Are Women Coached by Women More Likely to Become Sport Coaches?

Head Coach Gender and Female Collegiate Athletes' Entry into the Coaching Profession

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Sport opportunities have increased dramatically for girls and women over the past five decades. In their thirty-seven-year update on the state of women in intercollegiate sport, Acosta and Carpenter (2014) reported that participation opportunities for females were at their highest quantity yet in 2014 with over 200,000 female athletes competing on intercollegiate teams, compared to about 16,000 in 1970. In 2016-2017, more than 217,000 female athletes competed on NCAA-sanctioned teams (Irick, 2017). As Schull (2017) notes, increased participation rates would seem to "bode well" for gender equity in sport leadership. However, despite the increasing athletic capital and experience of girls and women, gender parity in sport leadership remains elusive (Schull, 2017). In 2016-2017, less than half (41 percent) of collegiate women's teams were coached by women, compared to more than 90 percent in 1972 (Acosta & Carpenter, 2014; "Head coaches: 2016-2017 overall figures", 2017). By contrast, close to 100 percent of collegiate male teams are coached by men. Female athletic directors are still more scarce than female coaches—just 22.3% of collegiate athletic directors are women, and in 2014, 11.3% of athletics programs had no female in their athletic administration (Acosta & Carpenter, 2014).

Given the prevalence and power of sport in US culture, the underrepresentation of women at every level of sport means that men hold more power to "communicate who and what is relevant and valued (and who is not)" (LaVoi, 2016b, p. 3). Moreover, the message being sent to girls and women who grow up with a lack of same-sex role models in sport leadership is that there is no professional place for them in athletics, potentially

compounding the problem (Rhode & Walker, 2008). In other words, to cite a popular cliché, "If you can't see her, you can't be her." Sport and gender researchers have extensively documented the barriers facing women in collegiate coaching and athletic leadership—among them, "blame-the-women" narratives, double standards, homologous reproduction (or the tendency of men to hire men), and the power of the "old boys' club" (LaVoi, 2016a). Recently, Burton and LaVoi (2016) used ecological systems theory to demonstrate the many challenges coaches face at the individual, interpersonal, organizational, and socio-cultural levels. For instance, at the individual level, women may demonstrate lower self-efficacy (i.e., belief in their ability to succeed in a given domain) toward coaching than men, based on internalized gender stereotypes about sport; at the interpersonal level, female coaches often face a lack of support from personal networks, especially given the expectation that they fill caregiving roles at home; and at the organizational level, many women coaches report a lack of adequate resources and a lack of organizational support compared to men's teams and male coaches. At every level, these barriers are shaped by a larger sociocultural context that associates sport and leadership with traditional notions of masculinity and values men's sports over women's (Burton & LaVoi, 2016).

To date, however, most research has focused on women who have *already* entered the coaching profession, with less attention being paid to a "large and often overlooked pool of qualified candidates" for coaching (Schull, 2017, p. 99): female athletes. Marked increases in female sport participants since the passage of Title IX means that more young women than ever have the athletic capital, experience, and passion to become effective coaches. However, as Bruening, Dixon, Burton and Madsen (2013) point out, it

seems that many potential female coaches may never enter the profession in the first place. Bruening et al. suggest that a lack of female role models may be one reason why young women do not pursue athletic careers. On the flip side, LaVoi (2016b) proposed that "if girls and young women see females in coaching roles, they will more likely think about coaching as a legitimate and viable career, and so may aspire to become a coach" (p. 4).

LaVoi (2016b) is not alone in arguing that increasing female athletes' exposure to female coaches will help encourage young women to enter the coaching ranks. Athletic administrators and coaches alike frequently identify increased visibility of and access to female role models in sport—as well as increased coach development opportunities for female athletes—as key strategies for increasing the presence of women in sport leadership (Norman, 2012; Pastore & Meacci, 1992). There is some data to support these calls. Several researchers have found that female athletes who have been coached by women at the high school and collegiate level are more likely to express interest in the coaching profession (Everhart & Chelladurai, 1998; Moran-Miller & Flores, 2011) or more likely to aspire to coach at a high level (Lirgg, Dibrezzo, & Smith, 1994) than athletes coached by men, perhaps due to a "role model effect" (Campbell & Wolbrecht, 2006, p. 233). However, existing research has measured likelihood to enter coaching via coaching self-efficacy, coaching interest, and other aspirational variables; to date, no research has broadened this line of inquiry to include actual career behavior.

This study extends existing research by examining the relationship between Division I collegiate basketball players' early career behaviors and the gender of their collegiate head coach. Based on previous findings, three research questions will be

explored: (1) Are female collegiate Division I basketball players who are coached by female head coaches more likely to enter the coaching profession than athletes who are coached by male coaches?; (2) If female collegiate Division I basketball players do enter coaching, are they more likely to coach at a higher level if they were coached by a female head coach than if they were coached by a male?; and (3) If female Division I collegiate basketball players do enter coaching, are those who were coached by women more likely to persist in coaching than those who were coached by men?

Given the logical progression from playing collegiately to coaching, inquiry in this area is long overdue. It is clear from the research that the "pipeline" for female coaches is leaking, but what is less clear is where these leaks are occurring. There is no empirical data on female athletes' rate of entry into coaching after college, and very little research on the factors that might influence female athletes to pursue a career in coaching. Gaining a better understanding of the factors that influence female student-athletes' likelihood to enter the coaching profession will facilitate better advocacy and programming for current and future female coaches. As Schull (2017) puts it, student athletes hold "perhaps the most promise to increase women's representation in leadership positions across all levels of sport" (p. 99). That promise can only be fulfilled when researchers and advocates have a better understanding of how and why women enter the coaching pipeline.

Literature Review

This section begins by summarizing this study's grounding theoretical framework—social cognitive theory—both as it pertains to the influence of same-sex role-models and in its application to career aspirations and behaviors. It also provides an

overview of the existing research on the influence of same-sex role models on educational and career outcomes. It then focuses on the existing research on female coaches as potential same-sex career role models to their athletes. Throughout the literature review, the strong theoretical and practical support for the potential influence of same-sex coaches on female athletes' career aspirations and the marked gaps in research on student-athletes' transition into the coaching profession will be highlighted.

Social Cognitive Theory and Social Cognitive Career Theory

This study is grounded in Bandura's (1977) foundational social cognitive theory, which summarizes interacting influences on an individual's self-efficacy, motivation, and behavior in any given domain. Self-efficacy refers to "'"people's judgments of their capabilities to organize and execute courses of actions required to attain designated types of performances" (Bandura, 1986, p. 391), and is positively associated with motivation to behave a certain way. Bandura's theory accounts for the interaction between personal factors (such as cognitive ability and emotional responses) and environmental factors (such as role models and social norms) on an individual's behavior, but highly emphasizes the importance of behavioral models for learning. In other words, individuals primarily learn—about what is desirable, moral, or achievable—through observing models.

Lent, Brown, and Hackett (1994) adapted social cognitive theory to apply specifically to career choices and behaviors, naming this framework social cognitive career theory (SCCT). This approach centers self-efficacy as one of the most important factors influencing an individual's career aspirations; in other words, it is theorized, an individual is more likely to be attracted to a certain career if they believe they will be

successful (Cunningham & Singer, 2010). Additionally, environmental variables can impact self-efficacy towards a certain career, in addition to career-specific outcome expectations (expectations for success and satisfaction) and choice goals (intentions to behave a certain way) (Moran-Miller & Flores, 2011). Just as Bandura posits that learning occurs primarily through observation of models, SCCT theorists posit that role models can directly impact career choice across fields (Quimby & DeSantis, 2006) by shaping interest and self-efficacy towards a given profession, which directly impact intentions to enter that profession (Cunningham, 2003; Perrone, Zanardelli, Worthington Jr., & Chartrand, 2002).

As Moran-Miller and Flores (2011) point out, though vocational psychology research has validated the SCCT model in a variety of fields, there is relatively little research on the importance of self-efficacy and its influences within the coaching profession despite the seemingly wide applicability of this theory. In 2005, Cunningham, Bruening, Sartore, Sagas, and Fink found that college students with high self-efficacy toward sport and leisure professions were more likely to express interest in those vocations, and were more likely to intend to enter the sport and leisure industry. A few other studies have linked self-efficacy toward coaching with student athletes' interest in coaching (Everhart & Chelladurai, 1998) and assistant coaches' interest in pursuing head coaching positions (Cunningham, Sagas, & Ashley, 2003), suggesting that SCCT is a useful framework for understanding current or future coaches' occupational intentions. However, more research is warranted—especially research that focuses on student-athletes' transition out of playing and potentially into sport-related careers. Moreover, to date studies have relied solely on measuring athletes' intentions to enter coaching or

other sport-related professions, but no research has examined athletes' actual career behaviors as they relate to environmental variables.

Influence of Same-Sex Role Models in Education and Careers

According to Bandura's (1977, 1986) social cognitive theory, individuals are more likely to learn from a model if they perceive similarity to the model. Research in domains like education, politics, and vocational studies supports the salience of same-sex role models not only for girls and women's self-efficacy but also their real-world achievement outcomes. Beaman, Duflo, Pande and Topalova (2012), for instance, compared villages in India which had instituted female leadership quotas with villages that did not reserve leadership positions for women and found that the gender gaps in career aspirations and actual educational attainment entirely disappeared in villages with female leaders; girls attended school more and spent less time on household chores in those villages than in contexts with fewer women in positions of power. The researchers proved that there were no direct changes in labor market opportunities during their study, providing solid evidence that these differences resulted from a "role model effect". Similarly, Nixon and Robinson (1999) found a significant positive relationship between the number of female high school faculty and professional staff and female high school students' educational attainment, while demonstrating that male students did not experience the same positive outcomes.

Several researchers have indicated that female role models can buffer women against the debilitating impact of "stereotype threat" in domains commonly associated with male achievement. Many studies have shown that girls and women are vulnerable to reduced performances in male-dominated domains when they feel pressured not to

conform to negative expectations based on their gender, but Marx and Roman (2002) demonstrated that administration of a math test by a competent female experimenter—a "role model"—led to more successful performances. Similarly, McIntyre, Paulson and Lord (2003) found that women performed significantly better on a math test after first reading about individual women who had been successful in related fields. Consistent with social cognitive theory, this research indicates that same-sex role models can boost self-efficacy, foster achievement, and buffer against perceived barriers to success in a perceived male domain.

The "role model effect", as Campbell and Wolbrecht (2006) term their related findings that the visibility of female political candidates increases girls' intentions to be politically active, appears to be relevant across domains and developmental stages—including the transition into a career. Green and Stitt-Gohdes (1997) identified the presence of role models as an important factor in women's decisions to work in traditionally male-dominated "blue-collar trades", a finding consistent with SCCT. Lockwood's (2006) research on college students similarly supported the importance of same-sex role models for women entering "non-traditional" fields—a category which certainly applies to coaching, given that 23% of all head coaches of men's and women's collegiate teams are women (Acosta & Carpenter, 2014) and even fewer female coaching role models exist at the youth and high school levels (The Aspen Institute, 2016; LaVoi, 2014; Seefeldt & Ewing, 1997). In addition to finding that women were more positively affected by female role models than male models, Lockwood reported that nearly one-third of participants explicitly valued having a role model who had defied gender norms by achieving success in a male-dominated domain, perhaps because they helped alleviate

stereotype threat much like in the Marx and Roman (2002) and McIntyre et al. (2001) studies. However, only a few studies have examined whether female coaches might serve as female role models that inspire their athletes to become coaches—a clear gap in the research based on findings in other fields.

Early Career Paths in Sport Coaching

While the career paths of collegiate coaches can vary and requirements for experience and certification are not standardized in the coaching profession, the research clearly shows that former athletes are more likely to become coaches than any other population (Schull, 2017), supporting the assertion that female athletes comprise the most likely candidate pool for increasing representation of women in athletic leadership. In an examination of the development of successful sport coaches at the high school, community college and NCAA Division I level, Gilbert, Côté and Mallet (2006) found that coaches had accumulated thousands of hours of "pre-coaching" experience via participation as athletes. Consistent with SCCT, coaches at the collegiate level cite continued involvement with competitive athletics as a primary reason for entering the coaching profession (Pastore, 1991). Despite these findings, very little research has examined the factors that impact student-athletes' (or, specifically, female student-athletes') likelihood to enter coaching, as Moran-Miller and Flores (2011) note. Their groundbreaking study aimed at filling this gap used SCCT to examine predictors of female athletes' interest in coaching careers. They found that athletes with high coaching self-efficacy also demonstrated high outcome expectations and interest in coaching, supporting previous studies linking self-efficacy with likelihood to enter a career (Moran-Miller & Flores, 2011).

However, when Cunningham and colleagues (2003, 2007) investigated the coaching self-efficacy of male and female assistant college coaches, they found that compared to male coaches, female coaches demonstrated lower self-efficacy toward, expected fewer positive outcomes from, and expressed lesser intentions toward becoming a head coach. Moreover, female coaches expressed greater occupational turnover intentions. While Cunningham's conclusions contradict Everhart and Chelladurai's (1998) findings that male and female collegiate basketball players did *not* differ in coaching self-efficacy, they are supported by Kamphoff and Gill's (2008) conclusion that female athletes expressed less interest in coaching and perceived more barriers in a coaching career (including discrimination) than their male peers. These findings may suggest that female athletes are less likely to enter coaching than their male peers, but to date no data has been gathered comparing male and female student-athletes' rate of entry into coaching. Clearly, more research on the influences on and behaviors of student-athletes as they transition out of playing—and potentially into coaching—is needed.

Coach Gender Influence on Athletes' Interest in Sport Coaching

As LaVoi (2016b) writes in *Women in Sports Coaching*, "coaches are unarguably role models" (p. 3) given their position of leadership and authority. Many female coaches seem to prioritize this role; Pastore (1991) found that female coaches were more likely to enter the coaching profession with the intention of "becoming a role model" (p. 135) than male coaches, perhaps because they perceived a lack of female role models in sport given the underrepresentation of women coaches. The career research on role models cited above suggests that female collegiate coaches may challenge gender stereotypes about women in sport leadership not only because of their minority status (LaVoi, 2016b), but

also by serving as accessible career models for athletes aspiring to enter coaching or athletic administration despite overall underrepresentation of women. Furthermore, collegiate coaches occupy a unique role model niche in that they have opportunities to interact with and directly mentor athletes on a regular basis, and often over the course of multiple years. College coaches form relationships with athletes during the important developmental period of emerging adulthood—a time characterized by identity exploration and career undecidedness (Arnett, 2000)—and directly impact athletes' collegiate sport experience. Bloom, Durand-Bush, Schinke and Salmela (1998) captured the importance of coach role modeling and mentoring to athletes' attraction to the coaching profession through interviews with 21 expert Canadian coaches across several sports; many said their decision to become coaches was strongly impacted by past coaches, even if they did not realize it until several years later. As their study demonstrates, male coaches can logically serve such a role for female athletes; however, social cognitive career theory suggests (and the findings cited above support) that same-sex models might be able to offer women more salient "assurance of the gender appropriateness" of a career in sport (Whitaker & Molstad, 1985).

Several studies grounded in SCCT support the link between female coaches and female athletes' aspirations to coach. Lirgg et al. (1994) examined the effect of coach gender on the coaching self-efficacy of female varsity high school basketball players. They found that while coach gender was not significantly correlated with athletes' self-efficacy, it did affect athletes' level of aspiration to coach; athletes coached by women were more likely to say they desired to become a head coach than athletes coached by men. Everhart and Chelladurai (1998) similarly examined desire to coach among female

and male Division I collegiate basketball players and found that women with a female coach expressed higher attraction to coaching than those coached by men. Furthermore, the women in the study were more attracted to coaching in general than the male athletes and did not differ from the men in coaching self-efficacy—findings which run counter to the common narrative that women lack the desire or confidence to coach. Female athletes coached by women were also less intimidated by perceived barriers to success in coaching, suggesting they may be potentially more likely to enter the profession. More recently, Moran-Miller and Flores (2011) replicated and extended the Everhart and Chelladurai approach, measuring desire to coach, coaching self-efficacy, coaching valence, perceived hindrances, and role model influence among athletes across four sports and four collegiate divisions. They found that while the *number* of female coaches by whom an athlete had been coached over a playing career did not significantly impact interest in coaching or coaching self-efficacy, the perceived *quality* of the female coaches was positively correlated with interest in coaching and coaching self-efficacy—suggesting that exposure to even just one high-quality female coach may impact athletes' attraction to coaching. Moran-Miller and Flores' conclusion is notable because in sports like soccer and ice hockey, many girls and young women may go through their entire sport career without experiencing a single female coaching role model—but even one might make a difference.

While the findings of Lirgg et al. (1994), Everhart and Chelladurai (1998) and Moran-Miller and Flores (2011) support the potential for female coaches to act as career role models to female athletes, findings are somewhat equivocal and more research is clearly needed. All three studies are greatly limited by their reliance on athletes'

aspirations. Expression of an attraction to coaching on a study survey does not necessarily equate to *actual entry* into the coaching profession. Moran-Miller and Flores point to this limitation, suggesting that future research should track participants' career behaviors to better interrogate the relationship between the presence of a female coaching role model and actual entry into the coaching profession.

Significance of Study

While there is some research to indicate that female role models can impact young women's achievement and career outcomes, the literature on the impact of same-sex role models remains regrettably underdeveloped in general. This is particularly true in the field of sport research. Scholars have focused much attention on the barriers faced by women in the coaching profession since Acosta and Carpenter's groundbreaking study in 1977, but only a few studies over the course of several decades have examined the impact of same-sex career role models. Moreover, researchers have generally failed to address female student-athletes, who are the population most likely to remedy the underrepresentation of women in coaching. The lack of research on female athletes' transition from playing to coaching is surprising; we must know more about the factors that impact female athletes' likelihood to enter coaching if we are ever to achieve gender parity in the profession.

This groundbreaking study will be the first of its kind to examine the relationship between the gender of female athletes' head collegiate coaches and their actual entry into the coaching profession. It takes a novel methodological approach by examining the relationship between gender of athletes' collegiate head coaches and their actual career behaviors, which goes a step beyond relying on self-efficacy, aspirations, intentions, and

desire to coach. If, as hypothesized, student-athletes' rate of entry into coaching, level of coaching, and persistence in coaching can be predicted by the gender of their collegiate head coach, this would significantly support advocacy and programmatic initiatives aimed at increasing representation of women in sport leadership. The data would counter the common and popular public narrative that women are "not interested" in coaching by supporting the potential impact of exposure to salient same-sex role models on career behaviors.

Additionally, no researchers have documented the entry rate of collegiate athletes into the coaching rank. This study will provide an unprecedented baseline of female athletes' actual entry into the coaching profession. The data gathered for this project could be tracked over time to assess the efficacy of initiatives aiming to introduce more female athletes into the coaching pipeline, much as Acosta and Carpenter's (2014) longitudinal research series has captured change and stagnation over time in the representation of women in sport leadership. While this study examines career behaviors of athletes from Division I women's basketball—arguably the most visible and popular college sport for women—this data could also be compared across sports and divisions (or contrasted to the entry rate of male athletes) in future research. The innovative nature of this research guarantees that any findings will provide valuable information for advocates and educators working to strengthen the coaching pipeline for female athletes and reverse the current stagnation of women in the coaching profession.

Research Questions

Based on the findings of Lirgg et al. (1994), Everhart and Chelladurai (1998) and Moran-Miller and Flores (2011), the following research questions guided this study:

Research Question 1: Are female collegiate Division I basketball players who are coached by female head coaches more likely to enter the coaching profession than athletes who are coached by male coaches?

> **Hypothesis:** Based on Everhart and Chelladurai's (1998) finding that female Division I collegiate basketball players who were coached by women expressed greater attraction to coaching than those coached by men, it is hypothesized that female athletes who were coached by women are more likely to enter the coaching profession. While multiple confounding factors may also influence athletes' decisions to enter coaching—including experiences with other coaches—it seems likely that exposure to a same-sex role model in a prominent leadership position over the course of four years at a high level of sport may positively impact athletes' interest in the profession.

Research Question 2: If female collegiate Division I basketball players do enter coaching, are they more likely to coach at a higher level if they were coached by a female head coach than if they were coached by a male?

> **Hypothesis:** Based on Lirgg et al.'s (1994) conclusion that athletes coached by women aspired to coach at a higher level, it is also theorized that female athletes who were coached by women are more likely to coach at a higher level than athletes who were coached by men.

Research Question 3: If female Division I collegiate basketball players do enter coaching, are those who were coached by women more likely to persist in coaching than those who were coached by men?

Hypothesis: It is theorized that female athletes are more likely to persist in coaching if they were coached by women than if they were coached by men. Everhart and Chelladurai's (1998) finding that female athletes who were coached by women were less intimidated by perceived barriers to coaching success suggests that experiencing a female coach role model may "buffer" early career coaches against perceived discrimination. This prediction is supported by research in other fields showing that female role models can help alleviate stereotype threat for women and impact their long-term achievement outcomes (Beaman et al., 2012; Marx & Roman, 2002; McIntyre et al., 2001; Nixon & Robinson, 1999).

Methods

Study Design

This exploratory investigation quantitatively examines career behavior of recently graduated NCAA Division I female collegiate basketball players using digital sources (see *Sample*). Playing experience (including collegiate head coach gender) and career data was compiled for a sample of female Division I basketball players who graduated between 2011 and 2015 using online searches of Google and LinkedIn. Logistic regressions were then used to analyze the relationship between gender of collegiate head coach and entry into coaching, level of coaching, and persistence in coaching.

Basketball was selected because women comprise around 59 percent of head coaches of women's teams at the Division I level (LaVoi, 2018), providing a relatively even spread of institutions with male and female head coaches from which to sample. Basketball is also the most popular women's collegiate sport (Irick, 2017). Nearly all

NCAA Division I member institutions (99.4%) sponsor a women's basketball team, with 350 women's teams and 5,000 athletes competing at the Division I level (Irick, 2017). Many Division I basketball programs have entry-level coaching positions (e.g. graduate assistant or director of operations) that are not as prevalent in other women's sports (LaVoi, 2013), suggesting that a greater number of opportunities are available for athletes who want to pursue collegiate basketball coaching as a profession compared to other NCAA-sponsored sports. For the purposes of this study, only one sport was examined to control for the potential differences in coaching opportunities across different sports; future studies could compare athletes' early career behaviors across sports.

The NCAA Division I collegiate level was chosen because it is considered the highest collegiate playing level, meaning Division I graduates are highly marketable as coaches. Moreover, the transition from the end of a collegiate playing career into the workforce offers a natural pathway to coaching for many athletes. For the purposes of this study, no other NCAA divisions were included to control for the potential confounding influence of level of playing experience on entry into coaching. Future research could examine athletes at several levels of collegiate experience to compare career behaviors.

Sample

A random sample comprising forty NCAA Division I women's basketball programs was selected out of all 350 Division I women's basketball programs in the country (Irick, 2017). Schools were randomly chosen to account for potential differences in program quality between institutions, which could impact athletes' exposure to coaching opportunities or marketability as coaches. Based on exploratory investigations

of rosters, forty was deemed a reasonable number of institutions as it would yield an estimated 250 – 300 student-athletes, a strong sample size for running non-parametric statistics (Field, 2005).

A list of all institutions with Division I basketball teams was entered into an online random selection tool ("Random choice generator", n.d.), which was then used to select institutions one-by-one. Online basketball rosters were then examined for each randomly-selected institution to determine whether the program had one or more female head coaches or one or more male head coaches between 2007 and 2015. Schools which had coach turnover from a female head coach to a male head coach or vice versa during that period were excluded to have a consistent sample of athletes who were either coached exclusively by a female head coach (or coaches) or exclusively by a male head coach (or coaches) between 2007 and 2015. Institutions were eliminated from the sample if they had insufficient online roster data (e.g. no rosters listed prior to 2011). The goal of the sampling was to obtain a relatively even distribution of athletes who were coached by men and coached by women. Therefore, the randomly selected institutions were sorted into "male coach" and "female coach" categories as they were selected. After the "female coach" category filled at twenty institutions, additional schools that were randomly selected which had female head coaches between 2007-2015 were eliminated from the sample. Some institutions—66 institutions out of 128—were excluded from the school sample because they had insufficient rosters or had male-to-female or female-to-male head coach turnover. Some institutions (n = 62) were excluded after the sample of 20 schools with female head coaches had already been filled because they had one or more female head coaches. The final institutional sample comprised twenty schools with one or

more female head coaches and twenty schools with one or more male head coaches between 2007 and 2015, for a total sample of 40 institutions. Once the final sample of institutions (n=40) was selected, data collection commenced.

Data Collection

Data was gathered between November 2017 and February 2018. All data gathered is in the public domain; therefore, IRB approval was not required.

Women's basketball rosters were examined from each of the forty schools in the sample between the seasons of 2007-2008 and 2014-2015, for a total of 8 seasons. Only athletes who played on a team for four consecutive years during that period (graduating between 2011 and 2015) were included in the sample. Athletes who transferred in or out of a program or who used a red-shirt to play a fifth year were not included, to control for the potential influence of head coaches from an outside program or spending an extra year in a program. The resulting primary data set included 354 athletes who played for four consecutive collegiate basketball seasons at the same institution between 2007 and 2015.

The following variables were recorded directly from the athletic website rosters for each athlete: institution, athlete name, graduation year, and head coach gender. After data collection was complete, names were converted to ID numbers to de-identify athletes. Head coach turnover—whether athletes had one or more coaches during their four years—was also noted. Schools with a cross-gender turnover (i.e., female-to-male or male-to-female) were excluded from the sample as noted above.

Using Google and LinkedIn, an effort was then made to find career information for every athlete in the sample (n=354; 192 coached by women, 161 coached by men). An initial Google search of the athlete's name in quotations was made to see if any immediate results emerged (using quotations around a phrase in a Google search ensures that the names will be searched for as a whole, rather than as individual parts). Additional searches of the athlete's name in combination with their school or the phrases "basketball" or "coach" were made if needed. If the Google search did not turn up a LinkedIn profile or any other information, LinkedIn was searched directly.

If information was found confirming that an athlete entered the coaching profession (i.e., a press release on a collegiate athletics website, an online coaching bio, a section on a LinkedIn profile, etc.), the following information was recorded: level of coaching (youth, high school, NCAA Division I, NCAA Division II, NCAA Division III, NAIA Division I, NAIA Division II, NJCAA, professional, or other); position (head coach, associate coach, assistant coach, graduate assistant, director of operations, recruiting operations assistant, or volunteer coach, or video coordinator); institution or organization; last season coached; whether the athlete currently remains in coaching (yes, no, or unknown) and the last year information was available.

If information was found demonstrating that an athlete entered another profession, this was recorded. For instance, updated LinkedIn profiles often listed an athlete's current position, such as "Marketing Coordinator" or "Professional Basketball Player". This was also noted if an athlete was involved in coaching previously but appeared to have moved on to another profession. See Appendix A for the coding key used for data collection.

If very little or no information was found about an athlete's career path after graduation after repeated online searches, this was noted and the athlete was excluded from the final sample. After 117 athletes with no information were excluded from the initial sample of 354, the final sample comprised 237 former Division I basketball players who graduated between 2011 and 2015. Table 1 shows a descriptive breakdown of the athletes in the final sample by head coach gender and graduation year.

Table 1
Sample of female Division I basketball players by head coach gender and graduation year

Graduation Year	Athletes with female head coach	Athletes with male head coach	All athletes
2011	29	17	46
2012	27	19	46
2013	24	22	46
2014	29	20	49
2015	33	17	50
Total	142	95	237

Results

Data Analysis

Logistic regression was used to address all three research questions under consideration. Logistic regression allows for the prediction of a categorical outcome based on continuous or categorical predictor variables, producing an odds ratio that a certain outcome will occur (entry into coaching, level of coaching, or persistence in coaching) based on an independent variable (gender of head coach). For all three research

questions, the independent variable (the predictor) was gender of head coach. For the first research question, the dependent variable was entry into coaching (entered/did not enter); for the second research question, the dependent variable was level of coaching; and for the third research question, the dependent variable was whether an athlete is still coaching (currently coaching/not currently coaching). Assumptions, model fit, and practical significance were checked according to Field's (2005) recommendations. Descriptive statistics were also calculated to provide more clarity on all three research questions and other emergent findings.

Research Question 1: Are female collegiate Division I basketball players who are coached by female head coaches more likely to enter the coaching profession than athletes who are coached by male coaches?

Descriptive statistics revealed that 93 of the 237 (39.2%) athletes in the sample entered coaching and 144 (60.8%) did not enter coaching. Out of 142 athletes coached by a female head coach, just over a third (n = 52, 36.6%) entered coaching, while a slightly higher percentage of athletes with a male head coach entered coaching (41 of 95, 43.2%). Table 2 summarizes athletes' entry into coaching by gender of collegiate head coach.

Table 2
Percentage of former female Division I basketball players who entered coaching by gender of collegiate head coach

		Athletes with female head coach	Athletes with male head coach	All athletes
		n (%)	*n (%)*	*n (%)*
Coaching career status	Entered	52 (36.6%)	41 (43.2%)	93 (39.2%)
	Did not enter	90 (63.4%)	54 (56.8%)	144 (60.8%)

Total	142	95	237

To determine whether gender of collegiate head coach significantly predicted athletes' likelihood to enter coaching, a logistic regression was employed. Gender of head coach (male or female) was entered as the independent variable. Entry into coaching (entered/did not enter) was entered as the dependent variable. Logistic regression analysis indicated that *collegiate head coach gender was not a significant predictor of entry into coaching*. The residual chi-square statistic of 1.021 was not significant (.312), indicating that head coach gender could not make a significant contribution to the predictive power of the model.

Research Question 2: If female collegiate Division I basketball players do enter coaching, are they more likely to coach at a higher level if they were coached by a female head coach than if they were coached by a male?

Descriptive statistics revealed that out of the 52 athletes coached by women, just over a third (n = 17, 33%) coached Division I, while 14 out of 52 (27%) coached high school and 12 out of 52 (23.1%) coached youth. A slightly higher percentage of athletes coached by men (19 of 41, 46.4%) coached at the Division I level, with a slightly lower percentage of athletes who were coached by men coaching high school (6 out of 41, 14.6%) and youth (8 out of 41, 19.5%). Table 3 summarizes representation of athletes at different levels of coaching by gender of collegiate head coach.

Table 3
Competitive coaching level of former female Division I basketball players who entered coaching by gender of collegiate head coach

		Athletes with female head coach	Athletes with male head coach	All athletes
		n (%)	*n (%)*	*n (%)*
Competitive coaching level	Youth	12 (23.1%)	8 (19.5%)	20 (21.5%)
	High school	14 (27%)	6 (14.6%)	20 (21.5%)
	NCAA Division III	2 (3.8%)	1 (2.4%)	3 (3.2%)
	NCAA Division II	2 (3.8%)	2 (5%)	4 (4.3%)
	NCAA Division I	17 (33%)	19 (46.4%)	36 (38.7%)
	NAIA	2 (3.8%)	2 (4.9%)	4 (4.3%)
	NJCAA	1 (2%)	2 (4.9%)	3 (3.2%)
	Other	2 (3.8%)	1 (2.4%)	3 (3.2%)
	Total	52	41	93

When all college divisions are combined into one category ("college"), descriptive statistics show that 50 out of 93 total athletes (53.8%) most recently coached at the college level. Out of the 52 athletes coached by women, n = 24 (46.2%) most

recently coached college, n = 14 (27%) coached high school, and n = 12 (23.1%) coached youth. By comparison, out of the 41 athletes coached by men, n = 26 (63.4%) most recently coached college, while n = 6 (14.6%) coached high school, and n = 8 (19.5%) coached youth. Table 4 summarizes the breakdown of coaching level by collegiate head coach gender, with all college divisions combined.

Table 4
Competitive coaching level of former Division I collegiate basketball players who entered coaching by gender of collegiate head coach (college divisions combined)

		Athletes with female head coach	Athletes with male head coach	All athletes
		n (%)	*n (%)*	*n (%)*
Competitive coaching level	Youth	12 (23.1%)	8 (19.5%)	20 (21.5%)
	High school	14 (27%)	6 (14.6%)	20 (21.5%)
	College	24 (46.2%)	26 (63.4%)	50 (53.8%)
	Other	2 (3.8%)	1 (2.4%)	3 (3.2%)
	Total	52	41	93

Logistic regression was utilized to test whether head coach gender significantly predicted the level at which an athlete went on to coach. Gender of head coach (male or female) was entered as the independent variable. Level coached (youth, high school, NCAA DIII, NCAA DII, NCAA DI, NAIA, NJCAA, or other) was entered as the dependent variable. Logistic regression analysis indicated that *collegiate head coach gender was not a significant predictor of coaching level*. The residual chi-square statistic

of 3.923 was not significant (.789), indicating that head coach gender could not make a significant contribution to the predictive power of the model.

A logistic regression was also run with all collegiate divisions combined. Gender of head coach (male or female) was entered as the independent variable and level of coaching (youth, high school, college, or other) was entered as the dependent variable. Collegiate head coach gender still did not emerge as a significant predictor of coaching level; the residual chi-square value was not significant (.376), indicating that head coach gender still did not make a significant contribution to the predictive power of the model.

Research Question 3: If female Division I collegiate basketball players do enter coaching, are those who were coached by women more likely to persist in coaching than those who were coached by men?

Descriptive statistics revealed that of all 93 athletes who entered coaching, n = 59 (63.4%) remain in coaching as of 2017 and n = 25 (26.9%) are not currently coaching. Out of the 52 athletes who entered coached who were coached by women, n = 39 (75%) are currently coaching, while a smaller percentage of athletes who were coached by men (20 of 41, 48.8%) are currently coaching. Table 5 summarized the breakdown of athletes' current coaching status by collegiate head coach gender.

Table 5
Current coaching status of former female Division I basketball players by gender of collegiate head coach

	Athletes with female head coach	Athletes with male head coach	All athletes
	n (%)	*n (%)*	*n (%)*

Current coaching status	Currently coaching	39 (75%)	20 (48.8%)	59 (63.4%)
	Not currently coaching	8 (15.4%)	17 (41.4%)	25 (26.9%)
	No information	5 (9.6%)	4 (9.8%)	9 (9.7%)
	Total	52	41	93

Logistic regression was utilized to determine whether gender of collegiate head coach was a significant predictor of athletes' current coaching status. Nine athletes were excluded from the sample for this analysis because no information was available to indicate whether they remained in coaching as of 2017, meaning the regression was run from a sample of 84 athletes. Gender of head coach (male or female) was entered as the independent variable. Current coaching status (currently coaching or not currently coaching) was entered as the dependent variable. Logistic regression analysis revealed significant omnibus goodness of fit for current coaching status $X^2 = 8.35$, $p < .004$. Further examination indicates that the odds (exp *b*) that an athlete who was coached by a woman persists in coaching are 4.1 times higher than the odds than an athlete who was coached by a man persists in coaching. The 95% confidence interval for exp *b* was 1.527 (lower) and 11.245 (upper).

The variable "currently coaching" reflects a range of between two and six years in coaching, and the distribution of athletes' graduation years varied for male head coaches and female head coaches. Table 6 shows a side-by-side breakdown of athletes who entered coaching from each graduation year by gender of collegiate head coach.

Table 6
Current coaching status of former female Division I basketball players by graduation year and gender of collegiate head coach

		Current coaching status					
		Currently coaching		Not currently coaching		No information	
Collegiate head coach gender		Male *n (%)*	Female *n (%)*	Male *n (%)*	Female *n (%)*	Male *n (%)*	Female *n (%)*
Graduation year	2011	3 (30%)	7 (70%)	7 (70%)	2 (20%)	0 (0%)	1 (10%)
	2012	5 (71.4%)	10 (90.9%)	2 (28.6%)	1 (9.1%)	0 (0%)	0 (0%)
	2013	3 (37.5%)	6 (54.5%)	3 (37.5%)	3 (27.3%)	2 (25%)	2 (18.2%)
	2014	5 (50%)	6 (85.7%)	3 (30%)	1 (14.3%)	2 (20%)	0 (0%)
	2015	4 (66.6%)	10 (76.9%)	2 (33.3%)	1 (7.7%)	0 (0%)	2 (15.4%)
	Total	20 (48.8%)	39 (75%)	17 (41.4%)	8 (15.4%)	4 (9.8%)	5 (9.6%)

Note. Percentages represent the percentage of athletes with the same collegiate head coach gender who entered coaching in a specific graduation year.

Thirteen out of the 52 athletes (25%) who entered coaching and had a female head coach graduated in 2015, compared to 17.1% of athletes who had a male head coach. Meanwhile, 19.2% of athletes who entered coaching and had a female head coach graduated in 2011, compared to 24.4% of athletes who had a male head coach. It seemed possible that this unequal distribution might skew the data towards showing that athletes who were coached by women are more persistent in coaching—*if* a later graduation year correlates with an increased likelihood that an athlete is still coaching. Therefore, logistic regression was also utilized to determine whether the year in which athletes graduated significantly predicted whether they remained in coaching as of 2017. Graduation year did *not* emerge as a significant predictor of coaching level; the residual chi-square value was not significant (.142) indicating that graduation year did not make a significant contribution to the predictive power of the model.

Discussion

Main Findings

Although some previous research has indicated that female athletes who are coached by women may be more likely to enter the coaching profession (Everhart & Chelladurai, 1998; Lirgg et al., 1994), this hypothesis was not supported by the data in this study. Gender was not a significant predictor of athletes' likelihood to enter coaching or the level at which they most recently coached. In fact, compared to athletes who were coached by women, a higher percentage of athletes coached by male head coaches entered the coaching profession, although this difference was not statistically significant based on the logistic regression. Similarly, the descriptive statistics demonstrated that a higher percentage of athletes who were coached by men most recently coached at college level (63.4%) compared to athletes who were coached by women (46.2%), although this difference also lacked statistical significance.

These findings may point to a gap between athletes' intentions or interest in coaching as expressed in a survey and their real-life early career behaviors. It is possible that female athletes who are coached by women *do* express greater attraction to coaching (Everhart & Chelladurai, 1998) or aspire to coach at a higher level (Lirgg et al., 1994) than those coached by men, but that external factors at the interpersonal, organizational, or sociocultural level more strongly impact whether they enter the coaching profession. These findings may align with Moran-Miller and Flores' (2011) conclusion that those athletes who had *high-quality* relationships with their female coaches demonstrated higher self-efficacy toward and interest in coaching. Perhaps it is not mere exposure to

female coaches that engenders a "role model effect", but the quality of athletes' connections with a single coach or multiple coaches who they perceive to be high quality and or have a close connection with as LaVoi (2007) suggested; the literature on coach-athlete relationships suggests that even one close relationship with a caring adult can lead to positive developmental outcomes for young people, which very well may influence their career behaviors. Social cognitive theory would support this conclusion, as Bandura (1977, 1986) posits that models must be relatable to observers to be effective. Gender is a potentially salient point of similarity with which athletes might connect, but athletes' likelihood to enter coaching (especially at the college level) may be more strongly impacted by their overall collegiate experience, their attitudes toward their sport, their self-efficacy in their sport, or other factors. In any case, this study points to a clear need for more research in this area. Future studies should replicate and extend the efforts of Lirgg et al. (1994), Everhart and Chelladurai (1998), and Moran-Miller and Flores (2011) to clarify the factors that influence athletes' likelihood to enter coaching, including but not limited to the role of coach gender.

Collegiate head coach gender did emerge as a significant predictor of whether athletes were still coaching at the time of data collection. This is a somewhat curious finding, given the finding that head coach gender did not influence athletes' likelihood to enter coaching in the first place. While causality cannot be proven herein, this finding may point to Everhart and Chelladurai's (1998) conclusion that women coached by female coaches were less intimidated by perceived discrimination, a real barrier faced by many women in the coaching profession. Everhart and Chelladurai speculate that female athletes who have observed their women coaches overcome discrimination may be more

likely to feel they could similarly surmount unequal treatment in their own career. It is possible that for the female athletes in this sample, their female collegiate coaches acted as retroactive buffers against perceived barriers to success in coaching, much as same-sex role models have been shown to help alleviate "stereotype threat" in other fields. Future research should determine whether collegiate head coach gender is a significant predictor of athletes' persistence in coaching across other sports and levels, and qualitative investigations could help clarify the nature of this relationship.

Emergent Findings

In addition to answering the primary research questions, the data yielded many interesting tangential findings. Given the groundbreaking and exploratory nature of this research, these findings are summarized and discussed in the following subsections.

Female athletes' likelihood to enter coaching.

This study is the first of its kind to track the percentage of female collegiate athletes who become coaches after graduation. Nearly forty percent (93 of 237, 39.2%) of athletes in the sample entered the coaching profession as either part-time or full-time coaches at the youth, high school, or college level after they graduated. These numbers may help to refute the common narrative that women are "not interested" in coaching; clearly, if well over a third of female Division I collegiate basketball players enter the profession (however briefly) after graduating, *they are interested in coaching*. It should be noted that these findings cannot be generalized to female athletes as a population. However, the findings can provide a baseline to which future research could compare female athletes' likelihood to enter coaching and the rate at which they enter coaching

across other sports and competitive levels. Perhaps more importantly, this data could be compared to the entry rates of male athletes to help determine whether the shortage of female coaches stems from fewer female athletes entering coaching or more early career female coaches leaving the profession after they have entered.

Post-collegiate entry into professional sport.

A closer examination of the sample of athletes who did *not* enter coaching offers some additional nuance: 40 out of 144 NCAA Division I female athletes (27.8%) who did *not* become coaches are currently playing professional basketball. These athletes have maintained their connection with their sport and continue to build their sport expertise; if anything, it seems they may be a likely group to pursue coaching as a profession after a professional playing career, although no data exists to confirm this link. Overall, a total of 68 athletes in the sample either currently play or formerly played professionally. Out of those 68 athletes, sixteen (23.5%) have entered coaching, while twelve (17.6%) did not enter coaching and have started another career. As noted above, the remaining 40 (58.8%) are still playing and have not entered coaching. This data alludes to another understudied and potentially untapped pool of potential coaches: former professional athletes. Yet much as there has been little research on the transition from playing collegiately to coaching, no empirical data on professional athletes' post-playing careers. Future research should observe the early career behaviors of recently graduated professional players across different sports to provide a baseline understanding of professional athletes' likelihood to become coaches, and potentially improve advocacy aimed at involving more of these highly-qualified women in coaching as they transition out of their playing careers.

Female athletes' early career behaviors.

Over half (50 of 93, 53.5%) of the female athletes who entered the coaching profession were coaching at the college level within six years of graduation, while youth and high school coaches each made up 21.5% of the total (20 of 93). The remaining three athletes (3.2%) coached in settings categorized as "other", such as at a foreign university.

Notably, the majority (36 of 50, 72%) of female athletes who coached at the college level were involved in Division I athletics, with the remaining athletes scattered among Division III (n = 3, 6%), Division II (n = 4, 8%), NAIA (n = 4, 8%), and NJCAA (n = 3, 6%). This aligns with another "common knowledge" assumption that former collegiate athletes tend to coach at the division in which they played. This data offers a baseline of the early career behaviors of recently graduated Division I female basketball players who enter the coaching profession. Future research could examine recent athletes' early career progressions in more detail, tracking movement from position to position and determining whether there is a critical point at which many women are departing the coaching profession. If this was done with a larger sample size—and across more sports and playing divisions—advocates would have a better picture of the strengths and weaknesses of the coaching pipeline.

A more in-depth analysis of the athletes who were still coaching as of 2017 reveals that the highest percentage of those athletes (23 of 59, 39%) are coaching at the Division I level, with 25.4% (n=15) coaching high school and 20.3% (n=12) coaching youth. Notably, a higher percentage of those coached by women are coaching at the high school level (14 of 39, 35.9%) compared to athletes coached by men (1 of 20, 5%). By contrast, more athletes who were coached by men who are still coaching are employed at

the Division I level (n=11, 55%) than athletes who were coached by women (n = 12, 30.7%). Approximately the same percentage of athletes who were coached by men and those who were coached by women are currently coaching at the youth level (20%). Table 7 shows the breakdown of coaching level by collegiate head coach gender for those former athletes who are currently coaching.

Table 7
Competitive coaching level of former female Division I basketball players who are currently coaching by gender of collegiate head coach

		Athletes with female head coach	Athletes with male head coach	All athletes
		n (%)	*n (%)*	*n (%)*
Competitive coaching level	Youth	8 (20.5%)	4 (20%)	12 (20.3%)
	High school	14 (35.9%)	1 (5%)	15 (25.4%)
	NCAA Division III	2 (5.1%)	1 (5%)	3 (5.1%)
	NCAA Division II	0 (0%)	1 (5%)	1 (1.7%)
	NCAA Division I	12 (30.7%)	11 (55%)	23 (39%)
	NAIA	1 (2.6%)	0 (0%)	1 (1.7%)
	NJCAA	1 (2.6%)	2 (10%)	3 (5.1%)
	Other	1 (2.6%)	0 (0%)	1 (1.7%)
	Total	39	20	59

The higher representation of former athletes who were coached by men at the Division I level and more athletes who were coached by women at the high school level may further suggest that collegiate head coach gender may have a retroactive effect on early-career coaches as they forge their career paths. It is possible that athletes who were

coached by men have larger occupational support networks at the Division I level, given the prevalence and power of the "old boys' club". It could be that athletes who were coached by women are more likely to observe their head coaches balancing demands at home against the pressures of coaching and opt to coach at another level (i.e. youth or high school). In future, researchers could interview coaches at different stages of their early coaching careers to gain a clearer picture of why they have persisted in the profession and what factors led them to their current positions.

Athlete turnover.

One unexpected finding was that the initial sample of athletes on the 20 teams coached by men (n = 161) was smaller than the sample of athletes on the 20 teams coached by women (n = 192). After athletes for whom no information was available were excluded, the sample comprised 142 athletes who had been coached by a female head coach and 95 athletes who had been coached by a male.

How might this discrepancy be explained? It is possible that the institutions with male head coaches in this sample had a smaller average roster size than the institutions with female head coaches, although the random selection would argue against that. It is also possible that the criteria for including athletes in the sample—that they must have played four years in one program with no red-shirts or transfers—resulted in excluding more athletes from the institutions with male head coaches. This may suggest that male head coaches in Division I basketball have higher turnover of female players than their female coach counterparts. However, for the purposes of this study, no record was kept of how many athletes were excluded from the sample because they transferred in or out of a program or quit before they completed four years of playing, so the cause of the

discrepancy between the samples cannot be proven. Athlete turnover rate did seem remarkably high across all institutions for both coach genders; an initial freshman class of eight athletes often yielded one or two who completed four years within the program. Future research could track athlete turnover within college programs across different sports and divisions and compare turnover rates between programs with male and female head coaches. Such research would offer more clarity on athletes' collegiate playing experiences, which SCCT would argue are intricately tied to their likelihood to pursue coaching after graduation.

Head coach turnover.

Another unexpected finding was the difference in head coach turnover between programs coached by men and those coached by women. Only three of the twenty institutions with male head coaches experienced head coach turnover between two male coaches during the playing years of 2007-2008 and 2014-2015, meaning just 8 of the 95 athletes (8.4%) in the sample who were coached by men had two head coaches during their playing career. By contrast, ten of the twenty institutions with female head coaches experienced head coach turnover between two female coaches during those playing years—as did 39 of 142 athletes (27.5%) coached by women, more than four times the number of athletes coached by men (n = 8, 8.4%). While the sample was randomly selected, it comprised twelve more female coaches (n = 34) than male coaches (n = 23) representing the same number of institutions.

This finding may align with research indicating that women leave the coaching profession at a higher rate than their male coaching peers. For instance, Sagas, Cunningham, and Ashley (2000) found that female assistant collegiate coaches were

more likely than men to say they would leave coaching before they turned 45; follow-up studies similarly found that female assistant coaches demonstrated greater turnover intentions than their male peers (Cunningham et al., 2003), a difference partly attributable to women's perceptions of the inclusivity of their workplace (Cunningham & Sagas, 2003). Future research should similarly compare turnover intentions—or actual turnover rates—between female and male head coaches. Whether the women coaches who turned over in this sample voluntarily left for another coaching position or were fired, these numbers suggest that although there are fewer men than women coaching women's teams in Division I women's basketball, male coaches may have higher job security and/or remain at institutions longer than their female peers.

From an athlete's perspective, head coach turnover is a disruptive event within a collegiate playing career. Heller, Gilson, and Paule-Koba (2016) argue that head coaching changes can be emotionally challenging for athletes as they lose their connection with the head coach (and potentially the entire coaching staff) who recruited them. It is possible that female athletes' attraction to coaching or coaching self-efficacy may be impacted by experiencing head coach turnover—especially if they witness a coach with whom they have a connection being fired. Besides Heller and colleagues, however, no researchers have examined how athletes experience head coach turnover.

Limitations

This study has several methodological limitations. For one, it relies on information found on the internet, which could be inaccurate or incomplete. Rosters may be wrong, as could information about athletes' coaching behaviors or careers. Athletes may have changed their names since graduating, as was discovered in several cases. It is

possible that information about former athletes coaching at the youth or high school level is not available online, which may impact the accuracy of the results. However, using the internet is the most reasonable way of quickly tracking the career behavior of hundreds of athletes. Moreover, the study is more concerned with athletes entering coaching at the collegiate level, which is more likely to be a full-time position and may indicate interest in pursuing coaching as a full-time career. As with any data-gathering study, the information reported may have an addition margin of error based on human mistakes, although efforts were taken to ensure a high level of accuracy. The sample size was also relatively small and all participants were from the same sport and same NCAA level of competition, limiting generalizability. Future research should compare athletes' career behaviors across sports and could also incorporate competition level.

This study also has several distinct limitations in its design. A larger sample of athletes from a single graduation year would simplify comparisons of early career behaviors; future researchers looking to replicate this approach should consider this modification. This study also does not consider the quality of athletes' relationships with their head coaches, their history of being coached by women in youth or high school sport, or their exposure to female assistant coaches who may also be salient role models. Clearly, one role model is not the only factor that might influence an athlete's decision to become a coach; this study cannot account for other impactful components of an athlete's sport experience (e.g., enjoyment, expertise, self-efficacy, motivation), including intentional mentoring behaviors (or lack thereof) of female or male coaches.

The cross-sectional design can also only demonstrate potential correlation between head coach gender and athletes' coaching behavior, not causation.

Future research

Despite the logical progression from playing collegiately to coaching, very little research has examined the factors that influence an athletes' likelihood to enter coaching or the early career behaviors of new coaches. This pioneering study opens many avenues for future research which will paint a clearer picture of the strengths and weaknesses of the female coaching pipeline.

Given that this is the first study of its kind and the sample was relatively small and limited to one sport and one playing level, future studies should examine the research questions herein across different settings. The finding that female athletes who are coached by women are four times as likely to persist in coaching should be examined with a more robust sample. Future research could examine a larger sample of athletes from a single graduation year to gain a clearer picture of the career progressions of athletes who were coached by men versus women. Additionally, given previous findings indicating that female athletes who were coached by women may be more likely to enter coaching (Everhart & Chelladurai, 1998; Lirgg et al., 2004; Moran-Miller & Flores, 2011), this potential relationship should not be thrown out based on the lack of correlation in this study, but examined further with athletes in different sports and playing levels.

Future research should also seek a clearer understanding of the many factors that influence a collegiate athlete's likelihood to enter coaching beyond head coach gender. Qualitative or mixed-methods designs could factor in the quality of an athlete's

relationship with their head or assistant coaches, their exposure to different coach influences in pre-college playing years, their perceived playing and coaching ability, their perceptions about their collegiate playing experience, deliberate mentoring behaviors from their head or assistant coaches, and more. Researchers could interview and examine the career behaviors of graduating student-athletes and early career coaches, but could also examine established coaches' perceptions about the influences on their entry into and early progression through the coaching profession. Past researchers like Everhart and Chelladurai (1998), Kamphoff and Gill (2008), Lirgg et al. (1994), and Moran-Miller and Flores (2011) have paved the way for these types of studies, but this area remains underexplored to the detriment of our understanding of why athletes choose to become coaches.

Empirical data comparing male and female athletes' rate of entry into coaching does not yet exist. Some research has indicated that female athletes are just as interested (or more interested) in coaching as their male peers (Everhart & Chelladurai, 1998), while others have found that female athletes express less interest in coaching (Kamphoff & Gill, 2008). Numerical data on athletes' actual entry into the coaching profession would help to clarify whether women are underrepresented in coaching because fewer women become coaches in the first place, or because women drop out at a higher rate than men (Cunningham & Sagas, 2003). Future research could use the methodology of this study to gather data on male athletes' entry into coaching to compare to female athletes' rate of entry, perhaps longitudinally. This area of inquiry could be expanded to include more sports and playing levels, including professional athletes of both genders. No data exists on the likelihood of professional athletes to pursue coaching careers after

retiring from playing, despite these athletes comprising a highly talented and experienced pool of potential coaches.

Examining entry-level coaches' early career behaviors in more detail would also strengthen understanding of the female coaching pipeline. The data from Cunningham and colleagues indicating that female coaches may be more likely than their male counterparts to leave the profession is based on expressed intentions rather than actual behavior. Future studies could use a similar methodology to this one to closely examine progression through positions and departure from coaching. If such numerical data were to indicate that female coaches are most likely to quit within a certain time frame after entering the profession, advocates could better target supports to coaches who need them most. This type of career-tracking could be sustained longitudinally in the style of Acosta and Carpenter's (2014) reports on women in sport leadership or LaVoi's (2018) women college coaches report cards to provide a measure of progress toward gender equity in the coaching profession.

Conclusion

While women have made massive gains in sport participation since the passage of Title IX in 1972, they remain underrepresented in athletic leadership (Acosta & Carpenter, 2014; LaVoi, 2018). Over the past few decades, research has clarified the many barriers facing existing coaches (LaVoi, 2016), but less attention has been paid to the most likely pool of potential female coaches: female athletes. This study builds on limited existing research to examine whether the gender of female athletes' collegiate head coach is correlated with their likelihood to enter coaching, the level at which they coach, and their persistence in the coaching profession. While it finds no significant

relationship between an athlete's collegiate head coach gender and their likelihood to enter coaching or to coach at a certain level, it does conclude that female athletes who are coached by women are four times more likely to persist in the coaching profession. This finding supports the potential for female coaches to serves as career role models to their female athletes and points to a need for more research.

This study is the first of its kind to track recently-graduated student-athletes' early career behaviors, rather than relying on athletes' aspirations, to measure entry into coaching. It pioneers a new method of examining coaches' entry into and exit from the profession which can be easily replicated and extended. This method could—and should—be used on a more longitudinal basis to gain a clearer picture of what female coaches' early careers look like, which would help advocates identify coaches who may need the most support. Are female athletes entering the coaching profession at the same rate as male athletes? Is there a certain point in female coaches' careers when they are most likely to depart for another profession? These important questions can be answered using the methodology pioneered in this study to improve our understanding of the female coaching pipeline. Moreover, if data is gathered regularly it could serve as a measure of progress or stagnation in our efforts to achieve gender equity in coaching.

One thing is clear from this study: female athletes *are* interested in coaching. Nearly 40% of the collegiate basketball players in this sample sustained involvement with their sport by becoming coaches after graduation. That number contests lingering claims that women do not want to coach. However, given the persistent underrepresentation of women in coaching, the female coaching pipeline is clearly failing these women somewhere. Researchers must turn their attention to the influences on collegiate athletes'

entry into and persistence in coaching to better support that promising contingent of early-career coaches.

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Appendix A

Coding Key

Variable Name	**Variable Code**
School	School Name
School Code	1 = Alabama Agricultural and Mechanical University 2 = Alabama State University 3 = Arkansas State University 4 = Creighton University 5 = DePaul University 6 = Duke University 7 = Elon University 8 = Florida Atlantic University 9 = Florida Gulf Coast University 10 = Gardner–Webb University 11 = Gonzaga University 12 = Hampton University 13 = Idaho State University 14 = Indiana University – Purdue University Fort Wayne 15 = Iowa State University 16 = La Salle University 17 = Loyola University Maryland 18 = Marist College 19 = Memphis University 20 = Pennsylvania State University 21 = Quinnipiac University 22 = Robert Morris University 23 = Siena College 24 = South Dakota State University 25 = Southeast Missouri State University 26 = Stanford University 27 = Texas A & M University 28 = Tulane University 29 = University of California Riverside 30 = University of California Santa Barbara 31 = University of Central Florida 32 = University of North Carolina at Asheville 33 = University of North Carolina Chapel Hill 34 = University of South Florida 35 = University of Texas at Arlington 36 = University of Texas at Austin 37 = University of Vermont 38 = University of Wisconsin–Milwaukee

	39 = Villanova University 40 = Wofford College
Athlete Name	First name last name
Graduation Year	1 = 2010-2011 2 = 2011-2012 3 = 2012-2013 4 = 2013-2014 5 = 2014-2015
Head Coach Gender	1 = Male 2 = Female
Head Coach Turnover	1 = Yes 2 = No
Head Coach Turnover Pair	1 = M-M 2 = F-F
Have Info	1 = Yes 2 = No
Enter Coaching	1 = Yes 2 = No
Coach Level	1 = Youth 2 = High school 3 = Division III 4 = Division II 5 = Division I 6 = Pro 7 = Other 8 = NAIA 10 = NJCAA
Current Coach	1 = Yes 2 = No 3 = No info
Last season coached	1 = 2010-2011 2 = 2011-2012 3 = 2012-2013 4 = 2013-2014 5 = 2014-2015 6 = 2015-2016 7 = 2016-2017 8 = 2017-2018

Last Year Info	1 = 2011 2 = 2012 3 = 2013 4 = 2014 5 = 2015 6 = 2016 7 = 2017 8 = 2018
Position	1 = Head Coach, Co-Head Coach, Director of Sport 2 = Associate Coach, Associate Head Coach 3 = Assistant Coach 4 = Graduate Assistant 5 = Director of Operations 6 = Recruiting Operations Assistant 7 = Volunteer Coach 8 = Video coordinator 9 = Unknown