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The NCAA Academic Progress Rate and Men's Basketball: An Examination of Coaching Succession

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Complex Adaptive Systems theory (Eidelson, 1997) assumes a head coaching change would negatively impact NCAA DI men's basketball APR scores. All NCAA DI men's basketball head coaching changes between 2003-04 and 2015-16 (n = 539) were collected using a combination of the NCAA APR database and individual institutional athletic websites. Information regarding internal/external hires, timing of a change, team winning percentages, and nature of the change were also collected. Findings included: 1) APR scores in the year of a coaching change were significantly lower than mean APR scores; 2) the mean APR scores when a negative coaching change occurred (i.e., fired) were significantly lower than when a positive change occurred; 3) APR scores were significantly higher for teams with the highest winning percentages; and 4) the linear combination of predictor variables accounted for approximately 62% of the variance explained by average APR score, type of coaching change, and year of the change.

Literature on leadership and organizational theory is replete with evidence that leaders are impactful (Chelladurai, 2009; Gilmore, 2003; Herold, Fedor, Caldwell & Liu, 2008). The extent of a leader's impact, however, is a nebulous concept at best. To determine how much influence a leader has in a given context, researchers often examine circumstances surrounding a leadership change (Gilmore, 2003). Historically, research in leadership succession has taken two forms. First, studies have examined the response to change based on leadership style (Gilmore, 2003; Herold et al., 2008). For example, a transformational leader embodies a flexible, charismatic, and energizing approach that emphasizes the needs of subordinates to positively transform an environment, which is effective during times of leadership transition (Gilmore, 2003; Herold et al., 2008). Second, leadership research has focused on the actions of leaders rather than their particular style or tendencies (Gilmore, 2003; Herold et al., 2008; Kotter, 1996). Demonstrating resolve, building partnerships, and providing support are some behaviors critical to effective leadership transitions (Kotter, 1996). The second approach, while more pragmatic from a strict behavioral point of view, ignores the nature of leadership styles and the uniqueness of a specific leadership context. Thus, focusing on a leadership change in a specific context using a distinct theoretical approach is a more contemporary way to conceptualize the impact of leadership (Herold et al., 2008).

Coaching Change – A Theoretical Perspective

Coaching is a form of leadership that includes multiple styles, levels, and theoretical perspectives. Elite-level coaching is a largely public endeavor recorded through popular media and carried out in front of many stakeholders. There is a great deal of sport data available, and the ability to compare coaches in similar contexts is advantageous for researchers. Additionally, coaching turnover, particularly in college and professional sport, happens frequently (Heller, Gilson, & Paule-Koba, 2016). Coaches who follow the same rules in the same sports under the similar conditions make for a more stable group of leadership succession participants than business leaders at different companies who operate under constantly changing market conditions (Canella & Rowe, 1995; Giambatista, Rowe, & Riaz, 2005). Therefore, elite sport coaches are a population well suited for leadership change investigation.

The earliest sport succession studies occurred at the professional level when Grusky (1960) argued that changes in Major League Baseball (MLB) managers destabilized work environments and reduced organizational effectiveness. This theory, known as *vicious circle theory,* was the first of three early coaching succession theories and suggested that coaching change caused a vicious circle of time and energy loss that would result in more harm than good. A considerable amount of literature supports this theory for professional sports (Audus, Dobson, & Goddard, 1997; Brown, 1982; Giambatista, 2004; Rowe, Cannella, Rankin, & Gorman, 2005), men's college basketball (Fizel & D'Itri, 1999), and football (Adler, Berry, Richard, & Doherty, 2013).

The second of the early coaching succession theories was also created by Grusky (1963). After presented with many examples of teams that improved after a coaching change, he acknowledged that, under certain conditions, a leader could instill a new philosophy and enthusiasm, leading to overall team improvement. This theory, labeled *common sense theory,* is

what stakeholders would expect after an unsuccessful team replaces a coach. Evidence to support this theory exists in professional sports, but largely under specific circumstances tied to the characteristics of a coach (Dawson & Dobson, 2002; Holfler & Payne, 2006; Kahn, 1993). College football studies also revealed some improvement by small revenue teams (Dohrn, Lopez, & Reinhardt, 2015) or teams whose coaches did not recruit well (Maxcy, 2013) after a coaching change.

The third theory is *ritual scapegoating theory* (Gamson & Scotch, 1964). Whereas Grusky (1960; 1963) provided theories that predicted better or worse performance after a coaching change, Gamson and Scotch believed that MLB coaches were largely scapegoats for their teams' performance. They argued that because coaches had little influence on securing talent, they made minimal difference in the results of their teams. This theory has the most support in professional baseball (Canella & Rowe, 1995; Gamson & Scotch, 1964; Smart, Winfree & Wolfe, 2008;), as well as in other professional leagues (Brown, 1982; De Paola & Scoppa, 2012; Koning, 2000).

The original three coaching succession theories helped to establish a research baseline. However, with support for each of the theories at the professional and college levels, broad generalizations about the impact of coaching changes were inappropriate. Instead, specific contexts and practical implications needed considered. Giambatista et al. (2005) recognized the limitations of each theory and encouraged researches to move beyond the original three sport theories to develop a more nuanced understanding of sporting contexts. In this regard, Johnson, Pierce, Krohn, Judge, & Scott (2017) utilized *reciprocal determinism* – a component of Bandura's (1977) social learning theory – to evaluate conference winning differential before and after a coaching change in DI men's basketball programs. Reciprocal determinism predicted that coaches with more experience would perform better as new coaches. While there were some coaching characteristics related to winning, the average coaching change made little difference. This finding was critical to succession literature because it utilized a different theory to establish how a coaching change in a specific college sport context would influence athletic outcomes. However, the theoretical approach was limited to the characteristics that would impact athletic achievement.

CAS. Complex Adaptive Systems theory (CAS; Eidelson, 1997) accounts for each part of a system in relationship to all of the other parts that comprise the system. Organizations, teams, or departments are systems, and they are composed of multifaceted and diverse networks of intertwined components that are constantly adapting to internal and external influences. Such a system resembles a three-dimensional web where all of the points in the web connect to all other points, but the strength of each connection varies depending on the location in the web. Some connections are stronger than others, and some disruptions will impact the system more than others. This complicated web of interconnected points is why Cavanagh (2006) emphasized that complex systems are non-linear, and why O'Connor and Cavanagh (2012) wrote "focusing on the embeddedness of individuals in the complex web or organizational relations allows us to account for changes in the system that occur due to iterative non-linear process within the system" (p. 3). When placed into the context of intercollegiate coaching, CAS predicts that a disruption to a critical part of the system, such as a coaching change, will force all parts of the system to adapt, often causing changes to other parts of the system. This point is particularly relevant to leadership change because CAS theory states that the strongest relationships within an organizational system are among leaders and subordinates (e.g., coaches and players).

The multifaceted role of DI athletic coaches can be explained through CAS (Johnson et al., 2013). The routine interactions with players, assistant coaches, athletic trainers, strength personnel, staff, alumni, advisors, parents, and media suggest a wide range of connections within a complex system. If a coach is removed from this system, the individuals must adapt, and perhaps no group of individuals is more impacted than the players. Coaches influence social, emotional, and psychological development of their players (Becker, 2012; Field, 1991). The multifaceted roles of coaches might take the form of father figure, warden (Giacobbi, Roper, Whitney, & Butryn, 2002), teacher (Brubaker, 2007), or counselor (Bradley, 2005), among others. For some players, head coaches are so instrumental that they are the primary reason for student-athletes' college choice (Croft, 2007; NCAA, 2011). Indeed, from the perspective of a student-athlete, coaches are a critical influence on student-athletes regarding their desire to be at an institution (retention) and perform academically (eligibility; Gilson, Paule-Koba, & Heller, 2013; Raddatz, 2015). Thus, it is reasonable that two of the primary connections that would be most impacted by a coaching change, particularly from a CAS perspective, are those associated with APR scores - retention and eligibility (Johnson, 2012; Johnson et al., 2013; Johnson, Pierce, Tracy, & Ridley, 2015).

Academic Progress Rate

The NCAA Academic Progress Rate (APR) was implemented in 2004 as a measure of semester-by-semester academic performance for individual athletic teams (NCAA, 2017). The APR provides a team score based on the number of student-athletes who are academically eligible and retained into the next semester. Any student-athlete who receives athletic-based financial aid is included in the calculation, and each student-athlete can earn a total of two points per semester or four points per year based on a combination of athletically eligibility based on minimum GPA and progress towards degree requirements and retention - returning to their team. By dividing points earned by points possible and multiplying by 1000, team APR scores are calculated. The result, a number between 0 and 1000, is the APR score. Average men's team scores range from 957 (FCS football) to 990 (men's gymnastics; NCAA, 2017d). If an individual team score falls below 930, or if there is a chronic issue with team scores, immediate or long-term penalties that could include loss of practice time or post-season bans are triggered (NCAA, 2017d). APR scores are public via the NCAA APR database (NCAA, 2017a) as well as annual press releases that track scoring trends (NCAA, 2017d). Although the APR has had a number of criticisms (Ridpath, 2017), it remains one of the most visible and impactful metrics of intercollegiate academic performance. Yet, APR research is scarce.

The first APR research occurred roughly four years after its implementation and indirectly investigated APR components. Instead of using the APR as a dependent variable, Johnson, Wessel, and Pierce examined predictors of GPA (2010) and retention (2013) to determine that demographic (e.g., gender, race, distance from home) and academic (e.g., standardized test scores, high school GP-rank-size, college major) variables tended to predict GPA, while athletic (e.g., sport, coaching change, playing time, winning percentage) variables predicted retention. As a follow up to the GPA and retention studies, Johnson, Wessel, and Pierce (2012) used the same group of demographic, academic, and athletic variables to determine impact on APR. Gender, race, sport, coaching change, and winning percentage predicted 38.7% of APR variance, but the two most powerful predictors were gender and coaching change. Females had significantly higher APR scores than males, and players who experienced a

coaching change had significantly lower APR scores. While these results revealed important details about several variables that effect APR, particularly the coaching change variable, they were limited in their external validity because the sample investigated all sports at only one institution.

Given the strong impact coaching change appeared to have on APR scores, and the need for APR research to become more generalizable, Johnson et al. (2013) added to the prior research by investigating the coaching change variable for all Football Bowl Subdivision (FBS) football head coaching changes from 2003-04 to 2010-11 (n = 160). Using CAS as a theoretical framework, the authors hypothesized that APR would decrease as the result of a head coaching change in general, an externally hired head coach, a negative head coaching change (e.g., fired), and successful athletic results. Additionally, the authors projected that each of these variables would aid in predicting APR scores during years when a coaching change existed and for an overall APR average. Their results confirmed that APR scores in a year of a coaching change were significantly lower than average APR scores, internally hired new head coaches lead to higher APR scores than externally hired new coaches, and teams with the highest winning percentages had the highest APR scores. Predictively, 41.3% of the variance was explained by all the factors, but only average APR score and year of coaching change were significant predictors.

As a follow-up to the FBS study, Johnson et al. (2015) conducted a systematic replication for head coaching changes in a Football Championship Subdivision (FCS) sample (n = 120) during the same timeframe, 2003-04 to 2010-11. This replication was justified given that FCS football had the lowest APR scores of any NCAA team sport and the vast differences in resources found between FBS and FCS football programs (Judge, Petersen, & Johnson, 2013; Sperber, 2001). The same variables and similar hypotheses were adopted with the exception that higher APR scores were predicted for the most athletically successful teams – a result found in the FBS study (Johnson et al., 2013) and confirmed by Bailey and Bhattacharya (2017). Similar to FBS football, results indicated that teams with the highest winning percentage also had the highest APR scores, and average APR score was the most powerful predictor of APR during a head coaching change. However, for FCS football, APR scores were lower when a coaching change was negative (e.g., fired), did not differ regardless if the new coach was hired internally or externally, and could not be predicted significantly by the year of change for FCS programs. The authors concluded that, while some similarities existed, FCS football programs were more vulnerable to coaching changes because they do not have the extent of resources or adaptability that FBS programs would have to provide additional services during coaching transition, explaining why year of change is significant and nature of change is insignificant for FCS programs.

The aforementioned studies provide a foundation from which APR research can evolve. It is noteworthy, however, to recognize that most of the early APR research has focused on football, and limited attention has been given to other team sports that may react differently to the APR. In their 2015 study of FCS football, Johnson et al. specifically recommended that:

> this line of research could be expanded to investigate other sport contexts to determine how they might differ from FBS and FCS football. The sport of basketball, for example, has more coaches per player than football, which could have an impact on how leadership is conceptualized. (p. 47)

Basketball. The football-centric approach of prior APR research is not surprising given the popularity and financial impact of NCAA football (Smith, 2011). NCAA men's DI basketball is immensely popular in its own right and often referred to in tandem with football as *revenue* sports. This financial moniker is justified considering that approximately 90% of NCAA revenue comes because of the men's DI basketball tournament that generates roughly $1 billion per year (Parker, 2017). Like football, basketball head coaches are celebrities that command large salaries, with the top earners garnering over $7 million annually (USA Today, 2018). The popularity of football and men's basketball are also evident in the highest television contracts among all college sports (Hinnen, 2012). No other NCAA sports approach the revenues, coaching salaries, or consumption of football and men's basketball. Thus, examining men's basketball allows for a natural progression from the football studies to the most similar sport in terms of economic influence and popularity.

Despite the popularity and financial solvency shared by football and men's basketball, some important differences validate a separate analysis of men's basketball. Structurally, a college basketball team has fewer players, fewer coaches, and fewer scholarships than football. An FBS football team has 85 full scholarships on rosters that normally have more than 100 players. With 13 total scholarships and roster sizes commonly around 15 players, basketball teams are a fraction of the size (NCAA, 2017c). More than 15,000 student-athletes play DI football, while approximately 2,000 play DI basketball (NCAA, 2017e). In basketball, players quickly transition from offense to defense, requiring players and coaches to specialize in both areas, whereas in football players and coaches often specialize on one aspect of the game. This position separation can isolate football players to work with one position coach or coordinator, limiting interaction with the head coach. Football coaching staffs are more than quadruple the size of basketball staffs with as many as 30-40 different coaches and support staff found for the largest football programs (Dodd, 2017). Conversely, basketball head coaches often are involved directly in the on-court coaching and strategy, often making for an intimate and hands-on relationship with the head coach (Becker, 2012).

More contact with the head coach would suggest basketball coaches and players could have environments that are more cohesive. Cohesion is developed from the interactions of individual players and coaches that transform into a whole-group property that cannot be reduced to its lower level elements. There is a positive correlation between cohesion and group performance; as cohesion increases, so should team performance (Carron, Colman, Wheeler, & Stevens, 2002). As Johnson et al. (2012) explained, a winning atmosphere is generally a more positive atmosphere.

> Players in more cohesive teams may hold stronger shared beliefs in their team's competence, which in turn may lead to greater team success. And group performance success may increase players' perceptions of collective efficacy, which in turn may contribute to the development of cohesion. (Heuz, Sarrazin, Masiero, Raimbault, & Thomas, 2006, p. 61)

Relative to this study, cohesion research would advocate that it is more likely that student-athletes on unsuccessful teams would produce lower APR scores and that team cohesion could be promoted more effectively on a smaller team like those found in basketball. Cohesion is particularly applicable for upper-classmen basketball players who tend to intensify their sport involvement as they progress (Miller & Kerr, 2002). However, for elite basketball programs

who may lose players to the NBA after only one year – the *one and done* phenomenon –cohesion may be reduced and negatively impact APR scores.

While cohesion literature suggests that a basketball head coaching change might influence students more than a football coaching change, much of the cohesion literature focuses on athletic achievement. Critiques of football and basketball have long acknowledged the lack of academic focus in these commercialized revenue sports (Sperber, 2001; Weiner, 2009), which questions how much cohesive properties transcend to individualized academic pursuits. Furthermore, when considering that 93% of NCAA DI basketball head coach contracts included athletic incentive clauses while only 62% contained academic performance incentives (Wilson & Burke, 2013), it is reasonable to wonder how much influence basketball head coaches place on academic performance relative to football head coaches. Given that eligibility is one-half of the APR equation, the emphasis on academic eligibility is critical.

The differences between basketball and football suggest the loss of a head basketball coach could impact APR scores differently than that of a football coach - perhaps more intensely. This premise is critical in a sport with many fewer players than football, given that a head coaching change significantly decreases APR scores at two distinct levels of elite college football (Johnson et al., 2013, Johnson et al., 2015). Additionally, with fewer players on basketball teams, the APR calculations for basketball are more dramatically impacted if any single player is ineligible or does not return. If head basketball coaching turnover impacts APR as much (or more than) football, the programmatic implications specific to basketball could be critical to preserving the retention and academic eligibility APR components during a coaching transition. Men's basketball has the second lowest average APR scores (966) of any NCAA sport besides FCS football (NCAA, 2017a), further warranting this investigation. Additionally, beginning in 2019-2020, Division I schools' share of NCAA revenue will be tied to APR scores. Thus, examining basketball coaching changes is a natural extension of APR research.

Purpose / Hypotheses

Similar to the systematic replication implemented by Johnson et al. (2015) in their extension from FBS to FCS football, the current study will systematically replicate the analysis to basketball. This investigation is warranted given the differences between football and basketball, the highly commercialized nature of NCAA men's Division I basketball and its coaches, the scientific benefits of replication within differing contexts (Bettis, Helfat, & Shaver, 2016), and the potential to impact administrative behaviors in times of coaching transition. Therefore, the purpose of this study is twofold; 1) to investigate the relationship among the characteristics of men's basketball head coaching changes and APR scores; and 2) compare results for men's basketball with those from FBS and FCS football. The following hypotheses were modified for men's basketball through the replication process from both the Johnson et al. (2013) and Johnson et al., (2015) studies.

H1: A team's APR score in the year of a head coaching change will be significantly lower than the average APR score.

H2: Teams with a positive coaching change will demonstrate significantly higher APR scores than teams with a negative coaching change.

H3: A coaching change that results in an internal hire will have significantly higher APR scores than a coaching change that results in an external hire.

H4: Teams with the highest winning percentages (year of coaching change and overall) will produce significantly higher APR scores than teams with the lowest winning percentages.

H5: All variables (i.e., APR average, type of hire, nature of change, year of change, winning % in year of change, and winning % average) under investigation will be significant predictors of APR scores in the year of a coaching change.

Method

The current study utilized a descriptive non-experimental form of systematic replication (Sidman, 1960) to determine if men's basketball coaching changes impacted APR scores. CAS was adopted as the theoretical position used to explain leadership behavior. CAS theory is consistent with the prior FBS football (Johnson et al., 2013) and FCS football (Johnson et al., 2015) studies that found its application appropriate for explaining the impact of a coaching change. A total of 539 NCAA DI men's basketball head coaching changes occurred between the 2003-04 and the 2015-16 academic years. This 13-year span was chosen because it encompassed the entire set of APR scores from its beginning to the most recent scores of a completed basketball season. Because this study investigated all DI men's basketball head coaching changes over a 13-year period, it is more comprehensive than the football studies it is replicating (Johnson et al., 2013; 2015). Those studies focused on two different levels of DI football (FBS and FCS) for eight years and included only 160 and 120 coaching changes, respectively.

Variables

Adoption of variables and their operational definitions is critical for replication. The following variables and definitions were used in both the Johnson et al. (2013) and Johnson et al. (2015) studies.

APR (year of coaching change) = the single-year APR score earned during the academic year in which a head coaching change occurred. In basketball, coaching changes often are made during the spring when academic pursuits are still underway. Thus, a coaching change that occurs during the academic year will apply to the APR scores released following the academic year.

APR (average) = the average APR score for the 13 academic years under investigation (2003-04 - 2015-16) minus the APR score for the year in which a head coaching change occurred.

Internal/External = identifies from where a new coach was hired after the head coaching change. Internal hires were coaches already on the coaching staff that were promoted to head coach (not interim status). External hires were from outside of the exiting coach's staff.

Positive/Negative = identifies the circumstances by which the coaching change occurred. *Positive* coaching changes occurred because of successful coaching tenures (e.g., leaving for a more prominent coaching position after success, retired voluntarily with a history of success, or was promoted to athletic director because of accomplishments). *Negative* coaching changes occurred because of unsuccessful coaching tenures (e.g., fired, resigning after a lack of success, death, scandal, or other negative circumstances where resignation or termination occurred).

Year of Change = the academic year in which the head coaching change occurred (July 1 - June 30).

Month of Change = the month in which the head coaching change occurred.

Win % (year of coaching change) = the total number of wins divided by the total games played during the academic year in which the head coaching change occurred.

Win % (average) = the total number of wins divided by the total games played during the academic years under investigation (2003-04 - 2015-16).

Procedure

All DI men's basketball head coach changes between 2003-04 and 2015-16 (n = 539) were collected as archival data using a combination of sources. Principally, the head coach data was collected using a combination of the NCAA Division I Head Coach APR Portfolio, the APR database publicly available on the NCAA website (NCAA, 2017a), and institutional media guides. Cross-referencing these sources allowed confidence in the timeframes a coach was employed by a university as well as the APR scores during the time of a coach's employment. During the 13-year data collection period, some institutions had multiple coaching changes. Each coaching change was treated as a separate entity. Internal and external hires, as well as the timing of coaching changes and winning percentages, were collected from university athletic websites. Determination of positive and negative changes were made using both institutional athletic websites and other media outlets documenting the circumstances of the chance. Because this information is public, the nature of the change was considered manifest content.

Data Analysis

Initial descriptive analyses using frequency totals, measures of central tendency, and Pearson correlations were first conducted to contextualize the data and identify relationships among variables. Hypothesis one was tested using a paired samples *t*-test. Hypotheses two and three were tested using independent *t*-tests, with equal variances not assumed. For the fourth hypothesis, the independent variable of winning percentage was divided into three evenly distributed levels of high, middle, and low success to create comparable categories replicated from Johnson et al. (2013; 2015). Two separate Analyses of Variance (ANOVAs) were conducted to determine differences in winning percentage based on APR in the year of coaching change and average APR score. A secondary Welch *F* and a subsequent Tukey HSD was also

conducted. The final hypothesis was tested by ordinary least squares multiple regression analysis. Alpha levels were set at .05

Results

Descriptive analysis provided context to the sample that included 539 separate head coaching changes. Table 1 displays means, standard deviations, percentages, and Pearson correlation coefficients to APR in the year of a coaching change. Noteworthy results included: The APR in a coaching change year had a lower mean (932.36) than the APR average (946.12). New coaches were hired from outside of the existing program 82.2% of the time. Negative coaching changes (69.2%) occur more than twice as often as positive coaching changes (30.8%). Winning percentage differed slightly between year of coaching change (.460) and overall (.480). Finally, all variables were significantly correlated with APR in a coaching change year, but the strength of the correlations were mostly low.

Table 1

Descriptive and Correlational Data for all NCAA DI Men's Basketball Head Coaching Changes

Variable	*n*	%	*M*	*SD*	*Pearson Correlation Coefficient for APR (year of coaching change)*	*Sig.*
APR (year of coaching change)	539	100	932.36	58.65	1.0	-
APR (average)	539	100	946.12	22.03	.262	<.001**
Internal Hire	96	17.8	941.45	51.26	-.072 (for entire internal/external variable)	.047*
External Hire	443	82.2	930.39	60.01		
Positive Coach Change	166	30.8	946.7	50.02	.163 (for entire positive/negative variable	<.001**
Negative Coach Change	373	69.2	925.98	61.1		
Year of Coach Change	539	100	2009.4	3.27	.253	<.001**

Win % (year of coaching change)	539	100	.46	.19	.185		<.001**
Win % (average)	539	100	.48	.17	.115		.004**

* = p < .05, ** = p < .01

The first hypothesis predicted that during the year a coaching change occurred, a team's APR score would be significantly lower than the average APR score. The paired samples *t*-test confirmed this hypothesis, since the average APR score (*M* = 946.12, *SD* = 22.03) was higher than the mean APR during the year of a coaching change (*M* = 932.36, *SD* = 58.65) by 13.76 points, *t*(538) = -5.61, *p* < .01.

The second hypothesis predicted teams with a positive coaching change would demonstrate significantly higher APR scores than teams with a negative coaching change. The independent samples *t*-test confirmed this hypothesis. The mean APR score for years with a positive coaching change (*M* = 946.7, *SD* = 50.02) was higher than the mean APR score for years with a negative coaching change (*M* = 925.98, *SD* = 61.1) by 20.72 points. Because there were more than two times the amount of negative coaching changes in the sample (373 negative changes vs. 166 positive changes) equal variances were not assumed, *t*(382.15) = -4.14, *p* <.01.

Hypothesis three predicted a coaching change that results in an internal hire will have significantly higher APR scores than a coaching change that results in an external hire. The independent samples *t*-test indicated no differences in APR scores exist for coaches hired internally (*M* = 941.45, *SD* = 51.26) compared to coaches hired externally (*M* = 930.39, *SD* = 60.01). Similar to hypothesis two, hypothesis three's equal variances were not assumed since there were more than four times the amount of external hires (443) than internal hires (96), *t*(156.84) = 1.86, *p* = .065. Thus, H3 was rejected.

The fourth hypothesis predicted higher winning percentages would produce significantly higher APR scores than lower winning percentages. This hypothesis was confirmed. The first ANOVA (APR in coaching change year) was significant, *F*(2, 536) = 6.49, *p* < .01. However, Levene's test indicated homogeneity was violated which triggered an additional analysis using the Welch F to test the equality of means. Results of the Welch test confirmed significance, *F*(2, 352.2) = 6.14, *p* < .01. The second ANOVA (APR average) was significant as well, *F*(2, 536) = 7.163, *p* < .01. The Welch F was also used on the second analysis and again confirmed significance, *F*(2, 349.88) = 14.61, *p* < .01. Post hoc Tukey HSD analysis for APR in a coaching change year indicated the teams with the bottom third winning percentage (*M* = 919.61, *SD* = 63.02) had significantly lower APR scores than teams with the middle third (*M* = 939.51, *SD* = 49.05) and upper third (*M* = 937.89, *SD* = 61.16) winning percentages. A similar pattern emerged for average APR scores where the bottom third had significantly lower scores (*M* = 939.6, *SD* = 23.89) than the middle third (*M* = 947.16, *SD* = 22.59) and upper third (*M* = 951.57, *SD* = 17.52). Table 2 compares the mean winning percentages of this study with that of football at the FBS level (Johnson et al., 2013) and FCS level (Johnson et al., 2015).

Table 2

APR Scores Based on Winning % for Basketball and Football

	DI Men's Basketball Programs (current study)		FCS Football Programs (Johnson et al., 2015)		FBS Football Programs (Johnson et al., 2013)	
Winning %	APR (Year of Coach Change)	APR (Average)	APR (Year of Coach Change)	APR (Average)	APR (Year of Coach Change)	APR (Average)
Top 1/3	937.89**	951.57**	914.55	938.22*	949.19*	949.78*
Middle 1/3	939.51**	947.16**	920.97	929.7	932.07	940.65
Bottom 1/3	919.61	939.6	907.26	914.24	934.11	940.98

* = significantly higher APR scores than bottom 2/3 of teams; ** = significantly higher APR scores than bottom 1/3 of teams

Hypothesis five predicted all variables under investigation would be significant predictors of APR scores in the year of a coaching change. The linear combination of predictor variables was significant based on the least squares multiple regression analysis, $F(6, 532) = 16.497$, $p < .01$. Approximately 62% of variance in APR scores can be accounted for with a sample multiple correlation coefficient of .4. Within the model, the significant predictors of average APR score ($p < .01$, 23% of the variance), type of coaching change ($p = .04$, 10% of the variance), and year left ($p < .01$, 25% of the variance) were the significant predictors. Results from the multiple regression are in Table 3. With three of the six variables serving as significant predictors of APR in the year of a coaching change, hypothesis five was partially accepted.

Table 3

Summary of Least Squares Regression for Variables Predicting APR in the Year of a Men's Basketball Coaching Change

Variable	*B*	*Std. Error*	*Beta*	*t*	*sig*
APR (average)	.61	.11	.23	5.61	<.001**
Type of Hire (internal vs. external)	-5.57	6.32	-.04	-.88	.378
Nature of Change (positive vs. negative)	12.17	5.90	.10	2.06	.040*
Year of Change	4.51	.72	.25	6.29	<.001**
Win % (year of change)	24.25	15.25	.08	1.59	.112
Win % (average)	.73	15.87	.00	.05	.963

* = p < .05, ** = p < .01

Discussion

Through the process of systematic replication, the current study investigated all DI men's basketball head coaching changes (n = 539) to determine if change had an impact on team APR scores. A secondary purpose was to compare men's basketball head coaching changes to those of FBS football (Johnson et al., 2013) and FCS football (Johnson et al., 2015). Since all variables were significantly correlated to APR scores during the year of a coaching change, the results were consistent with the theoretical framework of CAS (Eidelson, 1997). This finding reinforces that men's basketball coaches are significant within the complicated system of intercollegiate athletics, particularly within their own team, in influencing a variety of constructs within the system in a non-linear manner. The impact of each variable is discussed below in general, as well as in relationship to FBS and FCS football.

Preceding a discussion of each hypothesis, descriptive statistics identified patterns and supplied context to the population. For example, the fact that nearly 70% of men's basketball coaching changes occur as a result of negative circumstances (e.g., fired) suggests that coaching succession in this population happens at times when programs are not flourishing. The vast majority of these circumstances comes as a result of athletic performance that does not meet the demands of stakeholders. These results are not surprising to the casual observer, as coaching

records and *hot seat* discussions are media staples (e.g., Miller, 2018), prompting Johnson et al. (2015) to write "coaching changes are routinely public events that coincide with winning percentage… coaches are often fired for losing games" (p. 40). Interestingly, the number of negative coaching changes for men's DI basketball more closely resembles FBS football (68.8%; Johnson et al., 2013) than FCS football (84.17%; Johnson et al., 2015). The likely reason FCS football coaches have more negative coaching changes than FBS football or DI men's basketball is likely due to lower winning percentages because of non-conference scheduling against FBS opponents (Johnson et al., 2015).

A total of 82.2% of head coaches were hired from outside of their current program. This finding supports the common practice for athletic directors to hire externally from current coaching staffs, which is consistent with the large amount of negative circumstances surrounding coaching changes evidenced by winning records below 50%. Sometimes referred to as *cleaning house*, coaching staffs are commonly hired or fired as units (Fee, Hadlock, & Pierce, 2006). Consistent with CAS, the disruption of replacing an entire coaching staff likely produces a powerful ripple effect in a system more so than replacing one person. When compared to football, the percentage of external hires resembled both FBS football (80.62%; Johnson et al., 2013) and FCS football (80.83%; Johnson et al., 2015). This commonality suggests that athletic directors are consistently adhering to a philosophy where external hires are preferred.

Impact on APR

Hypothesis one confirmed that team APR scores in years where coaching succession occurred were significantly lower than average APR scores. This result supports the wide body of literature that identifies coaches as a powerful source of influence on student-athletes' behaviors (Becker, 2012; Brubaker, 2007; Field, 1991; Giacobbi et al., 2002; Gilson et al., 2013; Leslie-Toogood & Gill, 2008' Raddatz, 2015). The influence of an elite-level college coach in the commercialized sport of men's basketball is particularly noteworthy given the smaller and cohesive environment of basketball teams that rarely have more than 15 players and 5 coaches (Scholarship Stats, 2017). Men's basketball head coaches normally have more interaction with each player than occurs on football teams where more than 100 players and 30 coaches, graduate assistants, and support personnel are on the field at any given time (Scholarship Stats, 2017). Additionally, when considering the multifaceted roles of coaches (Becker, 2012; Bradley, 2005; Brubaker, 2007; Croft, 2007; Field, 1991; Giacobbi et al., 2002), it is reasonable to conclude that men's basketball head coaches do influence retention decisions and academic eligibility of their players to the degree that a void in such leadership causes a significant decline in APR scores. This finding also validates the original reasons for creating the APR coaching database - to hold head coaches accountable for their players' retention and academic eligibility (Knight Commission, 2010). This finding also reinforces the position of former NCAA Committee on Academic Performance chairperson, Walter Harrison, that coaches "not only recruit student-athletes to their institutions but also have the closest relationship with individual student-athletes of any other adult at a college or university" (Hosick, 2010, para. 8).

Findings from hypothesis one are consistent with those found for FBS football (Johnson et al., 2013) and FCS football (Johnson et al., 2015). Each sport demonstrated significantly lower APR scores in years when a coaching change occurred, confirming the importance of a head coach in both football and basketball. However, the difference for men's basketball was more than double the differences for each level of football. For men's basketball, the difference

between average APR score (946.12) and APR during the year of a coaching change (932.36) was 13.76 points. The difference for FBS football was 5.36, and the difference for FCS football was 6.82. As Johnson et al., (2015) noted in their comparisons between FCS and FBS football, these differences may appear small considering APR is on a 1000-point scale. However, that is an incorrect assumption, as it is critical to understand the context of the APR to appreciate how much more powerful the men's basketball results are than football. For the most recent four-year APR averages, the highest men's score was 990 (men's gymnastics) with a low score of 957 (FCS football; NCAA, 2017d). A fluctuation of 13.76 points covers 41.7% of that 33-point spread. Thus, if a men's basketball team is operating with the most recent average DI men's basketball APR of 966 (NCAA, 2017d) and subsequently goes through a coaching transition, they would expect to have an APR the following year of 952. If a basketball team is achieving APR scores below the average, a coaching transition could move them dangerously close to the penalty cutoff of 930.

Basketball's smaller team size - in comparison to the team size of football - is a likely explanation for why head coaching changes impact basketball APR more than football. Losing one player affects an APR calculation more so than losing one football player. If a player transfers after a basketball coach leaves, their retention point in the APR calculation would be gone. While this could also happen in football, a larger volume of players would have to leave to change APR scores at the same rate as basketball. Smaller teams with more coaching interaction could lead to a more cohesive environment that would be impacted more negatively than football. Because football is divided into offense, defense, and special teams, many players might not have regular access to a head coach. This is a different level of interaction than in basketball where a head coach often has direct influence and interaction with each player.

While results for hypothesis one are theoretically consistent with CAS, there are some important practical considerations. A 13.76-point change between average APR scores and scores when a coaching change occurs provides a strong message for administrators and academic support personnel that quantity and quality of academic oversight may need improvement during a coaching transition. Without a leader's expectations, men's basketball teams, which has historically been among teams with the lowest APR scores, may lack leadership that would encourage retention and academic (eligibility) pursuits. Additional counseling, tutoring, study skills training, study table/hall requirements, and regular meetings with administrators are specific programming efforts that could assist to preserve academic eligibility (Comeaux, 2015; Leslie-Toogood & Gill, 2008; Stokowski et al., 2017). Maintaining or improving such relationships with university personnel after a coaching change could also reduce the likelihood a student-athlete would transfer – which would save an APR retention point. Finally, athletic directors who are considering a coaching change may pause knowing there is empirical evidence to suggest APR likely will decrease if they make such a change, especially considering men's basketball athletic improvement is unlikely after a coaching change (Johnson et al., 2017).

Nature of Coaching Change

One of the most consistent findings among studies assessing intercollegiate coaching succession is that coaches are most often removed due to negative circumstances (Johnson et al., 2013, 2015, 2017; Pierce, Johnson, Krohn & Judge, 2017). Excessive losses, NCAA infractions, or ethical violations would qualify as negative, but athletic losses are the most frequent negative

example leading to a coaching change. These occurrences are widely publicized for community consumption. For hypothesis two, the nature of a coaching change was extremely powerful with mean APR scores in the year of a negative change (925.98) 20.72 points lower than mean APR scores in years with a positive coaching change (946.7). Consistent with CAS, the strength of a relationship within a system can have reverberating effects throughout the system (Cavanagh, 2006). Put another way, coaching environments where losing or other negative scenarios exist appears to create a culture of low morale, which can influence a variety of student behaviors or motivations. If morale is low, particularly due to the lack of athletic success, it is reasonable to conclude that emphasis on other aspects of student-athletes' lives could be deemphasized. This may be particularly true for the schools in the smaller NCAA DI conferences who might not have adequately resourced academic support services to assist student-athletes on a regular basis. Additionally, the impact of negative coaching changes may be more salient for basketball teams than football teams because of the smaller and more intimate nature of team cohesion (Palmer, 2013).

The results for DI men's basketball compared to FCS and FBS football confirm that negative coaching changes for basketball impact APR scores similarly to FCS football, but different than FBS football. In times of negative coaching change, basketball saw a 20.72 difference, which was much greater than the difference of 13.76 points without isolating the nature of the change. In contrast, the nature of change for FBS football programs was not significant, with negative coaching changes yielding a 935.94 average APR score and positive coaching changes yielding a 943.88 score, resulting in a much smaller difference of 7.94 points (Johnson et al., 2013). FCS football, however, demonstrated scores similar to men's basketball where a negative change produced a 919.36 average APR score and a positive change produced a 941.53 average APR score (Johnson et al., 2015). FCS football produced the largest difference between negative and positive coaching changes with a spread of 22.17 points. As a whole, the difference between a negative and positive coaching score for men's basketball and FCS football was similar with significant APR score differentials above 20 points, whereas nature of change for FBS football was insignificant with a difference of 7.94 points.

There are a few likely reasons why the results from this study closely resembled FCS football more so than FBS football. As mentioned prior, the current study included all programs in DI men's basketball, which comprised a majority of programs outside of the Power 5 conferences. For this reason, the overall sample more closely resembled FCS football schools than FBS football institutions. The personnel, infrastructure, and financial resources at smaller schools are much weaker than those in the Power 5 at monitoring and providing the social support needed to deter transfers and assist with academic eligibility of student-athletes (Antshel, VanderDrift, & Pauline, 2016; Comeaux, 2015; Judge et al., 2013; Stokowski et al., 2017). Thus, head coaches at smaller schools may have to play a more hands-on role to hold their student-athletes accountable. As Johnson et al. (2015) noted for FCS football, "the amount of interaction between FCS coaches and their student-athletes may be greater than that of FBS coaches, causing a more sensitive reaction to a coaching change" (p. 43). Additionally, athletes at smaller schools may not have the level of athletic identity as those in Power 5 schools who often hope to play professionally (Steinfeldt & Steinfeldt, 2012). Smaller school athletes may find it easier to leave or transfer to lower division programs to avoid the NCAA transfer penalty (NCAA Eligibility Center, 2017), or stop playing altogether – both of which would impact the retention point of the APR. Given these potential explanations, it is clear that athletic

administrators should provide additional resources in times of any coaching transition and be especially diligent about additional support during times of negative change.

Internal vs. External

Hypothesis three was predicated on the common knowledge that most new coaching hires are made from outside of the current program. In men's basketball, 82.2% of new coaches were hired externally. However, there was not a significant difference in APR scores found between internally or externally hired coaches. The fact that 80.2% of coaches are hired externally is not surprising considering the pressures athletic directors face from alumni, donors, and other stakeholders during a coaching transition (Belzer, 2015). Finding a new coach with a novel approach that can create a successful environment is a common challenge for athletic directors. Considering the potential benefits of consistency and stability for athletic programs who choose to hire internally (Roach & Dixon, 2006), results show that there was not a significant difference in APR scores based on the internal or external status of the hire. CAS theory also would suggest that internal hires would disrupt the system less than replacing an entire coaching staff, which would allow student-athletes more consistent supervision and academic oversight. Unfortunately, removing a coach usually results in entire staff turnover (Fee et al., 2006).

Similar to the nature of change mentioned above, DI men's basketball was more similar to FCS football than FBS football. While all three sports had external hire rates around 80%, FBS football was the only sport to show a significant difference in APR scores between internal and external coaching hires. The likely rationale for the FBS finding is that most FBS programs have highly developed academic support services in place that could assist internal coaching hires during a transition (Comeaux, 2015; Johnson et al., 2013; Judge et al., 2013). These support services include social support and academic support, both of which could help with APR scores by decreasing chance of transfer and increasing chances of academic eligibility (Antshel et al., 2016). In contrast to FBS programs, FCS football programs do not have as highly developed academic support services, and they have much higher rates of negative turnover (Johnson et al., 2015). Thus, the basketball population used in this study resembles FCS football programs more because the vast majority of conferences included in DI men's basketball are dissimilar to larger, well-resourced FBS football programs.

It is somewhat curious that the APR differences between sports was not more prominent among internal and external hires. For example, in football, it is common for offensive or defensive coordinators to be promoted as head coaches. Priority in hiring internal assistant coaches seems reasonable, as these coordinators often are familiar with the student-athletes and the institutional landscape. However, other resource differences, may have more of an impact than an internally hired coach's familiarity with the university and players. As a further possibility to explain the less significant internal/external hire APR differences, FBS programs already have the upper echelon of coaches on their staffs. Internal hires from football coordinator positions on such teams are already well-respected coaches, but this may not be the case for FCS football or men's basketball programs. If this is the case, it is understandable why FBS programs internal hires may produce higher APR scores than FCS football or men's basketball. Pragmatically, athletic directors could consider external hires for a variety of reasons, but the impact on APR scores is not a likely impacted from this decision.

Winning and APR

The fourth hypothesis accurately predicted that high athletic achievement would be consistent with high men's basketball APR scores. This hypothesis was made due to previous results from the FBS and FCS football studies that found similar results. Ironically, the initial FBS study (Johnson et al., 2013) predicted the opposite relationship: higher winning percentage would produce low APR scores. The original prediction was made due to a variety of sources that indicated successful postseason football and basketball teams had low academic achievement (Christianson, 2012; Hosick, 2010; Institute for Diversity and Ethics in Sport, 2012). In the current study, however, the bottom 1/3 winning men's basketball teams (i.e., least athletically successful) had significantly lower APR scores in the year of a coaching change than the top 2/3 of teams (see Table 2). Perhaps most importantly, the APR scores in the year of a coaching change for the bottom 1/3 winning teams was only 919.61, a score well below the 930-penalty cutoff. This finding indicates that for the consistently low-winning teams, new men's basketball coaches are entering a situation where it is hard to win, and their APR scores are low enough to produce penalties. This point is more salient when the results for winning are combined with the nature of the change, which suggests that the lowest winning programs are likely in a negative spiral of coaching turnover and low APR scores that is difficult to break.

While each sport demonstrated that higher APR scores are consistent with athletic success, which has since been confirmed by Bailey and Bhattacharya (2017), there were some unique differences between men's basketball and the two levels of football. Men's basketball demonstrated the top 2/3 were significantly different from the bottom 1/3 in terms of APR scores in the year of a coaching change, whereas both levels of football showed differences between the top 1/3 and bottom 2/3. Determining why the middle 1/3 of men's basketball resembled the top 1/3 instead of the bottom 1/3 is difficult. It is reasonable to assume that the smaller nature of a basketball teams lends itself better to group accountability. This is evident through the cohesion literature that indicates, "players in more cohesive teams may hold stronger shared beliefs in their team's competence, which in turn may lead to greater team success" (Heuz et al., 2006, p. 61). Additionally, winning programs likely have greater resources to attract and develop better athletic talent, which also includes academic support services; something that would be expected throughout most DI programs (Stokowski Dittmore, Stine, & Li, 2017). Unfortunately, there is a dramatic decline for the bottom 1/3 of men's basketball teams positioning this group of programs at great risk during a coaching transition.

It is important to remember that the current study investigated only programs where coaching changes occurred during the 13 years under examination. There were 35 programs that did not make a coaching change during that timeframe. These programs are some of the most accomplished programs with long histories of winning (e.g., Duke, Villanova, Michigan State). So, the programs included in this study replaced their coach at some point, and most replaced their coach due to negative circumstances likely associated with losing. However, there were successful teams in the study, which suggests that as winning momentum increased so too did APR scores. Pragmatically, the findings for winning and APR are similar to that of the nature of coaching change. To ensure that student-athletes stay at their university (retention) and focus on their academic pursuits (eligibility), programs that lose the most games are most likely to need the most intervention during a coaching transition. Unfortunately, it is these universities that are often under-resourced without the personnel to effectively intervene during times of transition.

Predicting Men's Basketball APR Scores

The starting point for prediction is to determine which variables are significantly related to the dependent variable of APR score in the year of a coaching change. For men's basketball, all of the variables under investigation were significant, with average APR score (r = .26) and year of coaching change (r = .25) demonstrating the strongest relationships. Despite significant correlations with each variable in the study, the relationships generally lacked strength. Only three of six variables were powerful enough to emerge as predictors – APR average, year of change, and nature of change - but each could be very impactful from an APR perspective. Within the regression results (see Table 3), the *B* values represent an APR value that would be expected to change if all other things remain constant. A *B* value of .61 for APR average indicated that APR scores in the year of a coaching transition increases .6 for every one-point increase of APR value. This suggests that in the year of a coaching change, APR scores would be predicted as roughly 60% of what their normal scores would be, which is a reduction in scores of approximately 40%. The *B* value of 4.51 for year of change indicated that for every year beyond 2003-2004 the APR score in the year of a coaching change would be 4.5 points higher. Finally, a *B* value of 12.17 indicates that APR scores for negative coaching changes would be 12 points less than for positive coaching changes. When one considers the relatively low spread in APR scores (NCAA, 2017d), it is easy to discern how these predictive values could dramatically impact a program. Many men's basketball programs are within points of the 930-penalty cutoff, so a negative coaching change could be punitively detrimental to a program's APR score.

The predictive results for FBS and FCS football differed somewhat from men's basketball. For FCS football, only average APR significantly predicted APR in the year of a coaching change (Johnson et al., 2015). For FBS, both average APR and year of change predicted APR during coaching change (Johnson et al., 2013). Furthermore, more variance in APR scores (62%) could be explained for men's basketball when compared to FBS football (41%) and FCS football (51.5%).

When considering practical interventions, it is important to remember that these predictive numbers assume that all things surrounding a coaching change remain constant. The world of college athletics- particularly a system as complex as a DI men's basketball program- is constantly evolving. The potential reasons for lack of eligibility and retention are widespread and complex. Therefore, CAS theory is most applicable in the predictive analysis. In the complex environment of men's college basketball, a leadership change clearly threatens APR scores. However, if parts of the system surrounding these variables adapt to the change, the overall system is modified by the interconnectedness of the components. Thus, when a coaching change occurs, it is reasonable to examine the elements surrounding the change for clues about how student-athletes could be impacted. During a coaching change, administrative intervention is expected, and an overarching pragmatic theme. Unfortunately, there is a vast difference in the ability of lower resourced programs to provide such intervention. This is clear when one considers that larger and more resourced programs at FBS institutions have nearly four times the dedicated academic space, eight times the tutor budgets, three times the tutors, and three times the academic support staff of smaller FCS schools (Comeaux, 2015; Judge et al., 2013; Stokowski et al., 2017). These disproportionate resources prompted Ridpath (2017) to write,

> The worst part of the APR is that it punishes schools who do not have the resources to build the expensive 'academic eligibility mechanism' of facilities, advisors and

> equipment that many schools use to insure they meet APR numbers. The unbelievable part is these schools with more resources are rewarded financially and not penalized with post season suspensions, yet the poor get poorer and punished to boot. (para. 3)

The clear connection among coaching succession, winning, nature of change, and year of change found in this study suggests that struggling programs will continue to struggle, especially during times of coaching succession. As years go by, the most successful programs have figured out how to leverage their resources to eliminate the impact of coaching change on APR scores.

Limitations/Recommendations

While the differences among men's basketball and football programs provide unique insight into coaching change impact on APR, there are some limitations and subsequent recommendations. First, DI men's basketball and football programs represent the highest level of intercollegiate sports in terms of economic impact and popularity. It is not clear how lower commercialized, non-revenue sports, or different NCAA divisions would react to a coaching change. For example, women's basketball may differ from men's basketball considering women's sports typically have higher APR scores than men's teams. Subsequent research would benefit from exploring these differences in relation to the three existing studies (FBS football, FCS football, men's DI basketball). This recommendation may be particularly impactful as the evidence thus far suggests lower resourced programs are impacted more by coaching succession.

Second, the current study was a systematic replication of both football studies but deviated slightly from their methodology. Instead of using eight years of data, the current study collected an additional five years of data so the results would be contemporary. It is possible the additional five years of data could have produced different results than what would have been obtained when using the original eight years from the football studies. However, the benefits of having current data outweigh such limitations. As APR research evolves, it is important to make accurate comparisons and note differences in APR specifications.

Finally, as noted by Johnson et al. (2013; 2015), these studies utilized a limited number of variables to investigate a coaching change. Despite each of the variables demonstrating a significant relationship with APR in the year of a coaching change, many other variables could be explored. The reasons for students' decisions to transfer or maintain academic eligibility are numerous and cover a variety of personal, psychological, emotional, and social motives. Continuing to identify the most salient of these reasons is a critical next step. Based on the results of these studies, some potential variables include identification of specific academic support services during a coaching change, utilizing other academic metrics as dependent variables, or examining concepts of success outside of athletic achievements. Continuing to build this line of research in this way can create a better understanding of what happens during a coaching change and ultimately the best practices for assisting during such a change.

Conclusion

Through systematic replication of Johnson et al. (2013; 2015), as well as utilization of CAS theory, the current study demonstrated that coaching succession negatively influences APR scores. Scores are lowered most when coaches are removed for negative reasons, most notably

for lack of winning. These findings are generally consistent with results for FBS and FCS football, indicating that coaches are impactful leaders in the complex system of college athletics. However, the differences between basketball and football suggest that men's basketball teams are more sensitive to a coaching change, given that scores drop more than twice that of FBS or FCS football teams in years where a coaching change occurs. The increased sensitivity of a men's basketball coaching change is likely due to the smaller number of players and coaches that provides a more interactive and cohesive environment.

Practical applications from this study, as well as from the football studies, indicate that additional support for student-athletes is critical during a coaching transition. Because APR scores include retention, consistent and positive intervention after a coach leaves a program could prevent student-athletes transferring. Increased interactions, such as advising and counseling, could provide the support needed for a student-athlete to remain at an institution. These services could also provide direction and incentive to focus more on academics in general, which would help APR eligibility points, GPA, and their progress towards graduation. Without such practical intervention strategies, however, student-athletes may be left with a leadership void that threatens both retention and eligibility. Unfortunately, many of the smaller men's basketball programs, like FCS football programs, do not have the resources to provide these services during coaching transition, and without a deliberate and consistent effort to fill the leadership gap during a coaching change, APR scores will likely suffer.

References

Adler, E. S., Berry, R. J., & Doherty, D. (2013). Pushing "reset": The conditional effects of coaching replacements on college football performance. *Social Science Quarterly, 94*(1), 1-28.

Antshel, K. M., VanderDrift, L. E., & Pauline, J. S. (2016). The role of athletic identity in the relationship between difficulty thinking or concentrating and academic service use in NCAA student-athletes. *Journal of Clinical Sport Psychology, 10,* 309-324.

Audus, R., Dobson, S., & Goddard, J. (1997). Team performance and managerial change in the English Football League. *Economic Affairs, 17,* 30-36.

Bailey, S., & Bhattacharya, M. (2017). A comparison of academic and athletic performance in the NCAA. *College Student Journal, 51,* 173-182.

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

Becker, A. J. (2012). Collegiate basketball players' experiences of being coached during a turnaround season. *The Sport Psychologist, 26,* 43-61.

Belzer, J. (2015, February 19). The dynamic role of the modern-day athletics director. *Forbes.* Retrieved from https://www.forbes.com/sites/jasonbelzer/2015/02/19/the-dynamic-role-of-the-modern-day-college-athletics-director/#2f56e5c26076

Bettis, R. A., Helfat, C. E., & Shaver, J. M. (2016). The necessity, logic, and forms of replication. *Strategic Management Journal, 37*(11), 2193-2203.

Bradley, B. (2005). The coach as guidance counselor. *Coach & Athletic Director, 75*(3), 45-46.

Brown, M. C. (1982). Administrative succession and organizational performance: The succession effect. *Administrative Science Quarterly, 94*(1) 29-58.

Brubaker, K. (2007). Coaching and teaching our athletes. *Coach & Athletic Director, 77*(3), 30-33.

Canella, A. A., & Rowe, W. G. (1995). Leader capabilities, succession, and competitive context: A study of professional baseball teams. *The Leadership Quarterly, 6*(1), 69-88.

Carron, A.V., Colman, M.M., Wheeler, J., & Stevens, D. (2002). Cohesion and performance in sport: A meta analysis. *Journal of Sport & Exercise Psychology, 24,* 168–188.

Cavanagh, M. (2006). Coaching from a systemic perspective: A complex adaptive conversation. *Evidence Based Coaching Handbook: Putting Best Practice to Work for Your Clients,* 313-354.

Chelladurai, P. (2009). *Managing organizations for sport and physical activity: A systems perspective.* Scottsdale, AZ: Holcomb Hathaway.

Christianson, E. (2012, October 24). Men's basketball, FBS football grad rates highest ever. *NCAA.* Retrieved from http://www.ncaa.org/about/resources/media-center/news/mens-basketball-fbs-football-grad-rates-highest-ever

Comeaux, E. (2015). *Making the connection: Data-informed practices in academic support centers for college athletes.* Charlotte, NC: Information Age Publishing.

Croft, C. (2007). Coaches only please: When basketball coaches change jobs. *Coach & Athletic Director, 76*(9), 50-52.

Dawson, P. M., & Dobson, S. M. (2002). Managerial efficiency and human capital: An application to English Association football. *Managerial and Decision Economics, 27,* 471-486.

De Paola, M., & Scoppa, V. (2012). The effects of managerial turnover: Evidence from coach dismissals in Italian soccer teams. *Journal of Sports Economics, 13,* 152-168.

Dodd, D. (2017, May 15). As NCAA zeroes in on college football staff sizes, survey shows inconsistencies. *cbssports.com*. Retrieved from https://www.cbssports.com/college-football/news/as-ncaa-zeroes-in-on-college-football-staff-sizes-survey-shows-inconsistencies/

Dohrn, S., Lopez, Y. P., & Reinhardt, G. (2015). Leadership succession and performance: An application to college football. *Journal of Sport Management, 29*, 76-92.

Eidelson, R. (1997). Complex adaptive systems in the behavioral and social sciences. *Review of General Psychology, 1*, 42-71.

Fee, C. E., Hadlock, C. J., & Pierce, J. R. (2006). Promotions in the internal and external labor market: Evidence from professional football coaching careers. *Journal of Business, 79*(2), 821-850.

Field, R. W. (1991). Coach as a role model- What are his salient roles and how do others perceive them? *Track Technique, 117*, 3730-3733.

Fizel, J. L., & D'Itri, M. P. (1999). Firing and hiring of manager: Does efficiency matter? *Journal of Management, 25*, 567-586.

Gamson, W. A., & Scotch, N. A. (1964). Scapegoating in baseball. *American Journal of Sociology, 70*(1), 69-72.

Giacobbi, P. R., Roper, E., Whitney, J., & Butryn, T. (2002). College coaches' views about the development of successful athletes: A descriptive exploratory investigation. *Journal of Sport Behavior, 25*, 164-180.

Giambatista, R. C. (2004). Jumping through hoops: A longitudinal study of leader life cycle in the NBA. *The Leadership Quarterly, 15*, 607-624.

Giambatista, R. C., Rowe, G. W., & Riaz, S. (2005). Nothing succeeds like succession: A critical review of leader succession literature since 1994. *The Leadership Quarterly, 16*, 963-991.

Gilmore, T. N. (2003). *Making a leadership change: How organizations and leaders can handle leadership transactions successfully.* New York, NY: Authors Choice Press.

Gilson, T. A., Paule-Koba, A. L., & Heller, E. A. (2013). The social-psychological implications of a coaching change at the collegiate level: Perceptions of athletes. *Journal of Intercollegiate Sport, 6*, 164-178.

Grusky, O. (1960). Administrative succession in formal organizations. *Social Forces, 39*, 105-115.

Grusky, O. (1963). Managerial succession and organization effectiveness. *American Journal of Sociology, 69*, 21-31.

Heller, E. A., Gilson, T. A., & Paule-Koba, A. (2016). "So, who's our new coach?": NCAA student athletes' perceptions after a head coaching change. *The Sport Journal, 19*, 1-16.

Herold, D. M., Fedor, D. B., Caldwell, S., & Liu, Y. (2008). The effects of transformational and change leadership on employees' commitment to a change: A multilevel study. *Journal of Applied Psychology, 93*, 346-357.

Holfler, R. A., & Payne, J. E. (2006). Efficiency in the National Basketball Association: A stochastic frontier approach with panel data. *Managerial and Decision Economics, 27*, 279-285.

Hosick, M. B. (2010, August 5). NCAA releases Academic Progress Rates for coaches. *NCAA*. Retrieved from https://www.ncaa.com/news/d1/2010-08-04/ncaa-releases-academic-progress-rates-coaches

Heuz, J. P., Sarrazin, P., Masiero, M., Raimbault, N., & Thomas, J.P. (2006). The relationships of perceived motivational climate to cohesion and collective efficacy in elite female teams. *Journal of Applied Sport Psychology, 18,* 201–218.

Hinnen, J. (2012, November 21). ESPN reaches 12-year deal to air college football playoffs. *cbssports.com.* Retrieved from https://www.cbssports.com/college-football/news/espn-reaches-12-year-deal-to-air-college-football-playoffs/

Institute for Diversity and Ethics in Sport. (2012). *Keeping score when it counts: Academic progress/graduate success rate study of 2012 NCAA division I women's and men's basketball tournament teams.* Retrieved from http://nebula.wsimg.com/fe7bd93209ffa986f4eb980f03a092db?AccessKeyId=DAC3A56D8FB782449D2A&disposition=0&alloworigin=1

Johnson, J. E. (2012). An examination of factors impacting the Academic Progress Rate of first-year football student-athletes at a Football Bowl Subdivision institution. *Indiana AHPERD Journa1, 41*(2), 11-16.

Johnson, J. E., Blom, L. C., Judge, L. W., Lee, D., Pierce, D. A., & Ridley, M. J. (2013). The impact of Football Bowl Subdivision head coaching changes on NCAA Academic Progress Rate. *Journal of Issues in Intercollegiate Athletics, 6,* 131-154.

Johnson, J. E. Pierce, D. A., Krohn, B., Judge, L. W., & Scott, B. F. (2017). A post-succession analysis of factors influencing coaching success in NCAA Division I men's basketball. *Journal of Issues in Intercollegiate Athletics, 10,* 122-146.

Johnson, J. E., Pierce, D. A., Tracy, D. R., & Ridley, M. J. (2015). The influence of football head coaching change in the Football Championship Subdivision: An evaluation of the NCAA Academic Progress Rate. *Journal of Sport Behavior, 38*(1), 26-51.

Johnson, J. E., Wessel, R. D., & Pierce, D. A. (2010). Reexamining student-athlete GPA: Traditional vs. athletic variables. *Journal of Intercollegiate Sport, 3,* 234-255.

Johnson, J. E., Wessel, R. D., & Pierce, D. A. (2012). The influence of selected variables on NCAA Academic Progress Rate. *Journal of Issues in Intercollegiate Athletics, 5,* 149-171.

Johnson, J. E., Wessel, R. D., & Pierce, D. A. (2013). The impact of demographic, academic, and athletic variables on the retention of student-athletes. *Journal of Student Retention, 15*(2), 149-171.

Judge, L. W., Petersen, J., & Johnson, J. E. (2013, April). *An examination of Division I Athletic-Academic Support Services, Facilities, and Staffing.* Paper presented at the College Sport Research Institute Conference on College Sport, Chapel Hill, NC.

Kahn, L. M. (1993). Managerial quality, team success, and individual player performance in Major League Baseball. *Industrial and Labor Relations Review, 46*(3), 531-547.

Knight Commission. (2010, August 6). *NCAA releases academic progress rate database for coaches.* Retrieved from https://www.knightcommission.org/2010/08/ncaa-releases-academic-progress-rate-database-for-coaches/

Kotter, J. P. (1996). *Leading change.* Boston: Harvard Business School Press.

Koning, R. H. (2000). *An economic evaluation of the firing of a coach on team performance* (Report No. 00F40). University of Groningen: Systems, Organizations, and Management.

Leslie-Toogood, A., & Gill, E. (2008). *Advising student-athletes: A collaborative approach to success* [NACADA Monograph 18].

Maxcy, J. G. (2013). Efficiency and managerial performance in FBS college football: To the employment and succession decisions, which matters the most, coaching or recruiting? *Journal of Sport Economics, 14*, 368-388.

Miller, K. (2018, February 21). College basketball coaches on the hot seat with March approaching. *Bleacher Report.* Retrieved from http://bleacherreport.com/articles/2760126-college-basketball-coaches-on-the-hot-seat-with-march-approaching

Miller, P. S., & Kerr, G. (2002). The athletic, academic and social experiences of intercollegiate student-athletes. *Journal of Sport Behavior, 25*, 346-367.

NCAA. (2017a). *Academic progress rate database.* Retrieved from https://web3.ncaa.org/aprsearch/aprsearch

NCAA. (2017b). *Division I Academic Progress Rate*. Retrieved from http://www.ncaa.org/about/resources/research/division-i-academic-progress-rate-apr

NCAA. (2017c). *Division I manual.* Retrieved from http://www.ncaapublications.com/productdownloads/D118.pdf

NCAA. (2017d). *National and sport-group APR averages and trends May 2017*. Retrieved from http://www.ncaa.org/sites/default/files/May2017APR_public-release-pres_20170509.pdf

NCAA. (2017e). *Sport sponsorship, participation and demographics search: Student-athlete data*. Retrieved from http://web1.ncaa.org/rgdSearch/exec/saSearch

NCAA Eligibility Center. (2017). *2017-2018 guide for four-year transfers: For student-athletes at four-year colleges.* Retrieved from http://www.ncaa.org/sites/default/files/2017-18_Transfer_Guide_4_Year_20170721.pdf

O'Connor, S., & Cavanagh, M. (2012). *The coaching ripple effect: The individual and systemic level influence of leadership development* (Doctoral thesis, Coaching Psychology Unit, University of Sydney, Sydney, Australia). Retrieved from https://ses.library.usyd.edu.au/handle/2123/9387

Palmer, M. E. (2013). *The direct impact of team cohesiveness and athletes' perception of coaching leadership functions on team success in NCAA Division I women's basketball.* (Unpublished doctoral dissertation). Texas Woman's University, Denton, TX.

Parker, T. (2017, March 13). How much does the NCAA make off of March Madness? *Investopedia*, Retrieved from: https://www.investopedia.com/articles/investing/031516/how-much-does-ncaa-make-march-madness.asp

Pierce, D. A., Johnson, J. E., Krohn, B. D., & Judge, L. W. (2017). Who should we hire?: Examining coaching succession in NCAA Division I women's basketball. *International Journal of Sports Science & Coaching, 12*(2), 151-161.

Raddatz, M. M. (2015). *Academic support of Division I head coaches: Perceptions of student-athletes* (Doctoral dissertation). Retrieved from Dissertation Abstracts International Section A: Humanities and Social Sciences (2015-99110-087).

Roach, K., & Dixon, M. A. (2006). Hiring internal employees: A view from the field. *Journal of Sport Management, 20*, 137-158.

Ridpath, B. D. (2017, January 17). The college football playoff and other NCAA revenues are an exposé of selfish interest. *Forbes.* Retrieved from https://www.forbes.com/sites/bdavidridpath/2017/01/17/college-football-playoff-and-other-ncaa-revenues-is-an-expose-of-selfish-interest/#27bb86684e1a

Scholarship Stats. (2017). *College Athletic Scholarship Limits 2017-2018.* Retrieved from http://www.scholarshipstats.com/ncaalimits.html

Sidman, M. (1960). *Tactics of scientific research.* Oxford, England: Basic Books.

Smart, D., Winfree, J., & Wolfe, R. (2008). Major League Baseball managers: Do they matter? *Journal of Sport Management, 22*, 303-319.

Smith, R. A. (2011). *Pay for play: A history of big-time college athletic reform.* Champaign, IL: University of Illinois Press.

Sperber, M. (2001). *Beer and circus: How big-time college sport is crippling undergraduate education.* New York, NY: Henry Holt.

Steinfeldt, M., & Steinfeldt, J. A. (2012). Athletic identity and conformity to masculine norms among college football players. *Journal of Applied Sport Psychology, 24*(2), 115-129.

Stokowski, S., Dittmore, S. W., Stine, G., & Li, B. (2017). Resource decisions in academic services: Which factors predict positive APR scores at NCAA Division I institutions? *Journal of Contemporary Athletics, 11*(3), 173-188.

USA Today. (2018). *NCAA Salaries*. Retrieved from: http://sports.usatoday.com/ncaa/salaries/mens-basketball/coach

Weiner, J. (2009). *College sports 101*. Retrieved from https://www.knightcommission.org/2009/09/college-sports-101-tile/

Wilson, M. J., & Burke, K. L. (2013). NCAA Division I men's basketball coaching contracts: A comparative analysis of incentives for athletic and academic team performance between 2009 and 2012. *Journal of Issues in Intercollegiate Athletics, 6*, 81-95.