really count on your head coach to help you in a crisis situation at work, even though they would have to go out of their way to do so?	1	2	3	4	5

Appendix A-10: Mentorship Quality and Mentorship Learning Measure

For assistant coaches

Please indicate your agreement to the following statements in the relationship with your head coach.

		Strongly disagree				Strongly agree
Items measuring relationship quality						
1	The mentoring relationship between my head coach and I was very effective.	1	2	3	4	5
2	I am very satisfied with the mentoring relationship my head coach and I developed.	1	2	3	4	5
3	I effectively utilized my head coach as a mentor.	1	2	3	4	5
4	My head coach and I enjoyed a high-quality relationship.	1	2	3	4	5
5	Both my head coach and I benefited from the mentoring relationship.	1	2	3	4	5
Items measuring relationship learning						
1	I learned a lot from my head coach.	1	2	3	4	5
2	My head coach gave me a new perspective on many things.	1	2	3	4	5
3	My assistant coach and I were “co-learners” in the mentoring relationship.	1	2	3	4	5
4	There was reciprocal learning that took place between my head coach and I.	1	2	3	4	5
5	My head coach shared a lot of information with me that helped my own professional development.	1	2	3	4	5

For head coaches

Please indicate your agreement to the following statements in the relationship with your assistant coach indicated in the email.

		Strongly disagree				Strongly agree
Items measuring relationship quality						
1	The mentoring relationship between this assistant coach and I was very effective.	1	2	3	4	5
2	I am very satisfied with the mentoring relationship this assistant coach and I developed.	1	2	3	4	5
3	I effective utilized this assistant coach as a mentee.	1	2	3	4	5
4	This assistant coach and I enjoyed a high-quality relationship.	1	2	3	4	5
5	Both this assistant coach and I benefited from the mentoring relationship.	1	2	3	4	5
Items measuring relationship learning						
1	I learned a lot from this assistant coach.	1	2	3	4	5
2	This assistant coach gave me a new perspective on many things.	1	2	3	4	5
3	This assistant coach and I were “co-learners” in the mentoring relationship.	1	2	3	4	5
4	There was reciprocal learning that took place between this assistant coach and I.	1	2	3	4	5
5	This assistant coach shared a lot of information with me that helped my own professional development.	1	2	3	4	5

Appendix A-11: Learning Orientation Measure

For assistant coaches

Please indicate the extent of your agreement to each of the statement:

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	I am willing to select a challenging work assignment that I can learn a lot from.	1	2	3	4	5
2	I often look for opportunities to develop new skills and knowledge.	1	2	3	4	5
3	I enjoy challenging and difficult tasks at work where I'll learn new skills.	1	2	3	4	5
4	For me, development of my work ability is important enough to take risks.	1	2	3	4	5
5	I prefer to work in situations that require a high level of ability and talent.	1	2	3	4	5

Appendix A-12: Work-Family and Family-Work Conflicts Scale

For assistant coaches

		Strongly disagree		Slightly disagree		Slightly agree		Strongly agree
Work-family conflict								
1	The demands of my work interfere with my home and	1	2	3	4	5	6	7
2	The amount of time my job takes up makes it difficult to fulfill family responsibilities.	1	2	3	4	5	6	7
3	Things I want to do at home do not get done because of the demands my job puts on me.	1	2	3	4	5	6	7
4	My job produces strain that makes it difficult to fulfill family duties.	1	2	3	4	5	6	7
5	Due to work-related duties, I have to make changes to my plans for family activities.	1	2	3	4	5	6	7
Family-work conflict								
1	The demands of my family or spouse/partner interfere with work-related activities.	1	2	3	4	5	6	7
2	I have to put off doing things at work because of demands on my time at home.	1	2	3	4	5	6	7
3	Things I want to do at work don't get done because of the demands of my family or spouse/partner.	1	2	3	4	5	6	7
4	My home life interferes with my responsibilities at work such as getting to work on time, accomplishing daily tasks, and working overtime.	1	2	3	4	5	6	7
5	Family-related strain interferes with my ability to perform job-related duties.	1	2	3	4	5	6	7

Appendix A-13: Gender Discrimination Measure

For assistant coaches

Please indicate the extent of your agreement to each statement.

		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	At work, I sometimes feel that my gender is a limitation.	1	2	3	4	5
2	At work, many people have stereotypes about my gender and treat me as if they were true.	1	2	3	4	5
3	At work, I sometimes feel that people actively try to stop me from advancing because of my gender.	1	2	3	4	5
4	At work, I feel that others exclude me from their activities because of my gender.	1	2	3	4	5

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