What You See Is Not What You Get: Antecedents and Consequences of the Imposter Phenomenon in Sport Coaches

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Authorization to Submit Dissertation

This dissertation of Amanda Start, submitted for the degree of Doctorate of Philosophy with a Major in Education and titled "What You See Is Not What You Get: Antecedents and Consequences of the Imposter Phenomenon in Sport Coaches," has been reviewed in final form. Permission, as indicated by the signatures and dates below, is now granted to submit final copies to the College of Graduate Studies for approval.

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Abstract

The imposter phenomenon (IP) refers to an experience of self-perceived intellectual phoniness (Clance & Imes, 1978). Imposters believe they are frauds, having fooled people around them into believing they are more capable than they actually are (Clance, 1985). Three separate but related studies were conducted to investigate the measurement, prevalence, antecedents, and consequences of imposter phenomenon in a large, convenience sample of sport coaches. Study 1 developed and validated the Imposter Phenomenon Scale (IPS). Initial evidence suggested the IPS was a valid and reliable measure of imposter feelings, although additional work will need to be done to refine the instrument. A two-factor (i.e., Self-Perceptions of Fraudulence and Concerns about Others' Perceptions of My Success), seven-item instrument emerged from exploratory and confirmatory factor analyses, and based on Cronbach's alpha, the items within each hypothesized dimension were similar and closely related. Following the psychometric validation of the IPS, Studies 2 and 3 assessed the nature of IP in sport coaches. Study 2 estimated the prevalence of IP in sport coaches and examined key demographic and background correlates of IP. Less than 12% of coaches in this convenience sample reported that they were experiencing imposter feelings. Imposters in this sample tended to be female, white, and less experienced as a coach and as an athlete, to have coached and competed at lower competitive levels, and to have had less training and no coaching mentor, but these variables accounted for a minimal amount of the variance in IP. Finally, Study 3 examined possible motivational antecedents and consequences of IP in coaches. Two full latent variable (FLV) models were assessed—one model predicting burnout and one model predicting engagement. In each model, implicit theories of ability were predictor variables, and perfectionism and IP were mediator variables, mediating the relationships between implicit

theories and burnout and between implicit theories and engagement. The hypothesized FLV models were near estimations of the observed relationships among implicit theories, perfectionism, IP, burnout, and engagement in this sample of coaches, although support for the hypothesized models could only be cautiously concluded. Results were discussed in light of limitations and future directions.

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Dedication

This work is dedicated to all of my Jonathans—the people who had every right to be in the spotlight yet were my supporting cast.

By making personal sacrifices, by teaching me how to be a rose when things get tough, by living a life of integrity, by supporting, encouraging, strengthening, and comforting me, and by keeping my refrigerator full of chocolate cake, you helped me reach my dream of becoming a "doctor." Your selfless acts are why I am where I am today.

You were my love. You were my friend. You were my mentor. You were my Jonathan. Thank you.

Soli Deo gloria.

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Introduction

Imposter phenomenon (IP) refers to an experience of self-perceived intellectual phoniness (Clance & Imes, 1978). Objective evidence suggests imposters are, in fact, successful, competent, and capable individuals (Clance, 1985). However, imposters are highly sensitive to their perceived shortcomings and dismiss their successes as flukes or as the result of knowing the right people (Clance, 1985). As a result, imposters believe they are frauds, having fooled people around them into believing they are more capable than they actually are (Clance, 1985).

Although IP has not yet been investigated in sport coaches, the nature of this profession might put coaches at an increased risk of experiencing imposter feelings. According to Sightler and Wilson (2001), individuals who are susceptible to IP tend to be high performing and in positions that attract significant attention and have significant performance expectations. Thus, the highly pressurized and highly publicized nature of coaching might make coaches highly susceptible to imposter feelings.

The purpose of this dissertation was to address this gap in the literature by investigating IP in sport coaches. This aim was achieved through three separate but related studies that investigated the measurement, prevalence, antecedents, and consequences of imposter phenomenon in a large, convenience sample of sport coaches.

Before meaningful inquiries about IP could be conducted, an instrument that accurately and reliably assessed imposter feelings in coaches was needed. Prior IP research had used the Harvey Impostor Phenomenon Scale (HIPS; Harvey, 1981), the Clance Imposter Phenomenon Scale (CIPS; Clance, 1985), the Perceived Fraudulence Scale (PFS; Kolligian & Sternberg, 1991), and the State Imposter Phenomenon Scale (SIPS; Fujie, 2010). However,

available evidence suggested additional work was needed to establish the instruments as viable measures of IP. Thus, the purpose of Study 1 was to develop and validate the Imposter Phenomenon Scale (IPS), which was developed for this dissertation.

Following the psychometric validation of the IPS, the nature of IP in sport coaches was then assessed in Studies 2 and 3. Specifically, in Study 2, the prevalence of IP in sport coaches was assessed along with key demographic (i.e., gender, age, and race) and background (i.e. number of years playing experience and highest competitive level played; number of years coaching experience, positions held as coach, competitive levels coached, and coach training; current sport and competitive level, current coaching position, number of years in current coaching position) correlates of IP. Finally, in Study 3, a structural equation model (SEM; see Figures 1 and 2) was used to examine possible motivational antecedents (i.e., implicit theories of ability and perfectionism) and consequences (i.e., burnout and engagement) of IP in coaches.

Study 1: Development and Validation of the Imposter Phenomenon Scale

"Fake it 'til you make it" is a popular colloquialism in sport for those moments when individuals lack confidence in their ability to be successful. According to this adage, when individuals experience self-doubts, they should simply fake confidence. The logic is based on the belief that confidence will eventually lead to success, and success will subsequently foster genuine confidence. However, for some individuals, success does not cultivate genuine confidence. Instead, they appear to be stuck in a perpetual cycle of faking it and desperately trying to prove their competence, all the while trying to avoid being discovered as the phonies they believe themselves to be (Clance, 1985).

According to Clance and Imes (1978), these individuals suffer from the imposter phenomenon (IP). These "imposters" have persistent concerns about being incompetent, often despite significant evidence of their competence to the contrary, and they fear being discovered as frauds (Clance & Imes, 1978). In essence, these individuals have "made it"—they have reached objective levels of success, but rather than internalizing credit for their achievements, they attribute their success to external factors, such as luck or knowing the right people (Clance & Imes, 1978).

IP has been linked with many negative psychosocial outcomes. Specifically, IP has been positively correlated with low self-esteem (e.g., Kamarzarrin, Khaledian, Shooshtari, Yousefi, & Ahrmai, 2013; Ross & Krukowski, 2003; Vergauwe, Wille, Feys, De Fruyt, & Anseel, 2014), poor mental health (Cusack, Hughes, & Nuhu 2013; Sonnak & Towell, 2001), psychological distress (Henning, Ey, & Shaw, 1998), negative emotions (Chae, Piedmont, Estadt, & Wicks, 1995), emotional instability (Vergauwe et al., 2014), debilitating anxiety (Ross, Stewart, Mugge, & Fultz, 2001), depressive and manic tendencies (Lester & Moderski,

1995), neuroticism (Vergauwe et al., 2014; Ross et al., 2001; Lester & Moderski, 1995; Bernard, Dollinger, & Ramaniah, 2010), and psychoticism (Lester & Moderski, 1995). IP has also been associated with negative outcomes of more pressing concern—self-harm (Ross & Krukowski, 2003), suicide potential (Ross & Krukowski, 2003), and a history of suicidal ideation and attempts (Lester & Moderski, 1995).

Given the apparent effects of IP, more research is needed to elucidate the potential antecedents and consequences of this phenomenon and to identify populations who are at increased risk of experiencing imposter feelings. However, to conduct meaningful inquiries about IP, an instrument that accurately and reliably assesses imposter feelings is needed because, as DeVellis (2003) warns, substantive conclusions based on psychometrically unsound instruments may be erroneous.

Measuring Imposter Phenomenon

Three self-report scales have primarily been used to measure IP, including the Harvey Impostor Phenomenon Scale (HIPS; Harvey, 1981), the Clance Imposter Phenomenon Scale (CIPS; Clance, 1985), and the Perceived Fraudulence Scale (PFS; Kolligian & Sternberg, 1991). The HIPS (Harvey, 1981) is a 14-item, one-dimensional measure of IP. The CIPS (Clance, 1985) is a 20-item measure designed to assess three dimensions of IP: self-doubt and concerns about ability (i.e., “Fake” subscale), external attributions for success (i.e., “Luck” subscale), and the inability to internalize success or to accept praise (i.e., “Discount” subscale). The PFS (Kolligian & Sternberg, 1991) is a 51-item measure that assesses two main dimensions of IP: fraudulent thoughts, feelings, and actions (i.e., the “Inauthenticity” subscale) and the tendency to be a perfectionist and to be self-critical (i.e., the “Self-Deprecation” subscale).

Although the psychometrics of the three measures have not been compared simultaneously, three studies have separately compared the instruments. First, Kolligian and Sternberg (1991) compared the HIPS (Harvey, 1981) to the PFS (Kolligian & Sternberg, 1991). The two instruments were highly correlated ($r = 0.83$). However, the PFS ($\alpha = 0.95$) demonstrated greater internal consistency than the HIPS ($\alpha = 0.64$). Given these findings and the previously documented issues with the HIPS' internal consistency ($\alpha = 0.38$; Edwards, Zeichner, Lawler, & Kowalski, 1987), Kolligian and Sternberg recommended the PFS over the HIPS.

Holmes, Kertay, Adamson, Holland, and Clance (1993) compared the sensitivity of the CIPS (Clance, 1985) to the HIPS (Harvey, 1981) across four subsamples: clinically identified imposters, clinically identified non-imposters, non-clinically identified imposters, and non-clinically identified non-imposters. Both instruments demonstrated excellent internal reliability (CIPS $\alpha = 0.96$; HIPS $\alpha = 0.91$) and were highly correlated ($r = 0.89$). Analyses of covariance (ANCOVA) suggested the CIPS was better able to differentiate the four subsamples than the HIPS, suggesting the CIPS is a more sensitive measure of IP.

Finally, Chrisman, Pieper, Clance, Holland, and Glickauf-Hughes (1995) compared the CIPS (Clance, 1985) and the PFS (Kolligian & Sternberg, 1991). Both instruments demonstrated excellent internal reliability (CIPS $\alpha = 0.92$; PFS $\alpha = 0.94$), were highly correlated ($r = 0.78$), and had similar patterns of associations across a number of psychological variables (e.g., depression, self-esteem, self-monitoring), suggesting the instruments were tapping into the same construct. However, the PFS is a 51-item measure, whereas the CIPS is only a 20-item scale. Chrisman et al. (1995) calculated the Spearman Brown equation to estimate Cronbach's alpha of the PFS if it were reduced to a 20-item scale;

Cronbach's alpha decreased from 0.94 for the 51-item scale to 0.57 for the 20-item scale. Given its length and ease of administration, Chrisman et al. (1995) recommended the CIPS over the PFS.

In summary, studies to date suggest a modest advantage of the CIPS over both the HIPS and PFS, but evidence of strong psychometric properties of the CIPS remains limited. Reported Cronbach's alpha values for the CIPS range from 0.78 (Sightler & Wilson, 2001) to 0.96 (Holmes et al., 1993), suggesting reasonable internal reliability. Several researchers (Chrisman et al., 1995; Kertay, Clance, & Holland, 1991) conducted exploratory factor analyses (EFA) of the CIPS and found provisional support for the hypothesized three-factor structure of the instrument, although Kertay et al. (1991) reported low interitem correlations between four items (1, 2, 19, and 20).

However, results from confirmatory factor analyses (CFA) bring the hypothesized structure of the CIPS into question. French, Ullrich-French, and Follman (2008) reported poor fit for the 16-item, three-factor (i.e., Fake, Discount, and Luck) model (comparative fit index [CFI] = 0.795; $\chi^2(60) = 1479.68$, $p < 0.05$), the two-factor (i.e., Fake/Discount and Luck) model (CFI = 0.796; $\chi^2(61) = 1472.85$, $p < 0.05$), and the one-factor model (CFI = 0.695; $\chi^2(60) = 2171.89$, $p < 0.05$). Modification indices indicated a number of items had meaningful cross-factor loadings and suggested the specification of non-zero covariances between several error terms. Despite the fact that the CIPS performs more favorably than the HIPS (Holmes et al., 1993) or the PFS (Chrisman et al., 1995), these measurement studies suggest additional work is needed to establish the CIPS as a viable measure of IP.

Recently, Fujie (2010) developed a 12-item state version of the CIPS—the State Imposter Phenomenon Scale. The SIPS is designed to measure the same indicators of IP (i.e.,

Fake, Discount, and Luck) as the CIPS in a specific situation. EFAs, however, indicated the SIPS had only two factors: (1) Feelings of Fraudulence toward Others, which primarily included items from the CIPS Fake dimension, and (2) Subjective Incompetence, which included items from all three CIPS dimensions (Fujie, 2010). Initial Cronbach alpha values have been good (M α = 0.83), but the SIPS has only been validated in one study with one sample of Japanese students (N = 344; Fujie, 2010).

The Imposter Phenomenon Scale

The Imposter Phenomenon Scale (see Appendix A) is a shortened, revised version of both the SIPS and CIPS (see Appendix B, Table A.1 for comparison of the three instruments). To create the initial 15-item IPS, three items were removed from the SIPS because of lack of conceptual and theoretical fit, while retaining the remaining nine SIPS items. One item from the CIPS, which was not included in the SIPS, was added to the item pool, and five new items were generated. The items were then reviewed, and wording was revised to improve clarity (i.e., eliminate double-barreled items and wordiness) and readability.

Purpose

Imposter feelings have been identified in a number of different populations, including students in medical fields (Henning et al., 1998), entrepreneurs (Sightler & Wilson, 2001), librarians (Clark, Vardeman, & Barba, 2014), and white-collar workers (Vergauwe et al., 2014). Surprisingly, however, researchers have not yet investigated this phenomenon in sport coaches. Given the nature of this profession (i.e., the constant demand for high performances and pressure to win), it may be a breeding ground for IP. Thus, the purpose of this study was to assess initial psychometric properties of the Imposter Phenomenon Scale (IPS) in a sample of middle school, high school, and collegiate sport coaches.

Three separate studies were conducted to assess the psychometric properties of the IPS. Study 1A assessed the initial structural validity of the IPS with an exploratory factor analysis (EFA). Study 1B assessed the fit of the IPS measurement model identified in Study 1A with a confirmatory factor analysis (CFA). Finally, Study 1C assessed the measurement (i.e., equal forms, equal loadings, and equal intercepts) and structural (i.e., equal factor variances, equal factor covariance, and equal means) invariance of the IPS across gender, age, and years of coaching experience.

Study 1A

Method

Participants. Participants were 308 coaches who were either members of an online coaching forum (n = 71), members of a coaching association in Northwest United States (n = 185), or personal contacts of the researcher (n = 52). The average coach was male (70.2%), white (88.6%), and middle-aged (M = 42.98 years; SD = 11.94), with 15.15 years of coaching experience (SD = 10.67; see Table 1.1).

Measures. Two measures were used: the Imposter Phenomenon Scale (IPS) and the Coaching Demographic and Background Questionnaire (CDBQ).

IPS. The 15-item IPS had two hypothesized factors: Feelings of Fraudulence (IP-FF; 7 items) and Diminishment of Success (IP-DS; 8 items). The IP-FF factor is consistent with the CIPS Fake dimension and the SIPS Feelings of Fraudulence toward Others subscale, representing worries about competence and feelings of being a fake. The IP-DS factor is a combination of the CIPS Discount and Luck subscales, and similar to the Subjective Incompetence subscale of the SIPS. The IP-DS subscale represents the tendency to attribute success to external factors and to disregard praise following success. Each statement is

evaluated using a 7-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree).

CDBQ. The CDBQ was designed for the purposes of this study and consists of 15 items (see Appendix C). Four items assess overall coaching experience (i.e., total number of years coached, positions held as coach, competitive levels coached, and training). Eight items assess the nature of coaches' current positions (i.e., sport currently coaching, current coaching position, consecutive years in current coaching position, competitive level currently coaching, gender composition of team, racial/ethnic composition of team, number of years coach played sport, and highest competitive level at which coach played sport). Finally, three items address key demographic variables (i.e., gender, age, and race/ethnicity).

Procedure. An online survey was developed in Qualtrics (see Appendix D) and distributed to three samples: online coaching forums, a Northwest United States state coaches association, and personal contacts of the researcher.

Coaching forum. An online search was conducted to identify online forums that were geared specifically toward coaches, with content ranging from general coaching support to specific coaching strategies, techniques, and tools for a particular sport. Thirty-three forums meeting this criterion were identified.

Access was obtained for 22 forums, and an invitation to participate in a "Coach Success Survey" was posted on each forum. The forum post, entitled "Coach Success and Motivation—Your Input Needed", included a URL to access the online Qualtrics survey, a request for coaches to share about how they have handled their success, an Institutional Review Board statement, and the researcher's contact information (see Appendix E).

Coaching association. Coaches were recruited in-person at a Northwest American coaches association clinic. A table was set up in the exhibit space at the clinic for two days where coaches were asked to complete a 10-minute "Coach Success Survey." Coaches who agreed to participate were either given a tablet to complete the survey electronically (98.3%; *n* = 175) or a survey booklet (see Appendix F) and pen (1.7%; *n* = 3), depending on the coach's preference.

Six hundred eighty-two coaches attended the coaching clinic, and an estimated 35% (*n* = 239) of coaches visited the exhibit space. Thus, the response rate was approximately 74% (*n* = 178).

Personal contacts. Personal contacts of the researchers were sent email invitations that included a URL to access the online Qualtrics survey and the researcher's contact information.

Data analysis plan. Prior to analysis, all data were examined for missing values, and cases with missing values were excluded from subsequent analyses. Data were also examined to ensure all values were within range and to ensure all cases were from the target population (i.e., respondents were current coaches and were at least 18 years of age). Univariate and multivariate outliers were identified using descriptive statistics and Mahalanobis distances, respectively. Finally, to assess the extent to which the assumption of normality had been satisfactorily met, skewness and kurtosis values were examined. Skewness and kurtosis values were further examined across subgroups to assess normality for groups that were hypothesized to be at higher risk for imposter feelings (i.e., female coaches; coaches who were less than 31 years of age; coaches who had less than four years of coaching experience).

An EFA was conducted using maximum likelihood (ML) extraction and direct oblimin rotation to allow for potential correlations among factors. Factors with an eigenvalue greater than or equal to 1.0 were retained in the solution. Following estimation, the measurement model was respecified, eliminating items that (a) had no substantial loadings on any factor (i.e., loadings ≤ 0.40), (b) had simultaneous, substantial loadings on multiple factors (i.e., loadings ≥ 0.40 on more than one factor), or (c) did not fit conceptually with the other items loading on the factor. To ensure the final solution was not a function of a specific extraction method, the factor structure of the final measurement model was then re-estimated using principal axis (PA) and principal component (PC) extraction methods. Cronbach's alpha was then calculated to assess internal consistency of the items in each factor.

Finally, version 22.0 of the Analysis of Moment Structures (AMOS; Arbuckle, 2011) was used to assess the fit of a model in which all cross-loadings were constrained to zero (i.e., exploratory structural covariance model). Consistent with the measurement model extracted from the EFA, the IPS was specified as a two-factor, nine-item model (see Figure 1.1). The first item of each factor was set to 1.0 to define the metric of the latent factor, and the remaining items were freely estimated. The covariance between factors was freely estimated, and all covariances between error terms were set to zero.

Maximum likelihood estimation (MLE) was used to generate parameter estimates. The likelihood chi-square statistic, CFI (Bentler, 1990), Tucker-Lewis index (TLI), and root mean square error of approximation (RMSEA; ε) were used to assess model fit.

Results

Preliminary analyses. Ten (3.2%) coaches were missing more than one data point on the IPS. Five coaches did not complete the survey, and five coaches skipped one item. Thus, of the 308 coaches who participated, 298 (96.8%) coaches were retained.

The majority of the IPS items were nonnormal, with skewness and kurtosis *z* scores exceeding the recommended |3.3| threshold (Tabachnick & Fidell, 2001; see Table 1.2). Skewed items included IP-FF items 1, 3, 6, and 7 and IP-DS items 2, 4, 5, 6, 7, and 8. Kurtotic items included IP-FF items 2, 4, 5, 6, and 7 and IP-DS items 1, 2, 5, 7, and 8.

Examination of skewness and kurtosis across subgroups revealed less nonnormality for subgroups that were hypothesized to be at higher risk for experiencing IP. Fewer items were nonnormal, and those items that were nonnormal had smaller *z* scores compared to groups at lower risk. For example, when examining normality across gender, six items were nonnormal for females whereas 13 items were nonnormal for males. Additionally, skewness *z* scores ranged from |3.45| to |8.97| and from |4.48| to |13.75| for females and males, respectively (see Appendix B, Table A.2 for additional comparisons across subgroups). Given the fact that imposter feelings are likely not normally distributed in the population and the fact that only marginal improvements can be made by transforming nonnormality of this type and magnitude (Tabachnick & Fidell, 2001), no transformations were made to the data.

Exploratory factor analyses. Two factors emerged from the EFA, and factor structure was consistent across each of the three extraction methods (see Table 1.3). The first factor included five items and was labeled "Self-Perceptions of Fraudulence" (IP-Self); primary loadings on this factor ranged from 0.57 to 0.81. The second factor included four items and was labeled "Concerns about Others' Perceptions of My Success" (IP-Others);

primary loadings on this factor ranged from 0.52 to 0.81. Secondary factor loadings for both factors did not exceed 0.09.

Cronbach's alpha reliability. Internal consistency for the IP-Self and IP-Others factors was acceptable, with Cronbach alpha values of 0.85 and 0.73, respectively.

Exploratory structural covariance model. Initial fit of the exploratory structural covariance model of the IPS was acceptable (*CFI* = 0.94; $\chi^2(26) = 82.83$, $p < 0.001$; $\varepsilon = 0.086$ [0.065-0.107]). All factor loadings were significant ($p < 0.001$; see Table 1.4). The latent IP-Self and IP-Others factors accounted for 43 to 70% and 23 to 43% of the variance in their respective indicator items. The correlation between the IP-Self and IP-Others factors was significant ($r = 0.462$; *cov*(*IP-Self,IP-Others*) = 0.602, $p < 0.001$).

Conclusion

An exploratory examination of the IPS revealed two latent factors that held up under both unrestricted (EFA) and restricted (structural covariance model) examinations of model fit. The first latent factor, "Self-Perceptions of Fraudulence" (IP-Self), dealt with the individual's own feelings of incompetence and fraudulence. The second latent factor, "Concerns about Others' Perceptions of My Success" (IP-Others), dealt with the individuals' concerns about and responses to others' perceptions of their success. Items had factor loadings greater than 0.50 on their respective factors, which indicates that the latent factors explained more than 25% of the variability in how participants responded to the items. Thus, items were meaningful indicators of their respective latent constructs. The items in each factor also had acceptable internal consistency, as demonstrated by Cronbach alpha values greater than 0.70.

Because an alternative factor structure emerged (i.e., IP-Self and IP-Others), it appears that coaches did not differentiate between the originally hypothesized dimensions, Feelings of Fraudulence and Diminishment of Success. However, the factors that did emerge were conceptually similar to the factors of the SIPS (i.e., Subjective Incompetence and Feelings of Fraudulence toward Others factors; Fujie, 2010). The factors of the IPS and the SIPS represented imposter feelings emanating from internal (i.e., the IP-Self and Subjective Incompetence factors) and external (i.e., the IP-Others and Feelings of Fraudulence toward Others factors) sources. Although the breadth of the constructs is somewhat different for each instrument (e.g., the "IP-Self" factor of the SIPS also includes individual's external attributions for success), the general similarity of the constructs in both instruments provides additional theoretical support for the final two-factor structure of the IPS. Given the theoretical plausibility of and empirical support for the alternative factor structure, items were relabeled as "IP-Self" and "IP-Others" items for the remaining studies (see Table 1.5).

Study 1B

Study 1A established initial evidence of good psychometric properties of the two-factor, nine-item IPS. Thus, the purpose of Study 1B was to assess the extent to which the hypothesized factor structure of the IPS was maintained for a different sample of coaches.

Method

Participants. Participants were 554 college or University coaches in the Northwest. The average coach was male (67.3%), White (80.1%), and middle-aged (M = 42.09 years; SD = 13.00), with 17.49 years of coaching experience (SD = 11.90; see Table 1.1).

Measures. The nine-item IPS and the CDBQ were used (see Study 1A for details).

Procedure. Six thousand three hundred sixty coaches working at one of 320 colleges and universities in the West were emailed a survey invitation. Qualtrics was used to develop an electronic survey (see Appendix D) and to develop a Panel—a list of coaches' names, email addresses, and institutions. The Qualtrics Mailer was then used to distribute a unique survey link to each member of the Panel and to track and manage Panel members' activity.

To maximize response rate, the web survey implementation protocol outlined by Dillman, Smyth, and Christian (2014) was employed. Specifically, a total of four contacts were attempted, spanning five weeks (see Appendix B, Table A.3 for a detailed timeline). The initial contact was made the second week of August, one to two weeks prior to when the fall semester began. Reminder emails were sent at one to two week intervals and were distributed only to Panel members who had not completed the survey at the time of the reminder. Thank you emails were sent immediately following completion of the survey. All correspondences were personalized, and each of the four emails was unique (see Appendix G).

Approximately 9.5% (n = 605) of coaches included in the Panel opened the survey link and completed the informed consent. However, 61.6% (n = 3,919) of coaches either did not receive the emails due to an invalid email address (n = 125) or did not open the emails (n = 3,794). The adjusted response rate, including only those coaches who received and opened an email, was 24.8%.

Data analysis plan. The data screening and model specification and estimation procedures outlined in Study 1A were followed. In addition to the first-order model, the IPS was also specified as a second-order, nine-item model (see Figure 1.2) with two first order factors (IP-Self, IP-Others) and one higher order factor (IP). To identify the model, the

disturbance terms for the IP-Self and IP-Others factors were constrained equal. Following estimation of each model, modification indices were examined, and alternative specifications were explored to converge on a measurement model with maximal fit and parsimony.

Results

Preliminary analyses. Thirty-nine (7.0%) coaches did not complete the survey, and 20 (3.6%) coaches skipped one item. Thus, of the 554 coaches who participated, 495 (89.4%) coaches were retained.

Consistent with Study 1A, the majority of the IPS items were nonnormal (see Table 1.6), although the nonnormality was less severe for subgroups with higher likelihoods of imposter feelings (i.e., female coaches; coaches less than 31 years of age; and coaches with less than four years of coaching experience; see Appendix B, Table A.4).

Confirmatory factor analysis for first-order model. Initial fit of the first-order IPS measurement model was poor (*CFI* = 0.89; $\chi^2(26) = 141.281$, $p < 0.001$; $\varepsilon = 0.095$ [0.080-0.110]). The modification indices suggested model fit could be substantially improved with the specification of a covariance between error terms for IP-Others items 3 and 4. Given the theoretical similarity of these items (i.e., both items were originally hypothesized as indicators of "Diminishment of Success"), the error covariance was included in the model.

Model fit improved with the addition of the error covariance (*CFI* = 0.94; $\chi^2(25)$ 90.217, $p < 0.001$; $\varepsilon = 0.073$ [0.057-0.089]). However, the standardized regression estimate for IP-Others item 4 decreased from 0.37 in the original model to 0.29, indicating the latent factor was explaining less than 10% of the variability in this item. Thus, IP-Others item 4, along with the error covariance between IP-Others items 3 and 4, was removed from the model. The removal of IP-Others item 4 improved model fit (*CFI* = 0.93; $\chi^2(19) = 79.093$, *p*

< 0.001; ε = 0.080 [0.062-0.099]). The modification indices identified several substantial error covariances with IP-Self item 5, suggesting a misspecification of this item.

The removal of IP-Self item 5 markedly improved model fit (*CFI* = 0.99; $\chi^2(13)$ = 23.304, p = 0.038; ε = 0.040 [0.009-0.066]). Thus, the two-factor, seven-item model was retained over the original two-factor, nine-item model.

In this final two-factor, seven-item model, all factor loadings were significant (p < 0.001; see Table 1.7). The latent IP-Self and IP-Others factors accounted for 17 to 71% and 24 to 48% of the variance in their respective indicator items. The correlation between the IP-Self and IP-Others factors was significant (r = 0.475; cov(*IP-Self,IP-Others*) = 0.518, p < 0.001).

Confirmatory factor analysis for second-order model. Initial fit of the second-order, seven-item model was good (*CFI* = 0.99; $\chi^2(13)$ = 23.304, p < 0.05; ε = 0.040 [0.009-0.066]). All factor loadings were significant (p < 0.001; see Table 1.7). The latent IP-Self and IP-Others factors accounted for 17 to 71% and 24 to 49% of the variance in their respective indicator items. The latent IP factor accounted for 36 and 65% of the variance in the latent IP-Self and IP-Others factors, respectively.

Conclusion

The measurement model identified in Study 1A demonstrated poor fit with the collegiate coaches in this study. For this sample, the latent factors, IP-Self and IP-Others, accounted for a small amount of variance in two items (IP-Self item 5 and IP-Others item 4), which suggests these items may not be strong indicators of IP-Self and IP-Others across samples, having low construct validity.

After removing these items, the final two-factor, seven-item measurement model demonstrated good overall and local model fit. The fit indices (i.e., CFI, TLI, RMSEA) indicated the model was an acceptable approximation of the data, suggesting that overall model fit was good. The loadings of items on their respective latent factors were greater than 0.40 (i.e., the latent factor explained more than 16% of variability in how participants responded to the items), and no substantial cross-loadings were identified in the modification indices, suggesting that local model fit was also good. In addition, although removal of the items narrowed the breadth of imposter feelings measured by the IPS, the precision with which the IPS measures certain imposter feelings (i.e., IP-Self and IP-Others) was improved.

In addition, the second-order, seven-item measurement model with two first-order factors and one higher order factor also demonstrated good overall and local model fit. Given the acceptable fit of this factor structure, it appears the latent IP-Self and IP-Others factors may be indicators of a higher order factor—an individual's overall experience of IP.

Study 1C

Study 1B suggested the two-factor, seven-item IPS is a useful tool for measuring imposter feelings in coaches. However, before the IPS can be used to make meaningful comparisons between groups, the similarity of the instrument's measurement structure across groups should be assessed. Thus, the purpose of Study 1C was to conduct invariance analyses for gender, age, and coaching experience, as previous research (e.g., Castro, Jones, & Mirsalimi, 2004; Clark et al., 2014) has suggested these variables may influence IP.

Method

Participants. Participants were the 793 coaches retained in Studies 1A and 1B. The average coach was male (69.6%), white (83.7%), and middle-aged (*M* = 42.28 years; *SD* = 12.52), with 16.59 years of coaching experience (*SD* = 11.48).

Measures. The seven-item IPS and the CDBQ was used (see Studies 1A and 1B for details).

Data analysis plan. Using the first-order, two-factor, seven-item measurement model established in Study 1B, measurement and structural invariance was assessed across gender (i.e., female coaches compared to male coaches), age (i.e., coaches less than 41 years of age compared to coaches 41 years of age or greater), and years of coaching experience (i.e., coaches with less than 15 years of experience compared to coaches with 15 or more years of experience). Using a multi-group CFA, invariance analyses were conducted for equal form, equal factor loadings, equal intercepts, equal factor variances, equal factor covariances, and equal latent means (Brown, 2006). Unless determined to be noninvariant, once a constraint was imposed, it was held for all subsequent models. Model fit compared to the equal form model was evaluated using the CFI difference test (CFI_{DIFF}) and the chi-square difference test (χ^2_{DIFF}), with a CFI_{DIFF} and *p*-value cut-off of 0.01, respectively (Byrne, 2009). Given the sensitivity of the chi-square different test (Byrne, 2009), the CFI_{DIFF} test held greater weight in decisions of fit.

Results

Confirmatory factor analysis for female coaches. Initial fit of the IPS measurement model for the female coaches was good (*CFI* = 0.982; $\chi^2(13) = 23.304$, $p > 0.05$; see Appendix B, Table A.5). All factor loadings were significant ($p < 0.001$; see Table 1.7). The

latent IP-Self and IP-Others factors accounted for 34 to 54% and 30 to 50% of the variance in their respective indicator items. The correlation between the IP-Self and IP-Others factors was significant ($r = 0.581$; cov(*IP-Self,IP-Others*) = 0.515, $p < 0.001$).

Confirmatory factor analysis for male coaches. Initial fit of the IPS measurement model for the male coaches was good (*CFI* = 0.985; $\chi^2(13) = 30.145$, $p < 0.05$; see Appendix B, Table A.5). All factor loadings were significant ($p < 0.001$; see Table 1.7). The latent IP-Self and IP-Others factors accounted for 25 to 80% and 22 to 72% of the variance in their respective indicator items. The correlation between the IP-Self and IP-Others factors was significant ($r = 0.461$; *cov*(*IP-Self,IP-Others*) = 0.652, $p < 0.001$).

Gender invariance analyses. The equal form model demonstrated acceptable fit (*CFI* = 0.984; $\chi^2(26) = 50.231$, $p < 0.001$; see Table 1.8), indicating the basic configuration of the model was invariant across gender.

The equal loadings model passed the CFI_{DIFF} test but surpassed the invariance criterion for the more sensitive χ^2_{DIFF} test (*CFI* = 0.976; $\chi^2(31) = 66.977$, $p < 0.001$). Upon releasing the loading for IP-Self item 3, the model passed both the CFI_{DIFF} and χ^2_{DIFF} tests (*CFI* = 0.976; $\chi^2(30) = 56.062$, $p < 0.001$). This suggests IP-Self item 3, based on the sensitive χ^2_{DIFF} test, is weighted slightly differently for female and male coaches. Indeed, the regression weight for IP-Self item 3 was 0.127 standardized units higher for the female coaches.

The equal intercepts model surpassed the invariance criteria for both the CFI_{DIFF} and χ^2_{DIFF} tests (*CFI* = 0.974; $\chi^2(35) = 74.099$, $p < 0.001$), indicating the intercepts were not invariant across gender. Examination of intercept estimates suggested four potentially noninvariant intercepts: IP-Others item 1, which was 0.372 unstandardized units higher for the female coaches; IP-Others item 2, which was 0.354 unstandardized units higher for the

female coaches; IP-Self item 4, which was 0.199 unstandardized units lower for the female coaches; and IP-Self item 3, which was 0.166 unstandardized units higher for the female coaches. Releasing each of the four intercepts individually did not result in adequate fit; however, upon releasing all four intercepts simultaneously, the model passed both the CFI_{DIFF} and χ^2_{DIFF} tests ($CFI = 0.983$; $\chi^2(31) = 56.070$, $p < 0.001$), indicating the remaining three intercepts (IP-Self items 1 and 2 and IP-Others item 3) were invariant across gender.

The equal factor variances model was invariant across gender ($CFI = 0.978$; $\chi^2(35) = 63.389$, $p < 0.001$). The equal factor covariances model passed the CFI_{DIFF} test but surpassed the invariance criterion for the more sensitive χ^2_{DIFF} test ($CFI = 0.976$; $\chi^2(36) = 73.009$, $p < 0.001$). The covariance between IP-Self and IP-Others was 0.137 unstandardized units higher for the female coaches than for the male coaches.

Confirmatory factor analysis for younger coaches. Initial fit of the IPS measurement model for the younger coaches (coaches less than 41 years of age) was good ($CFI = 0.990$; $\chi^2(13) = 21.300$, $p > 0.05$; see Appendix B, Table A.6). All factor loadings were significant ($p < 0.001$; see Table 1.7). The latent IP-Self and IP-Others factors accounted for 24 to 77% and 25 to 73% of the variance in their respective indicator items. The correlation between the IP-Self and IP-Others factors was significant ($r = 0.409$; $cov(IP\text{-}Self,IP\text{-}Others) = 0.559$, $p < 0.001$).

Confirmatory factor analysis for older coaches. Initial fit of the IPS measurement model for the older coaches (coaches 41 years of age or greater) was good ($CFI = 0.986$; $\chi^2(13) = 22.165$, $p > 0.05$; see Appendix B, Table A.6). All factor loadings were significant ($p < 0.001$; see Table 1.7). The latent IP-Self and IP-Others factors accounted for 28 to 70% and 24 to 59% of the variance in their respective indicator items. The correlation between the

IP-Self and IP-Others factors was significant ($r = 0.562$; $cov(IP\text{-}Self, IP\text{-}Others) = 0.667$, $p < 0.001$).

Age invariance analyses. The equal form model demonstrated acceptable fit ($CFI = 0.988$; $\chi^2(26) = 43.465$, $p < 0.05$; see Table 1.8), indicating the basic configuration of the model was invariant across samples.

The equal loadings model passed the CFI_{DIFF} test but surpassed the invariance criterion for the more sensitive χ^2_{DIFF} test ($CFI = 0.979$; $\chi^2(31) = 62.358$, $p < 0.001$). Upon releasing the loadings for IP-Others item 2 and for IP-Self item 3, the model passed both the CFI_{DIFF} and χ^2_{DIFF} tests ($\chi^2(29) = 49.662$, $p < 0.001$; $CFI = 0.986$), suggesting these items are weighted differently for younger and older coaches. Indeed, the regression weight for IP-Others item 2 was 0.139 standardized units higher for the younger coaches, and the regression weight for IP-Self item 3 was 0.082 standardized units lower for the younger coaches.

The equal intercepts model passed the CFI_{DIFF} test but surpassed the invariance criterion for the more sensitive χ^2_{DIFF} test ($CFI = 0.984$ $\chi^2(34) = 58.265$, $p < 0.001$). Examination of intercept estimates suggested one potentially noninvariant intercept: IP-Others item 3, which was 0.118 unstandardized units lower for the younger coaches. Upon releasing this intercept, the model passed both the CFI_{DIFF} and χ^2_{DIFF} and tests ($CFI = 0.986$; $\chi^2(33) = 53.712$, $p < 0.001$), indicating the remaining intercepts were invariant across age.

The equal factor variances model passed the CFI_{DIFF} test but surpassed the invariance criterion for the more sensitive χ^2_{DIFF} test ($CFI = 0.982$; $\chi^2(35) = 62.417$, $p < 0.001$). The variance for the IP-Self factor was 0.379 unstandardized units higher for the younger coaches, but upon releasing the constraint on this variance, the model passed both the CFI_{DIFF} and χ^2_{DIFF} tests ($CFI = 0.987$; $\chi^2(34) = 53.712$, $p < 0.001$). Finally, the equal factor covariances ($CFI =$

0.987; $\chi^2(35) = 54.326$, $p < 0.001$) and equal means ($CFI = 0.985$; $\chi^2(38) = 60.043$, $p < 0.001$) models were invariant across age.

Confirmatory factor analysis for less experienced coaches. Initial fit of the IPS measurement model for the less experienced coaches was good ($CFI = 0.987$; $\chi^2(13) = 23.870$, $p < 0.05$; see Appendix B, Table A.7). All factor loadings were significant ($p < 0.001$; see Table 1.7). The latent IP-Self and IP-Others factors accounted for 28 to 77% and 28 to 69% of the variance in their respective indicator items. The correlation between the IP-Self and IP-Others factors was significant ($r = 0.457$; $cov(IP\text{-}Self,IP\text{-}Others) = 0.621$, $p < 0.001$).

Confirmatory factor analysis for more experienced coaches. Initial fit of the IPS measurement model for the more experienced coaches was good ($CFI = 0.999$; $\chi^2(13) = 13.726$, $p > 0.05$; see Appendix B, Table A.7). All factor loadings were significant ($p < 0.001$; see Table 1.7). The latent IP-Self and IP-Others factors accounted for 28 to 72% and 24 to 61% of the variance in their respective indicator items. The correlation between the IP-Self and IP-Others factors was significant ($r = 0.535$; $cov(IP\text{-}Self,IP\text{-}Others) = 0.632$, $p < 0.001$).

Coaching experience invariance analyses. The equal form ($CFI = 0.992$; $\chi^2(26) = 37.597$, $p > 0.05$; see Table 1.8) and equal loadings ($CFI = 0.991$; $\chi^2(31) = 44.908$, $p > 0.001$) models demonstrated acceptable fit, indicating the basic configuration of the model and the weighting of individual items were invariant across coaching experience.

The equal intercepts model passed the CFI_{DIFF} test but surpassed the invariance criterion for the more sensitive χ^2_{DIFF} test ($CFI = 0.987$; $\chi^2(36) = 55.324$, $p < 0.001$). Examination of intercept estimates suggested one potentially noninvariant intercept: IP-Others item 2, which

was 0.32 unstandardized units higher for the less experienced coaches. Upon releasing this intercept, the model passed both the CFI_{DIFF} and χ^2_{DIFF} and tests ($CFI = 0.990$; $\chi^2(35) = 49.461$, $p < 0.001$), indicating the remaining intercepts were invariant across coaching experience.

The equal factor variances model also passed the CFI_{DIFF} test but surpassed the invariance criterion for the more sensitive χ^2_{DIFF} test ($CFI = 0.988$; $\chi^2(37) = 55.642$, $p < 0.001$). The variance for the IP-Self factor was 0.256 unstandardized units lower for the less experienced coaches; upon releasing the constraint on this variance, the model passed both the CFI_{DIFF} and χ^2_{DIFF} tests ($CFI = 0.991$; $\chi^2(36) = 50.017$, $p < 0.001$).

Finally, the equal factor covariances ($CFI = 0.991$; $\chi^2(37) = 50.034$, $p < 0.001$) and equal means models were invariant across experience ($CFI = 0.990$; $\chi^2(39) = 54.104$, $p < 0.001$).

Conclusion

Separate CFAs for each subsample (female/male coaches; younger/older coaches; less/more experienced coaches) supported the two-factor structure of the IPS established in Study 1B. The multi-group CFAs for age and experience provided reasonable evidence of measurement and structural invariance. Although a number of the models (i.e., the equal loadings, equal intercepts, and equal factor variances for the age analyses; the equal intercepts, and equal factor variances for the experience analyses) did not pass the more stringent and sensitive of the invariance criteria (i.e., the chi-square difference test), all of the invariance models passed the CFI difference test. Nonetheless, the observed invariance across age and experience supports meaningful yet cautious comparison of the distribution of imposter feelings (e.g., mean scores) across different age groups and experience levels.

However, the multi-group CFA for gender provided reasonable evidence of partial measurement and structural invariance. Specifically, the intercepts of multiple items (i.e., IP-Others items 1 and 2, IP-Self items 3 and 4) were noninvariant. Noninvariant intercepts mean that female and male coaches with the same level of the underlying IP-Self or IP-Others constructs will have different observed scores for these biased items. In all but one case (i.e., IP-Self item 4), the bias in the items resulted in female coaches endorsing a higher level of agreement for an item compared to male coaches with the same predicted level of underlying imposter feelings. In other words, using the IPS, female coaches may report more imposter feelings, but this may or may not mean that female coaches have greater imposter feelings than male coaches because of the bias in the items. Thus, caution should be used when interpreting the distribution of imposter feelings (e.g., mean scores) across gender based on the IPS.

General Discussion

The purpose of the present study was to assess the psychometric properties of the IPS. Overall, initial evidence suggests the IPS is a valid and reliable measure of imposter feelings, although additional work needs to be done to refine the instrument. A two-factor (i.e., IP-Self-Perceptions of Fraudulence and Concerns about IP-Others' Perceptions of My Success), seven-item instrument emerged from exploratory and confirmatory factor analyses, and based on Cronbach's alpha, the items within each hypothesized dimension were similar and closely related.

This study also identified two key issues with the IPS that warrant caution and further exploration. First, the seven-item IPS is severely nonnormal; the distributions of respondents' scores for individual items were skewed and kurtotic. The items, as they are currently

worded, do not allow for a middle ground. Instead, the strong language tends to lead coaches to either strongly agree or strongly disagree with the statement. Although it is likely that imposter feelings are not normally distributed, items can be reworded, or new items can be generated, with softer language that will appeal to a broader range of imposter feelings.

Second, invariance analyses for gender indicate the IPS is also biased. The observed noninvariance of item intercepts suggests the current IPS speaks more closely to females' than to males' experiences. Thus, items should also be generated that speak to both females' and males' experiences of IP.

Altogether, the findings from this study suggest the items of the IPS need to be further developed. In the meantime, caution should be exercised when interpreting findings related to the IPS, as measurement biases may confound substantive findings.

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Table 1.1

Sample Frequency Statistics for Demographic and Coaching Experience Variables for Studies 1A and 1B

	Study 1A				Study 1B
	Coaching Forums	Coaching Association	Personal Contacts	Total	Coaching Panel
Initial *N*	71	185	52	308	554
Final *N* (% retained)	69 (97.2%)	178 (96.2%)	51 (98.1%)	298 (96.8%)	495 (89.4%)
		Frequency (%)			
Gender					
Males	61 (88.4%)	121 (68%)	37 (72.5%)	219 (70.2%)	333 (67.3%)
Females	4 (5.8%)	63 (35.4%)	14 (27.5%)	81 (27.2%)	156 (31.5%)
Race/ethnicity					
American Indian/Alaska Native	1 (1.4%)	9 (5.1%)	0 (0.0%)	10 (3.4%)	4 (0.8%)
Asian	2 (2.9%)	1 (0.6%)	0 (0.05%)	3 (1.0%)	13 (2.6%)
Black/African American	2 (2.9%)	3 (1.7%)	1 (2.0%)	6 (2.0%)	22 (4.4%)
White	56 (81.2%)	162 (91%)	46 (90.2%)	264 (88.6%)	400 (80.1%)
Current Position					
Paid Head Coach	30 (43.5%)	108 (60.7%)	34 (66.7%)	172 (57.7%)	265 (53.2%)
Unpaid Head Coach	21 (30.4%)	3 (1.7%)	0 (0.0%)	24 (8.1%)	4 (0.8%)
Paid Assistant Coach	9 (13.0%)	57 (32.0%)	14 (27.5%)	80 (26.8%)	198 (40.0%)
Current Competitive Level					
NCAA Division I	1 (1.4%)	2 (1.1%)	11 (21.6%)	14 (4.7%)	181 (36.6%)
NCAA Division II	2 (2.9%)	0 (0.0%)	15 (29.4%)	17 (5.7%)	78 (15.8%)
NCAA Division III	5 (7.2%)	0 (0.0%)	12 (23.5%)	17 (5.7%)	53 (8.9%)

Table 1.1 (*continued*)

	Study 1A				Study 1B
	Coaching Forums	Coaching Association	Personal Contacts	Total	Coaching Panel
NAIA	0 (0.0%)	7 (3.9%)	4 (7.8%)	11 (3.7%)	55 (11.1%)
Junior Club Level	14 (20.3%)	0 (0.0%)	1 (2.0%)	15 (5.0%)	2 (0.4%)
Current Sport					
Basketball	11 (15.9%)	44 (24.8%)	16 (31.4%)	72 (24.2%)	119 (24.0%)
Cross Country/Track and Field	2 (2.9%)	30 (16.9%)	4 (7.8%)	36 (12.1%)	78 (13.8%)
Football	6 (8.7%)	38 (21.3%)	3 (5.9%)	47 (15.8%)	41 (8.3%)
Lacrosse	15 (21.7%)	1 (0.6%)	0 (0.0%)	16 (5.4%)	6 (1.2%)
Soccer	5 (7.2%)	0 (0.0%)	6 (11.8%)	11 (3.7%)	48 (9.7%)
Softball	11 (15.9%)	3 (1.7%)	3 (5.9%)	17 (5.7%)	30 (6.1%)
Volleyball	0 (0.0%)	35 (19.7%)	4 (7.8%)	39 (13.1%)	43 (8.7%)
			Mean (SD)		
Age	45.12 (10.24)	43.83 (12.80)	37.08 (8.84)	42.98 (11.94)	42.09 (13.00)
Number of Years Coaching Experience	15.00 (9.37)	15.61 (11.59)	13.71 (8.61)	15.15 (10.67)	17.49 (11.90)
Number of Years in Current Coaching Position	6.56 (5.89)	7.20 (8.89)	4.42 (4.24)	6.50 (7.62)	2.00 (1.15)

Table 1.2

Correlation Matrix with Descriptives and Skewness and Kurtosis Values for the 15-Item IPS

	FF1	FF2	FF3	FF4	FF5	FF6	FF7	DS1	DS2	DS3	DS4	DS5	DS6	DS7	DS8
FF1	1.00														
FF2	0.51	1.00													
FF3	0.44	0.75	1.00												
FF4	0.46	0.54	0.53	1.00											
FF5	0.59	0.58	0.57	0.64	1.00										
FF6	0.27	0.48	0.56	0.41	0.38	1.00									
FF7	0.21	0.48	0.50	0.38	0.35	0.71	1.00								
DS1	0.45	0.35	0.37	0.34	0.39	0.19	0.18	1.00							
DS2	0.23	0.48	0.46	0.37	0.34	0.53	0.48	0.22	1.00						
DS3	0.32	0.33	0.33	0.36	0.45	0.20	0.22	0.19	0.19	1.00					
DS4	0.36	0.45	0.44	0.43	0.42	0.43	0.39	0.50	0.51	0.25	1.00				
DS5	0.30	0.27	0.25	0.29	0.43	0.15	0.18	0.13	$0.04^{\#}$	0.43	0.11	1.00			
DS6	0.25	0.29	0.31	0.28	0.33	0.21	0.16	0.36	0.14	$0.11^{\#}$	0.32	$0.08^{\#}$	1.00		
DS7	0.14	0.29	0.32	0.27	0.26	0.54	0.57	0.14	0.35	0.16	0.34	0.15	0.14	1.00	
DS8	0.17	0.36	0.29	0.29	0.24	0.48	0.49	0.18	0.42	0.14	0.39	0.07	$0.08^{\#}$	0.58	1.00
Mean	4.59	3.35	2.77	3.59	4.07	2.05	1.78	3.77	2.01	4.32	2.67	5.30	4.48	1.69	1.70
SD	1.72	1.79	1.56	1.72	1.84	1.38	1.21	1.65	1.11	1.52	1.40	1.29	1.70	1.05	0.98
Skew *z* Score	**-3.56**	2.20	**4.67**	0.87	-1.18	**11.15**	**13.49**	-0.45	**9.12**	-2.15	**5.82**	**-7.09**	**-4.07**	**15.21**	**14.70**
Kurtosis *z* Score	-2.71	**-4.09**	-2.67	**-4.40**	**-4.31**	**7.25**	**12.15**	**-4.04**	**5.59**	-3.06	-0.94	**3.60**	-2.09	**18.30**	**19.15**

Note. All correlations significant at $p \leq 0.05$ unless otherwise noted ($^{\#}p > 0.05$). Skew and kurtosis *z* scores in boldface exceed the conventional |3.3| standard for normality. FF = Feelings of Fraudulence; DS = Diminishment of Success.

Table 1.3

Exploratory Factor Analysis Pattern Matrix Loadings for the 9-Item IPS

	Maximum Likelihood		Principal Axis		Principal Components	
Item (*Original Dimension Label*)	Self	Others	Self	Others	Self	Others
I worry that it's only a matter of time until others see what a fraud I am. (*FF6*)	**0.81**	0.05	**0.79**	0.06	**0.82**	0.08
I feel like I'm a fake. (*FF7*)	**0.80**	0.03	**0.77**	0.06	**0.80**	0.08
Nothing I have achieved has been truly meaningful. (*DS7*)	**0.74**	-0.05	**0.75**	-0.05	**0.81**	-0.05
My successes don't really count because I had to try too hard to achieve them. (*DS8*)	**0.70**	-0.07	**0.74**	-0.08	**0.82**	-0.10
I feel that my success has just been some mistake. (*DS2*)	**0.57**	0.09	**0.57**	0.08	**0.68**	0.06
Even though others are confident that I will do well, I worry that I will fail. (*FF5*)	0.06	**0.81**	0.09	**0.77**	0.15	**0.76**
Even when others praise me, I worry I won't be able to keep meeting their expectations. (*FF1*)	0.02	**0.65**	0.02	**0.59**	0.08	**0.69**
It's hard for me to accept people's praise. (*DS3*)	0.03	**0.54**	0.06	**0.59**	0.00	**0.74**
When others celebrate my success, I downplay the importance of what I've done. (*DS5*)	-0.06	**0.52**	-0.08	**0.57**	-0.14	**0.75**
Eigenvalue	3.73	1.67				
% of Variance	41.43	18.55				
Cronbach's alpha	0.85	0.73				

Note. FF = Feelings of Fraudulence; DS = Diminishment of Success; Self = Self-Perceptions of Fraudulence; Others = Concerns about Others' Perceptions of My Success

Table 1.4

Parameter Estimates and Standard Errors for Item-Factor Loadings for the 9-Item IPS

	Parameter Estimates		
Items	Unstandardized	Standardized	SE
FF6	1.00	0.84	
FF7	0.86	0.82	0.06
DS2	0.59	0.61	0.06
DS7	0.64	0.70	0.05
DS8	0.56	0.66	0.05
FF1	1.00	0.66	
FF5	1.38	0.85	0.15
DS3	0.74	0.55	0.09
DS5	0.55	0.48	0.08

Table 1.5

Original and Revised Dimensions Labels for the IPS

	Original		Revised	
Item	Dimension	No.	Dimension	No.
I worry that it's only a matter of time until others see what a fraud I am.	FF	6	Self	1
I feel like I'm a fake.	FF	7	Self	2
I feel that my success has just been some mistake.	DS	2	Self	3
Nothing I have achieved has been truly meaningful.	DS	7	Self	4
My successes don't really count because I had to try too hard to achieve them.	DS	8	Self	5
Even when others praise me, I worry I won't be able to keep meeting their expectations.	FF	1	Others	1
Even though others are confident that I will do well, I worry that I will fail.	FF	5	Others	2
It's hard for me to accept people's praise.	DS	3	Others	3
When others celebrate my success, I downplay the importance of what I've done.	DS	5	Others	4

Note. FF = Feelings of Fraudulence; DS = Diminishment of Success; Self = Self-Perceptions of Fraudulence; Others = Concerns about Others' Perceptions of My Success

Table 1.6

Correlation Matrix with Descriptives and Skewness and Kurtosis Values for the 9-Item IPS

	Self1	Self2	Self3	Self4	Self5	Others1	Others2	Others3	Others4
Self1	1.00								
Self2	0.67	1.00							
Self3	0.35	0.31	1.00						
Self4	0.33	0.32	0.28	1.00					
Self5	0.26	0.34	0.33	0.37	1.00				
Others1	0.27	0.25	0.22	0.08	0.15	1.00			
Others2	0.31	0.32	0.23	0.17	0.17	0.53	1.00		
Others3	0.15	0.17	0.10	0.11	0.17	0.36	0.37	1.00	
Others4	0.07[#]	0.04[#]	0.04[#]	0.15	0.07[#]	0.21	0.23	0.42	1.00
Mean	1.70	1.55	1.74	1.57	1.51	4.36	3.89	4.24	5.17
SD	1.11	0.90	0.91	1.06	0.87	1.80	1.79	1.52	1.26
Skew *z* Score	**20.72**	**19.16**	**15.37**	**26.42**	**22.07**	-3.18	-1.16	-2.61	-7.80
Kurtosis *z* Score	**26.87**	**22.76**	**17.96**	**46.42**	**33.75**	**-4.39**	**-5.84**	**-4.40**	**3.40**

Note. All correlations significant at $p \leq 0.05$ unless otherwise noted. [#]$p > 0.05$.

Table 1.7

Parameter Estimates and Standard Errors for Item-Factor Loadings for the 7-Item IPS

Estimate	Self1	Self2	Self3	Self4	Others1	Others2	Others3
First Order							
Unstandardized	1.00	0.77	0.42	0.47	1.00	1.11	0.60
Standardized	0.84	0.80	0.43	0.41	0.69	0.78	0.49
SE		0.06	0.05	0.06		0.11	0.07
Second Order							
Unstandardized	1.00	0.77	0.42	0.47	1.00	1.11	0.59
Standardized	0.84	0.8	0.43	0.41	0.7	0.77	0.49
SE		0.06	0.05	0.06		0.11	0.07
Female Coaches							
Unstandardized	1.00	0.88	0.75	0.56	1.00	1.18	0.82
Standardized	0.73	0.79	0.62	0.58	0.63	0.71	0.55
SE		0.09	0.09	0.07		0.18	0.14
Male Coaches							
Unstandardized	1.00	0.77	0.44	0.52	1.00	1.24	0.57
Standardized	0.90	0.81	0.5	0.52	0.69	0.85	0.47
SE		0.04	0.04	0.04		0.11	0.06
Coaches < 41 Years of Age							
Unstandardized	1.00	0.82	0.40	0.46	1.00	1.30	0.64
Standardized	0.87	0.88	0.49	0.51	0.70	0.85	0.50
SE		0.05	0.04	0.05		0.14	0.08
Coaches $\geq$ 41 Years of Age							
Unstandardized	1.00	0.76	0.64	0.60	1.00	1.11	0.60
Standardized	0.84	0.74	0.57	0.53	0.67	0.77	0.49
SE		0.06	0.06	0.06		0.12	0.08
Coaches with < 15 Years Experience							
Unstandardized	1.00	0.87	0.48	0.47	1.00	1.21	0.66
Standardized	0.85	0.88	0.54	0.53	0.71	0.83	0.53
SE		0.05	0.05	0.05		0.12	0.08
Coaches with $\geq$ 15 Years Experience							
Unstandardized	1.00	0.77	0.54	0.57	1.00	1.17	0.60
Standardized	0.85	0.78	0.53	0.53	0.66	0.78	0.49
SE		0.06	0.06	0.06		0.14	0.08

Table 1.8

Goodness-of-Fit Indices for the Measurement of Invariance Analyses using the 7-Item IPS

	χ^2	*df*	$\chi^2_{DIFF}(df_{DIFF})$	CFI	CFI_{DIFF}	TLI	ε	ε CI
Female (*n* = 237)	20.074	13		0.982		0.971	0.048	0.000-0.087
Male (*n* = 546)	30.145	13		0.985		0.975	0.490	0.026-0.072
Gender Invariance Analyses								
Equal Form	50.231	26		0.984		0.974	0.035	0.020-0.049
Equal Loadings	66.977	31	**16.746(5)**	0.976	-0.008	0.968	0.039	0.026-0.051
Equal Intercepts	74.099	35	**23.868(9)**	0.974	**-0.010**	0.969	0.038	0.026-0.050
Equal Factor Variances	63.389	35	14.684(9)	0.978	-0.006	0.974	0.035	0.022-0.047
Equal Factor Covariances	73.009	36	**22.778(10)**	0.976	-0.008	0.971	0.036	0.024-0.048
< 41 years of age (*n* = 383)	21.300	13		0.990		0.984	0.041	0.000-0.071
≥ 41 years of age (*n* = 395)	21.165	13		0.986		0.978	0.042	0.000-0.072
Age Invariance Analyses								
Equal Form	43.465	26		0.988		0.981	0.029	0.012-0.044
Equal Loadings	62.358	5	**18.893(5)**	0.979	-0.009	0.972	0.036	0.023-0.049
Equal Intercepts	58.265	34	**14.800(8)**	0.984	-0.004	0.98	0.030	0.016-0.043
Equal Factor Variances	62.417	35	**18.952(9)**	0.982	-0.006	0.978	0.032	0.018-0.044
Equal Factor Covariances	54.326	35	10.861(9)	0.987	-0.001	0.985	0.027	0.011-0.040
Equal Factor Means	60.043	38	16.578(38)	0.985	-0.003	0.984	0.027	0.013-0.040

Table 1.8 (*continued*)

	χ^2	*df*	$\chi^2_{DIFF}(df_{DIFF})$	CFI	CFI_{DIFF}	TLI	ε	ε CI
Less experienced (*n* = 384)	23.870	13		0.987		0.979	0.047	0.013-0.076
More experienced (*n* = 377)	13.726	13		0.999		0.998	0.012	0.000-0.053
Experience Invariance Analyses								
Equal Form	37.597	26		0.922		0.988	0.024	0.000-0.040
Equal Loadings	44.908	31	7.311(5)	0.991	-0.001	0.987	0.024	0.000-0.039
Equal Intercepts	55.324	36	**17.727(10)**	0.987	-0.005	0.985	0.027	0.011-0.040
Equal Factor Variances	55.642	37	**18.045(11)**	0.988	-0.004	0.986	0.026	0.009-0.039
Equal Factor Covariances	50.034	37	16.507(13)	0.990	-0.002	0.989	0.023	0.000-0.036
Equal Means	54.104	39	16.507(13)	0.990	-0.002	0.989	0.023	0.011-0.0039

Note. Values in boldface surpassed their respective cut-off values (i.e., χ^2_{DIFF} values exceeded a probability of 0.01 and CFI_{DIFF} values exceeded a difference of 0.01).

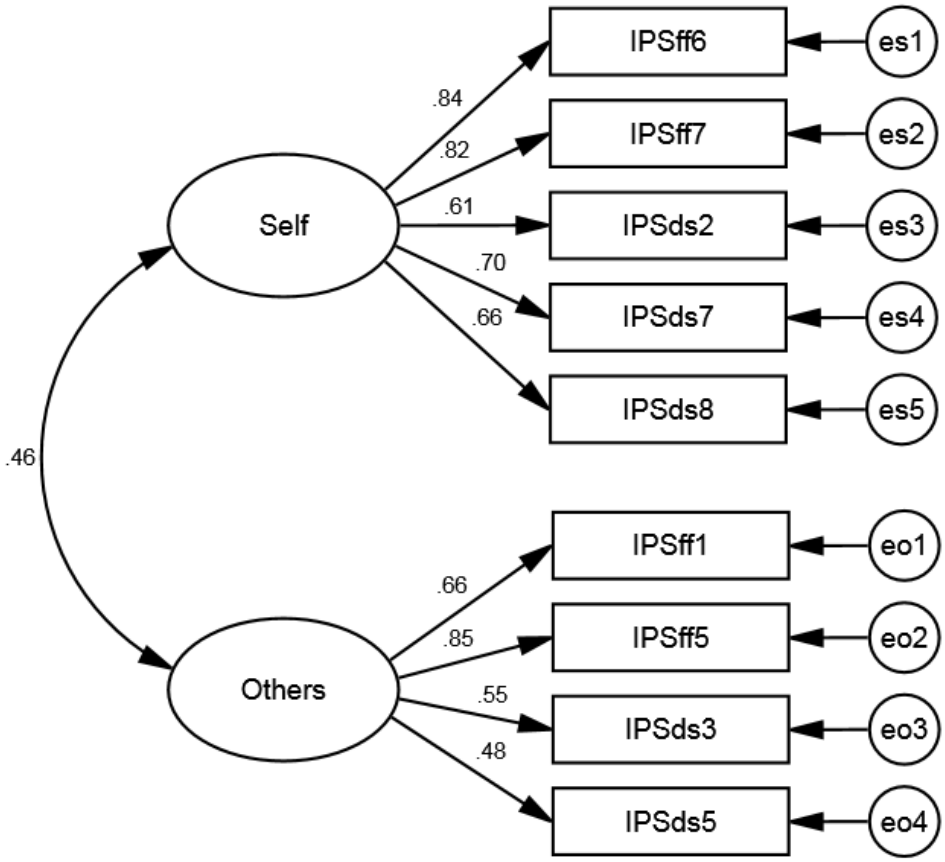
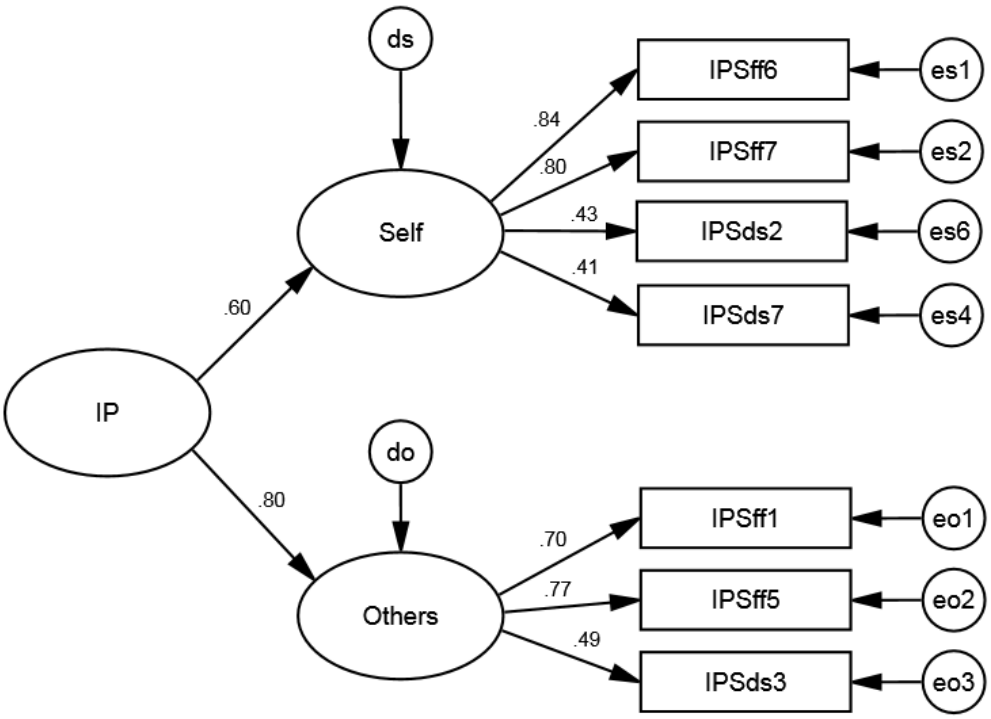


Figure 1.1. The Imposter Phenomenon Scale (IPS) measurement model fit to the Study 1A sample. Maximum Likelihood (ML) model fit indices, standardized regression weights, and variance accounted for in individual items by the latent variable for the 9-item, 2-factor, Imposter Phenomenon Scale measurement model, fit to Study 1A data. df = degrees of freedom; CFI = comparative fit index; TLI = Tucker-Lewis index; ε = RMSEA; root mean square error of approximation.



Chi-square = 23.304
df = 13
p = 0.038
CFI = 0.987
TLI = 0.979
ε = 0.040

Figure 1.2. The second-order Imposter Phenomenon Scale (IPS) measurement model fit to the Study 1B sample. Maximum Likelihood (ML) model fit indices, standardized regression weights, and variance accounted for in individual items by the latent variable for the 7-item, 3-factor, Imposter Phenomenon Scale measurement model, fit to Study 1B data. df = degrees of freedom; CFI = comparative fit index; TLI = Tucker-Lewis index; ε = RMSEA; root mean square error of approximation.

Study 2: Prevalence and Correlates of the Imposter Phenomenon in Sport Coaches

Clance and Imes (1978) originally conceptualized the imposter phenomenon (IP) as an experience of self-perceived intellectual phoniness. Imposters have legitimate successes and have received objective evidence that they are capable and competent (Clance, 1985). Nonetheless, imposters are highly sensitive to their deficiencies and believe they are not as competent as others believe them to be (Clance, 1985). They believe they have fooled those around them, and as a result, they fear they will be found out as the frauds they believe themselves to be (Clance, 1985).

Although IP has not yet been investigated in sport coaches, the nature of this profession might present the opportunity for coaches to be at an increased risk of experiencing imposter feelings. Sightler and Wilson (2001) suggest, "IP is experienced by high-performing, high profile individuals with significant performance expectations at stake" (p. 686). Sightler and Wilson's (2001) profile of an individual susceptible to IP seems to describe many coaches, particularly those working at elite competitive levels. Thus, the highly pressurized, demanding nature of coaching might make this profession a breeding ground for IP.

Thus, the purpose of the present study was twofold. The first aim was to assess the extent to which coaches experience imposter feelings. The second research question was to examine possible demographic and background correlates of IP.

Imposter Phenomenon

According to Clance (1985), five key features characterize IP: (1) the imposter cycle, (2) a need to be the best, (3) supermen/superwomen aspects, (4) fear of failure and success,

and (5) denial of competence and praise. Clance (1985) suggests that individuals struggling with imposter feelings will experience at least two or three of these IP characteristics.

Imposter feelings are stimulated and sustained by the imposter cycle (Clance, 1985). Imposters doubt their abilities to perform an upcoming achievement-related task or performance successfully (Clance, 1985). They respond to the anxiety either by over preparing for the task or by initially procrastinating and then frantically preparing (Clance, 1985; Cozzarelli & Major, 1990). Relief and praise follow the inevitable success, but the relief quickly dissipates when the over-preparing imposters discount the praise and success due either to the strenuous effort required to be successful or when the procrastinating imposters focus on "luck." Imposter feelings, anxieties, and self-doubts are reinforced, and the imposter cycle continues (Clance, 1985; Sakulku & Alexander, 2011).

Imposters were often the top in their class or the best performers when they were young (Clance, 1985). As a result, they have a deep need to be the best. If they are not the best, they assume it must be because they are untalented or incompetent. Along the same lines, imposters strive to be supermen and superwomen (Clance, 1985). They have perfectionist tendencies and expect to manage every aspect of their lives flawlessly. They set impossibly high goals, and when they fail, they see themselves as failures.

Imposters have a fear of failure (Clance, 1985) and of success (Clance, 1985; Fried-Buchalter, 1992). Following mistakes and failure, imposters feel humiliation and shame (Clance, 1985; Thompson, Davis, & Davidson, 1998), and their hopes to avoid failure drive their overpreparation tendencies (Clance, 1985). Following success, imposters are afraid those around them may increase their expectations, and imposters fear they will not be able to live up to these elevated expectations. Imposters, particularly female imposters, fear their

successes will compromise their relationships and will lead to rejection or alienation. They feel guilty when they experience success (Clance, 1985) and perceive their successes as burdens (de Vries, 2005).

Finally, imposters deny that they are competent and attribute their successes to external factors, such as luck (Chae, Piedmont, Estadt, & Wicks, 1995; Clance, 1985; Thompson et al., 1998). Because they do not internalize their successes, they believe that praise is unwarranted and undeserved and competence is not enhanced.

Imposter Phenomenon and Coaching

This section briefly outlines key literature and hypotheses for the six research questions that guided this inquiry.

Prevalence of Imposter Phenomenon

A number of studies have reported the 'point prevalence' (i.e., the rate of incidence in a specific population at a given location and a given point in time) of moderate and clinical levels of IP (see Appendix B, Table A.8). Individuals experiencing 'moderate' imposter feelings score 41 or higher on the Clance Imposter Phenomenon Scale (CIPS; Clance, 1985), whereas individuals experiencing 'clinical' imposter feelings score 62 or higher on the CIPS (Holmes, Kertay, Adamson, Holland, & Clance, 1993). The mean point prevalence estimate of 'moderate' IP across 13 studies was 53%, with estimates ranging from 30.2% in a sample of graduate students (Henning, Ey, & Shaw, 1998) to 80% in a sample of graduate clinical and counseling psychology students (Castro, Jones, & Mirsalimi, 2004). The mean point prevalence estimate of 'clinical' IP was 41%, with estimates ranging from 30% in a sample of graduate clinical and counseling psychology students (Castro et al., 2004) to 48.8% in a sample of Tasmanian undergraduate psychology students (Thompson et al., 1998).

Importantly, in the aforementioned studies (e.g., Cozzarelli & Major, 1990; Thompson et al., 1998), IP was conceptualized as a categorical construct, and in this categorical approach, individuals are categorized as imposters or non-imposters based on a median-split or predetermined cut-off score. However, consistent with Vergauwe, Wille, Feys, de Fruyt, and Anseel's (2014) recommendation, the present study conceptualized IP as a dimensional construct, where imposter feelings vary across a range of scores. *Hypothesis 2.1*: At least 30% of coaches will report they are experiencing imposter feelings.

Imposter Phenomenon and Demographic Variables

Previous research (e.g., Castro et al., 2004; Clark, Vardeman, & Barba, 2013) suggests three demographic variables may influence IP, including gender, race, and age.

Gender. Coaching is a male-dominated profession (Knoppers, 1992), and the percentage of females in collegiate coaching positions has been steadily decreasing since the early 1970's (Benbow, 2015). Knoppers (1992) argues that men and women are in a tug-of-war, each side defining what it means to be a coach and struggling to advance their definition. It appears, then, that there is a great deal of tension surrounding gender roles in coaching, and Clance and O'Toole (1978) argue that tension and conflict about one's role in society serve to stimulate and sustain imposter feelings.

Although it is now believed that both males and females experience imposter feelings, the relationship between IP and gender is unclear. Several researchers have found greater levels of imposter feelings in females than in males (Cusack, Hughes, & Nuhu, 2013; Henning et al., 1998; King & Cooley, 1995; McGregor, Gee, & Posey, 2008; Schubert, 2013). Conversely, Topping (1984) found that male university faculty reported greater levels of imposter feelings than did their female counterparts. Still, many researchers have found no

difference in the magnitude of imposter feelings experienced by males and females (Beard, 1990; Bernard, Dollinger, & Ramaniah, 2010; Caselman, Self, & Self, 2006; Castro et al., 2004; Cowman & Ferrari, 2002; Langford, 1990; Lester & Moderski, 1995; Sonnak & Towell, 2001).

Gender has been shown to moderate the relationship between IP and several psychosocial variables (e.g., Beard, 1990; Hayes & Davis, 1993). For example, Hayes and Davis (1993) found the Type A personality to be positively related to IP for men but negatively related to IP for women, and Beard (1990) found a weak correlation between IP and impulsivity for females but a strong correlation for males. Beard (1990) suggested that males and females respond differently to their feelings of inadequacy. Females withdraw and downplay their achievements to protect their relationships, whereas males overcompensate and put forth more effort to prove their competency (Beard, 1990). Altogether, these findings suggest IP may be driven by different factors and may manifest itself differently for males and females.

Race. Castro et al. (2004) studied the relationship between racial identity and IP in clinical and counseling psychology graduate students. Caucasians reported significantly greater imposter feelings ($M = 57.97$, $SD = 15.08$) than did African Americans ($M = 49.13$, $SD = 12.54$).

Age. A negative correlation between age and IP has been identified across a number of different populations. Schubert (2013) and Thompson et al. (1998) found IP feelings decreased with age in samples of American ($r = -0.16$, $p < 0.01$) and Tasmanian undergraduate students ($r = -0.22$, $p < 0.05$), respectively. Although not statistically significant, Lester and Moderski (1995) and Want and Kleitman (2006) also found this

relationship in samples of high school students (r = -0.12, p > 0.05) and middle-aged white-collar workers (r = -0.03, p > 0.05), respectively. Finally, Clark et al. (2013) reported this trend in a sample of librarians.

Hypothesis 2.2: Female, white, and younger coaches will report greater imposter feelings than will male, minority, and older coaches. Additionally, gender may moderate the relationship between coaches' imposter feelings and sport experience, coaching experience, and current coaching position variables.

Imposter Phenomenon and Sport Experience

The competencies and abilities needed to be an athlete are similar to those needed to be a coach. Both positions require extensive knowledge of the game—from executing the various skills and techniques to conceptualizing different strategies and schemes. *Hypothesis 2.3*: Coaches with fewer years of sport experience, who played at less elite competitive levels (e.g., high school or lower), will report greater imposter feelings than will coaches with more years of sport experience, who played at more elite competitive levels.

Imposter Phenomenon and Coaching Experience

A number of studies have found that imposter feelings decrease with experience. Topping (1984) reported a negative correlation between imposter feelings and faculty rank, and Schubert (2013) found a negative correlation between academic year and IP. Additionally, Clark et al. (2012) reported a positive relationship between IP and the first three years in a new position as a librarian. *Hypothesis 2.4*: Coaches with fewer years of coaching experience, who have only coached at less elite competitive levels (e.g., high school or lower), who have only held assistant coach positions, and who have utilized fewer training tools will report greater imposter feelings than will coaches with more years of coaching

experience, who have coached at elite competitive levels, who have held assistant and head coach positions, and who have utilized more training tools.

Imposter Phenomenon and Current Coaching Position

Clance (1985) and Young (2011) hypothesized that beginning a new career or new position would incite imposter feelings. These situations are often accompanied by intense pressure to establish oneself as competent and successful, which may stimulate the development of imposter feelings or exacerbate preexisting imposter feelings (Clark, 1985; Young, 2011). *Hypothesis 2.5*: Regardless of the type of sport, coaches who have been in their current position for fewer years and who are assistant coaches at less elite competitive levels (e.g., high school or lower) will report greater imposter feelings than will coaches who have been in their current position for more years and who are head coaches at more elite competitive levels.

Predicting Imposter Phenomenon

Hypothesis 2.6: Coaches' demographic, sport and coaching experience, and current coaching position variables will significantly predict coaches' imposter feelings.

Method

Participants

Participants were 881 coaches from the Northwest United States (see Table 2.1). Approximately 70% of coaches were male and 84% were white. The average coach was 42.46 years of age (*SD* = 12.63). On average, coaches had played their sport for 15.02 years (*SD* = 11.06), and over half (51%) had played at the collegiate level. Coaches had an average of 16.68 years of coaching experience (*SD* = 11.52), and they had been in their current

position for an average of 6.43 years (*SD* = 7.37), with nearly 70% currently coaching at the collegiate level.

Measures

Imposter Phenomenon Scale (IPS). The 7-item IPS (see Study 1 and Appendix A) has two hypothesized factors: Self-Perceptions of Fraudulence (IP-Self; 4 items) and Concerns about Others' Perceptions of My Success (IP-Others; 3 items). The IP-Self factor assesses an individual's own feelings of incompetence and fraudulence, whereas the IP-Others factor assesses an individual's concerns about and responses to others' perceptions of his or her success. Each statement is evaluated on a 7-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree).

Coaching Demographic and Background Questionnaire (CDBQ). The 15-item CDBQ (see Appendix C) assesses key demographic variables (i.e., gender, age, and race), previous experience playing sport (i.e., number of years and highest competitive level), coaching experience (i.e., total number of years, positions held as coach, competitive levels coached, and coach training), and current coaching position (i.e., current sport and competitive level, current coaching position, number of years in current coaching position, gender composition of team, and racial composition of team).

Procedure

An online survey was developed in Qualtrics (see Appendix D) and distributed to four samples: personal contacts of the researcher, online coaching forums, a Northwestern United States state coaches association, and a Panel of coaches from the Western United States.

Personal contacts. Personal contacts of the researchers were sent email invitations that included a URL to access the online Qualtrics survey and the researcher's contact information.

Coaching forums. An invitation entitled "Coach Success and Motivation—Your Input Needed" (see Appendix E) was posted on 22 coaching forums.

Coaching association. A table was set up in the vendor space at a Northwestern United States state coaches association clinic for two days. Coaches either completed the survey electronically on a tablet (98.3%; $n = 175$) or completed a paper-and-pencil survey booklet (see Appendix F; 1.7%; $n = 3$). The approximate response rate was 74%, or 178 coaches.

Coaching Panel. Coaches ($n = 6{,}360$) at 320 colleges and universities in the Western United States were recruited via email. A total of four personalized and unique emails (see Appendix G) were distributed across five weeks (see Table 1.8 for detailed timeline). Six hundred five (9.5%) of the Panel coaches received the email and began the survey. However, over half of the Panel coaches (61.6%; $n = 3{,}919$) either had an invalid email address ($n = 125$) or did not open the survey emails ($n = 3{,}794$). Thus, of the coaches who received and opened a survey email, the response rate was 24.8%.

Data Analysis Plan

Preliminary analyses. Data were examined for missing values, and cases with missing values on the IPS were excluded from subsequent analyses. IP-Self and IP-Others factor scores were created by taking the mean of their respective indicator items. Given findings from Study 1, which supported a second-order IP factor, the overall IP score was

then created by averaging the IP-Self and IP-Others factor scores. The assumption of normality was then assessed for IP-Self, IP-Others, and IP.

Three composite variables were created to examine competitive level experience, positions held as a coach, and the total number of training tools utilized by the coach (see Appendix I for syntax for composite variables). The "competitive level experience" variable (range: 0-33) was created by rank-ordering 14 competitive levels according to their respective elite status and then assigning weights to each level, with greater weight given to more elite levels. The "positions held" variable (range: 0-16) was created by assigning weights to each coaching position, with greater weight given to paid, head coach positions. The "training" variable (range: 0-5) was created by adding the number of training tools used by the coach.

Descriptive statistics. To assess the extent to which imposter feelings are experienced by coaches, the mean and distribution of IPS scores were calculated. Because this is the first study to assess IP using the IPS, standards for assessing prevalence (e.g., percentile ranks or cut-off points validated with clinical diagnoses) have not yet been developed. In place of these standards, one option is to use distributional cut-off points (e.g., mean, median, or tertiary splits). However, distributional cut-offs do not indicate what percentage of coaches are experiencing imposter feelings but rather what percentage of coaches are experiencing a certain level of imposter feelings compared to other coaches in the sample. For example, coaches above the median are experiencing greater imposter feelings compared to coaches below the median, but coaches above and below the median may or may not both be experiencing meaningful imposter feelings.

An alternative option, which more directly answers the research question, is to use a response scale cut-off point. IPS items are evaluated on a 7-point Likert scale, where 1

through 3 represent levels of disagreement, 4 represents neither disagreement nor agreement, and 5 through 7 represent levels of agreement. An average IP score greater than 4 would thus indicate that coaches, to some degree, agree with the imposter feelings described in the items (e.g., "I feel like I'm a fake"). Therefore, to determine whether IP is a relevant construct in sport (i.e., to determine if coaches are experiencing imposter feelings), frequencies were calculated to identify the percentage of coaches with average IP scores above and below the median response scale point of 4 (i.e., coaches whose average IP scores were above and below 4.0).

Correlations. Pearson's *r* was used to assess the relationships between IP, IP-Self, and IP-Others with age, years of sport experience, years in current coaching position, years of coaching experience, competitive level experience, positions held as a coach, and training. Given the potential of gender as a moderator variable, all correlations were examined for the full sample and across gender. Consistent with Cohen's (1992) conceptualization, small, medium, and large correlations corresponded to magnitudes of |0.10|, |0.30|, and |0.50|, respectively.

Independent-samples *t* test. An independent-samples *t* test was conducted to compare the mean IP, IP-Self, and IP-Others scores of female coaches to male coaches.

Analyses of variance (ANOVA). All ANOVAs included gender as a factor to examine potential interaction effects. Given a significant interaction, simple effects analyses were conducted to examine the relationship between the variables for female coaches and for male coaches. Given a significant main effect of the imposter variables (i.e., IP-Self, IP-Others, or IP), planned contrasts were conducted.

To assess the mean differences in IP-Self, IP-Others, and IP scores, 2 (race/training/current competitive level/sport type) x 2 (gender) factorial ANOVAs were conducted to compare the scores across race (i.e., white and minority coaches), training (i.e., coaches who had and had not used coaching clinics, coaching certifications, coaching books or videos, and a coaching mentor), current competitive level (i.e., collegiate, high school/middle school coaches), and sport type (i.e., team and individual sport coaches; see Table 2.1 for a list of team and individual sports). A 3 (highest competitive levels at which coaches played) x 2 (gender) factorial ANOVA was conducted to compare the mean IP-Self, IP-Others, and IP scores for coaches across three competitive levels of sport experience (i.e., post-college, college, or high school and lower).

Hierarchical multiple linear regressions. Three hierarchical multiple linear regressions were calculated to assess how much variance in IP-Self, IP-Others, and IP scores could be explained by key demographic and background variables. Gender and race were entered into the first model; highest competitive levels at which coaches played into the second model; and competitive level experience and training into the third model. The change in adjusted coefficient of determination (adjusted R^2) for each model was then examined to assess the added value of each set of predictors in explaining the variability in IP scores. Significant predictors were identified, and Beta values were compared to assess the overall contribution of each variable in the prediction of IP-Self, IP-Others, and IP.

Results

Preliminary Analyses

Of the 881 coaches who completed the survey, 23 coaches had one missing IPS data point, 24 had two to four missing IPS data points, and 19 had five to six missing IPS data

points. Twenty-six coaches quit the survey before completing the CDBQ. Approximately 89% (n = 789) of coaches had no missing data points on the IPS and were reserved for analysis.

IP scores approximated a normal distribution; skewness and kurtosis z scores did not exceed the recommended |3.3| threshold (Tabachnick & Fidell, 2001). However, the skewness (z = 19.26) and kurtosis (z = 18.16) z scores for IP-Self and the kurtosis (z = 4.01) z score for IP-Others exceeded the recommended |3.3| threshold. Given the likelihood that imposter feelings are not normally distributed in the population coupled with the increased difficulty of interpreting transformed scores, no transformations were made to the IP-Self or IP-Others scores.

Descriptive Statistics

The mean IP score was 2.98 on a 7-point scale (SD = 0.917; see Table 2.1), and IP scores ranged from 1.00 to 6.25. Approximately 87% of coaches had an average IP score less than 4.0, and 12% had an average IP score greater than 4.0.

Correlation Results

IP-Self. For the full sample, small, negative correlations (M_r = -0.11) were found between IP-Self and years of coaching experience, total number of training tools utilized by coaches, and competitive level experience (see Table 2.2). For male coaches, small, negative correlations (M_r = -0.09) were found between IP-Self and total number of training tools utilized by coaches and competitive level experience (see Table 2.3). For female coaches, small, negative correlations (M_r = -0.18) were found between IP-Self and years of coaching experience, total number of training tools utilized by coaches, and competitive level experience (see Table 2.3).

IP-Others. For the full sample, small, negative correlations (M_r = -0.10) were found between IP-Others and years of sport experience and total number of training tools utilized by coaches (see Table 2.2). For male coaches, small, negative correlations (M_r = -0.10) were found between IP-Others and years of sport experience (see Table 2.3). For female coaches, small, negative correlations (M_r = -0.15) were found between IP-Others and years of coaching experience, total number of training tools utilized by coaches, and competitive level experience (see Table 2.3).

IP. For the full sample, small, negative correlations (M_r = -0.08) were found between IP and years of sport experience, total number of training tools utilized by coaches, and competitive level experience (see Table 2.3). For female coaches, small, negative correlations (M_r = -0.19) were found between IP and years of coaching experience, total number of training tools utilized by coaches, and competitive level experience (see Table 2.3).

Independent-Samples *t* Test Results

Gender. No significant differences were found between female (n = 237) and male (n = 546) coaches for mean IP-Self ($t(1) = 0.343$, $p = 0.732$, $d = 0.025$) or mean IP scores ($t(1) = -1.751$, $p = 0.080$, $d = 0.133$). However, a significant difference was found for mean IP-Others scores ($t(1) = -2.594$, $p = 0.010$, $d = 0.133$). Female coaches reported higher IP-Others scores (M_{diff} = 0.28) than did male coaches (see Table 2.1 for group means on imposter variables).

Analysis of Variance (ANOVA) Results

Table 2.4 provides statistics (i.e., F, p, and η^2 values) for the interaction and main effects for each relationship.

Racial identity. The interaction between race and gender was nonsignificant for IP-Self, IP-Others, and IP. However, there was a significant main effect for race for each of the imposter variables. White coaches (n = 655) reported higher IP-Self (M_{diff} = 0.27), IP-Others (M_{diff} = 0.35), and IP (M_{diff} = 0.31) scores compared to minority coaches (n = 120).

Highest competitive level played. The interaction between highest competitive level played and gender was nonsignificant for IP-Self, IP-Others, and IP. However, a significant main effect was found for highest competitive level played for each of the imposter variables. Planned contrasts comparing the mean IP-Self, IP-Others, and IP scores indicated a significant difference between all three competitive levels. Coaches whose highest competitive level played was high school (n = 170) reported higher IP-Self (M_{diff} = 0.15), IP-Others (M_{diff} = 0.31), and IP (M_{diff} = 0.24) scores compared to coaches whose highest competitive level played was college (n = 400). Coaches whose highest competitive level played was high school also reported higher IP-Self (M_{diff} = 0.37), IP-Others (M_{diff} = 0.70), and IP (M_{diff} = 0.54) scores compared to coaches whose highest competitive level played was post-college (n = 108). Finally, coaches whose highest competitive level played was college reported higher IP-Self (M_{diff} = 0.22), IP-Others (M_{diff} = 0.39), and IP (M_{diff} = 0.30) scores compared to coaches whose highest competitive level played was post-college ($F(1, 672) = 9.48$, $p = 0.002$, $\eta^2 = 0.006$).

Training. The interactions between gender and coaching clinics, coaching certifications, and coaching books or videos were nonsignificant for IP-Self, IP-Others, and IP. Additionally, the main effects for coaching clinics, coaching certifications, and coaching books or videos were also nonsignificant.

The interaction between gender and coaching mentors was significant for IP-Others and IP but not for IP-Self. For IP-Others, the simple effect of a coaching mentor was not significant for female or for male coaches. Female coaches who had no coaching mentor (n = 38) tended to have higher IP-Others scores (M_{diff} = 0.79) compared to female coaches who had a coaching mentor (n = 187), but this trend fell slightly shy of traditional statistical significance ($F(1,685) = 3.57$, $p = 0.059$, $\eta^2 = 0.005$). Similarly, male coaches who had no coaching mentor (n = 65) tended to have higher IP-Others scores (M_{diff} = 0.03) compared to male coaches (n = 400) who had a coaching mentor, but this trend also only approaches traditional statistical significance ($F(1,685) = 3.26$, $p = 0.071$, $\eta^2 = 0.005$).

For IP, the simple effect of a coaching mentor was significant for female coaches but not for male coaches. Female coaches who had no coaching mentor had higher IP scores (M_{diff} = 0.57) compared to female coaches who had a coaching mentor ($F(1,685) = 5.81$, p = 0.016, $\eta^2 = 0.008$). Male coaches who had no coaching mentor tended to have higher IP scores (M_{diff} = 0.05) compared to male coaches who had a coaching mentor. Again, this trend was just shy of traditional statistical significance ($F(1,685) = 3.67$, $p = 0.056$, $\eta^2 = 0.005$).

A significant main effect for coaching mentors was found for IP-Self, IP-Others, and IP. Coaches who had no coaching mentor (n = 102) had higher IP-Self (M_{diff} = 0.17), IP-Others (M_{diff} = 0.32), and IP (M_{diff} = 0.25) scores compared to coaches who did have a coaching mentor (n = 587).

Competitive level of current position. The interaction between competitive level of current position and gender was nonsignificant for IP-Self, IP-Others, and IP. However, a significant main effect for competitive level of current position was found for each dependent variable. High school and middle school coaches (n = 140) reported higher IP-Self (M_{diff} =

0.18), IP-Others (M_{diff} = 0.33), and IP (M_{diff} = 0.26) scores compared to college coaches (n = 375).

Current position and sport type. The interactions between current position, current sport type and gender were nonsignificant for IP-Self, IP-Others, and IP. The main effects for current position and for current sport were also nonsignificant for IP-Self, IP-Others, and IP.

Hierarchical Multiple Linear Regression Results

Predicting IP-Self. In the first model (F(2,666) = 6.124, p = 0.002), race, but not gender, emerged as a significant predictor of IP-Self. However, the demographic variables alone accounted for only 1.5% of the variance in IP-Self scores (see Table 2.5).

In the second model (F(3,665) = 8.301, $p < 0.001$), race and highest competitive level played emerged as significant predictors of IP-Self. The demographic and sport experience variables together accounted for a modest 3.2% of the variance in IP-Self scores, with sport experience alone accounting for 1.4% of the unique variance in IP-Self scores.

In the third model (F(5,663) = 7.033, $p < 0.001$), race, highest competitive level played, and training emerged as significant predictors of IP-Self. The demographic, sport experience, and coaching experience variables together accounted for 4.3% of the variance in IP-Self scores; coaching experience alone accounted for 1.1% of the unique variance in IP-Self scores.

In the fourth model (F(6,662) = 7.725, $p < 0.001$), race, highest competitive level played, training, and racial composition of the team emerged as significant predictors of IP-Self. The demographic, sport experience, coaching experience, and current coaching position variables together accounted for 5.7% of the variance in IP-Self scores, with current coaching

position alone accounting for 1.4% of the unique variance in IP-Self scores. In this final model, magnitudes of the statistically significant beta weights ranged from 0.88 to 0.129.

Predicting IP-Others. In the first model ($F(2,666) = 6.038$, $p = 0.003$), gender and race emerged as significant predictors of IP-Others. The demographic variables alone accounted for only 1.5% of the variance in IP-Others scores.

In the second model ($F(3,665) = 10.159$, $p < 0.001$), gender, race, and highest competitive level played emerged as significant predictors of IP-Others. The demographic and sport experience variables together accounted for a modest 4.0% of the variance in IP-Others scores, with sport experience alone accounting for 2.5% of the unique variance.

In the third model ($F(5,663) = 7.049$, $p < 0.001$), gender, race, highest competitive level played, and training emerged as significant predictors of IP-Others. The demographic, sport experience, and coaching experience variables together accounted for 4.3% of the variance in IP-Others scores, with coaching experience alone accounting for only 0.3% of the unique variance in IP-Others scores.

In the fourth model ($F(6,662) = 12.662$, $p < 0.001$), gender, highest competitive level played, training, and racial composition of the team emerged as significant predictors of IP-Others. The demographic, sport experience, coaching experience, and current coaching position variables together accounted for 5.6% of the variance in IP-Others scores, with current coaching position alone accounting for only 0.3% of the unique variance in IP-Others scores. In this final model, magnitudes of the statistically significant beta weights ranged from 0.80 to 0.123.

Predicting IP. In the first model ($F(2,666) = 6.033$, $p < 0.001$), gender and race emerged as significant predictors of IP. The demographic variables alone accounted for only 2.0% of the variance in IP scores.

In the second model ($F(3,665) = 9.772$, $p < 0.001$), race, and highest competitive level played emerged as significant predictors of IP. The demographic and sport experience variables together accounted for 5.1% of the variance in IP scores, with sport experience alone accounting for 3.1% of the unique variance in IP scores.

In the third model ($F(5,663) = 7.072$, $p < 0.001$), race, highest competitive level played, and training emerged as significant predictors of IP. The demographic, sport experience, and coaching experience variables together accounted for 6.0% of the variance in IP scores, with coaching experience alone accounting for only 0.9% of the unique variance in IP scores.

In the fourth model ($F(6,662) = 7.680$, $p < 0.001$), race, highest competitive level played, training, and racial composition of the team emerged as significant predictors of IP. The demographic, sport experience, coaching experience, and current coaching position variables together accounted for 7.9% of the variance in IP scores, with current coaching position alone accounting for only 1.9% of the unique variance in IP scores. In this final model, magnitudes of the statistically significant beta weights ranged from 0.82 to 0.162.

Discussion

Prevalence of Imposter Phenomenon

Less than 12% of coaches in this convenience sample reported that they had experienced imposter feelings as operationalized by an average agreement with the IPS items. In the present study, IP was measured with the IPS, whereas in previous studies (e.g.,

Cowman & Ferrari, 2002; Thompson et al., 1998), IP was measured with the CIPS (Clance, 1985). Each instrument measures IP in a slightly different way (e.g., the CIPS has three hypothesized factors [i.e., Fake, Luck, and Discount] whereas the IPS has only two hypothesized factors [i.e., IP-Self and IP-Others]). Furthermore, each instrument uses different criteria for identifying "imposters" (i.e., using the CIPS, "imposters" were those whose total scores exceeded cut-off scores for moderate/clinical levels of IP, whereas using the IPS, "imposters" were those who had an average agreement with the IPS items). Taken together, these differences confound interpretation of prevalence rates and render comparison of findings across studies unproductive.

Imposter Phenomenon and Demographic Variables

Partial support was found for Hypothesis 2.2. Female, white, and younger coaches tended to report greater imposter feelings compared to male, minority, and older coaches.

Gender. Female coaches appear to have greater concerns about others' perceptions of their success compared to male coaches. This finding is consistent with Caselman et al. (2006) who found that social factors contributed more extensively to adolescent females' experiences of IP than to those of adolescent males. Social dynamics appear to have a greater influence on female coaches' imposter feelings compared to those of their male counterparts.

However, Study 1 identified several IPS items that were noninvariant across gender, suggesting the items did not measure IP in the same way for males as they did for females. Therefore, gender-related differences identified in the present study must be interpreted with caution because the difference, while possibly a reflection of reality, may also be a product of how IP was measured.

Age. Although not statistically significant, a small, inverse relationship was found between coaches' age and imposter feelings (i.e., IP-Self, IP-Others, and IP). Lester and Moderski (1995) found a similar trend in a comparable population (i.e., middle-aged white-collar workers). For middle-aged populations, then, it is possible that experience, rather than age or in combination with age, might be a more critical antecedent of IP, and the relationships identified in this study between coaches' imposter feelings and their coaching and sport experience may provide initial support for this hypothesis.

Race. White coaches reported more imposter feelings (i.e., IP-Self, IP-Others, and IP) than did minority coaches. Castro et al. (2004), who reported a similar finding in graduate students, reasoned that minorities experienced less imposter feelings compared to their white counterparts "due to having internalized a realistic, positive self-image that was needed for them to overcome racism and other obstacles and [to] succeed at such a high level of education" (p. 213). In other words, compared to white coaches, minority coaches likely faced many more obstacles along their journey to become successful coaches. Minority coaches who are nonimposters, compared to those who are imposters, likely had greater ease overcoming the many obstacles they faced and, as a result, greater likelihood of success because they had confidence in their competence. On the other hand, white coaches, who faced fewer obstacles, were not forced to deal with their imposter feelings prior to beginning their journey and, as a result, did not have the necessary coping skills or positive self-image to help them overcome those feelings.

Imposter Phenomenon and Sport Experience

Support was found for Hypothesis 2.3. Coaches with less sport experience and coaches who played at less elite competitive levels (e.g., high school or lower) tended to

report greater imposter feelings than did coaches with more sport experience and coaches who played at more elite competitive levels.

Years of sport experience. Similar to the trend identified with years of coaching experience, years of sport experience were inversely related to IP-Others and IP for the full sample. This finding is not surprising given that many of the competencies needed to perform well as an athlete are also important for being an effective coach. Years of sport experience did not appear to alter coaches' own feelings of incompetence (i.e., IP-Self). However, their experiences as athletes appear to have given them the confidence, or at least the coping skills, to effectively deal with IP-Others' perceptions of and expectations about their success (i.e., IP-Others).

Years of sport experience were also inversely related to IP-Others for male coaches but not female coaches. Thus, experience as an athlete may be more important for combatting certain imposter feelings (i.e., IP-Others) for male than for female coaches.

Highest competitive level played. Coaches who played their sport at a higher competitive level (i.e., post-college) reported lower imposter feelings (i.e., IP-Self, IP-Others, and IP) than did coaches who played at a lower competitive level (i.e., high school). To perform successfully as elite athletes, coaches would likely have needed to develop skills for dealing with imposter feelings—skills that would have helped them combat imposter feelings as coaches. It is also plausible that individuals who felt like imposters as coaches also felt like imposters as athletes. Compared to nonimposters, imposters may have been less likely to explore opportunities to play their sport at more elite levels because they did not feel they were competent enough or feared the increased likelihood of being exposed as frauds.

Imposter Phenomenon and Coaching Experience

Partial support was found for Hypothesis 2.4. Coaches who had fewer years of coaching experience, coaches who had only coached at less elite competitive levels (e.g., high school or lower), and coaches who had utilized fewer training tools tended to report greater imposter feelings than did coaches who had more years of coaching experience, coaches who had coached at elite competitive levels, and coaches who had utilized more training tools. However, the types of positions coaches had held (i.e., head coach or assistant coach positions) did not appear to influence their imposter feelings.

Years of coaching experience. Previous research (e.g., Clark et al., 2012; Schubert, 2013; Topping, 1984) found that imposter feelings decreased with experience for university faculty, librarians, and students, so it was not surprising that years of coaching experience tended to be related to lower IP-Self scores. Additionally, years of coaching experience were also inversely related to imposter feelings (i.e., IP-Self, IP-Others, and IP) for female but not male coaches. Experience as a coach appears to be more important for reducing imposter feelings for female coaches than it is for their male counterparts.

Competitive level experience. As their competitive level experience increased, coaches tended to experience less IP-Self and IP. More experience, particularly at more elite levels, may help reduce coaches' imposter feelings. On the other hand, compared to nonimposters, imposters may have been less likely to explore opportunities to coach at more elite levels because they did not feel they were competent enough or feared the increased likelihood of exposure that accompanied a more elite position.

Positions held. No differences were found in coaches' imposter feelings based on the types of positions (e.g., paid head coach, unpaid assistant coach) they had held. Thus, it

appears the types of positions held may not be as important for regulating coaches' imposter feelings as other coaching experience factors.

However, this finding may be better explained as a measurement artifact—the result of how positions held was operationalized. To assess the influence of the positions coaches held, a composite variable was created that gave greater weight to head coach positions. The number of years served in each position was not accounted for in the calculation of this composite variable because this information was not obtained. As a result, coaches who had been a head coach, an assistant coach, and a graduate assistant for a total of three years would have had a higher composite score than a coach who had been an assistant coach for 10 years.

Training. Coaches who used a greater variety of training tools tended to report less imposter feelings (i.e., IP-Self, IP-Others, and IP) than did coaches who used fewer training tools. The purpose of training (e.g., coaching clinics and certifications) is to increase coaches' sense of competence. Thus, the more training tools coaches utilized, the more opportunities they had to increase that sense of competence. On the other hand, imposters tend to believe that ability is fixed and cannot be changed (i.e., entity beliefs; Kumar & Jagacinski, 2006; Langford, 1990). As a result, they may also have been less likely to seek additional training because they did not believe they could change or improve their coaching ability.

Additionally, female coaches who did not have a coaching mentor reported significantly more imposter feelings compared to female coaches who had a mentor. A similar trend was found for male coaches, although the trend was not significant. Thus, for coaches in this convenience sample, not all training tools appeared to be equally effective for safeguarding against imposter feelings. Having a coaching mentor, compared to attending

coaching clinics, having coaching certifications, or using coaching books or videos, appeared to be the most important factor for protecting coaches in this sample, particularly female coaches, from IP. A mentor could provide education and guidance, help to validate the coaches' experiences and feelings as a normal part of the process, and also reinforce effective attributions of success and failure—all of which would help reduce coaches' imposter feelings. Alternatively, coaches struggling with imposter feelings may also have been less likely to seek the help of a mentor because, within the context of an intimate mentorship, the likelihood of being discovered as a "fraud" would have been greatly increased.

Imposter Phenomenon and Current Position

Partial support was found for Hypothesis 2.5. High school and middle school coaches working at less elite competitive levels (e.g., high school or lower) tended to report greater imposter feelings than did collegiate coaches. Consistent with the hypothesis, the type of sport did not influence coaches' imposter feelings. Moreover, the number of years coaches had been in their current position and the types of positions coaches were currently in (i.e., head coach or assistant coach positions) also did not appear to influence their imposter feelings.

Years in current position. No relationship was found between coaches' imposter feelings and the number of consecutive years they had served in their current position. In contrast, Clance (1985) hypothesized that the number of years in the current position would be positively related to imposter feelings, suggesting that a new position, accompanied by new pressures to establish one's competence, would provoke imposter feelings. Exploring the potential moderation of this relationship may reconcile this empirical and theoretical conflict. This finding might be moderated by the positions into which coaches are transitioning.

Coaches transitioning into a position at a higher competitive level, compared to coaches transitioning into a position at an equal or lower competitive level, might experience an increase in imposter feelings as a result of the increased demands.

Competitive level. High school and middle school coaches reported more imposter feelings (i.e., IP-Self, IP-Others, and IP) than did college coaches. Imposters, who doubt their abilities as coaches and who feel like frauds, may be more likely to pursue careers at lower competitive levels and less likely to pursue opportunities to advance their careers at higher competitive levels than are nonimposters.

Current position. No difference was found in the level of imposter feelings reported by head coaches compared to assistant coaches. This finding was unexpected given the different nature, responsibilities, and demands of these positions. For example, head coaches are typically the "face" of the team and are the primary decision makers, potentially making them more likely to be critically evaluated for their competence than assistant coaches and, as a result, more likely to experience greater imposter feelings. On the other hand, it is also possible that coaches who felt like imposters at the beginning of their career gravitated more to assistant coach positions to reduce their imposter feelings.

Sport type. No difference was found in the level of imposter feelings reported by coaches working with team compared to individual sports. It is possible that contextual variables, such as the sport itself, may have had less influence on imposter feelings compared to other situational variables, such as the athletic administration or team personality and climate. However, the influence of the dynamics between coach and athletes needs to be further explored before strong conclusions can be made.

Predicting Imposter Phenomenon

Partial support was found for Hypothesis 2.6. Highest competitive level played, training, and racial composition of the team emerged as significant predictors of each of the imposter variables. In addition, gender was a significant predictor of IP-Self and IP, and race was a significant predictor of IP-Others. After controlling for demographic (i.e., gender, race) and sport experience (i.e., highest competitive level played) variables, coaching background (i.e., competitive level experience and training) and current position (i.e., racial composition of team) variables contributed little to explaining the variance in IP-Self, IP-Others, and IP scores.

Putting these results in perspective, demographic and background variables somewhat surprisingly explained less than 10% of the variability in coaches' imposter feelings (i.e., IP-Self, IP-Others, and IP). This finding suggests that demographic and background variables, at least those variables measured in the present study, may have limited utility for identifying coaches who are experiencing imposter feelings.

Strengths and Limitations

The findings from this study should be interpreted in light of few key limitations. First, the use of a nonprobability, convenience sample limits the generalizability of the findings of the present study to this coach population. Nonprobability samples may not accurately represent the population from which they were sampled. Thus, as a whole, coaches may experience imposter feelings to a greater or lesser degree than coaches in this convenience sample. Additionally, given the nature of IP, imposters may have been more likely to not complete the survey than were nonimposters. Imposters do not feel successful or

competent and fear being "found out" as a fraud, so a survey about success may have exacerbated some coaches' imposter feelings, discouraging them from participating.

Second, the use of a correlational design limits the interpretability of findings, particularly as related to directionality and causation. Third, in attempt to reduce response demands on participants and to keep the survey to a reasonable completion time (i.e., less than 10 min), many demographic and background variables were not measured.

Nonetheless, there were several strengths of this study that make it a valuable initial exploration of IP in sport. This was the first study to examine IP among sport coaches—an important investigation given the negative consequences associated with imposter feelings, such as low self-esteem (Kamarzarrin, Khaledian, Shooshtari, Yousefi, & Ahrmai, 2013), poor mental health (Cusack et al., 2013; Sonnak & Towell, 2001), and debilitating anxiety (Ross, Stewart, Mugge, & Fultz, 2001). This study also had a large sample of nearly 800 coaches and represented a diverse range of coaches who were currently coaching in middle schools, high schools, and colleges.

Future Research

Additional research exploring IP in coaches is needed to better understand the antecedents and consequences of IP and to develop effective interventions for reducing IP. Future research should assess imposter feelings in coaches of all competitive levels—from youth coaches to professional and Olympic coaches. Additionally, the influence of other demographic (e.g., socioeconomic status), background (e.g., education), environmental (e.g., support from the athletic administration), and personality variables (e.g., implicit theories of ability) should be explored. Finally, researchers and practitioners might also explore the

impact of coach education and "community of learners" interventions on imposter feelings, particularly for less experienced coaches.

Conclusion

Based on findings from this exploratory study, it appears IP is a relevant construct in sport. By understanding key demographic and background variables, an initial picture of the types of coaches who might be at greater risk for imposter feelings begins to emerge. Imposters in this sample tended to be female, white, and less experienced as a coach and as an athlete, to have coached and competed at lower competitive levels, and to have had less training and no coaching mentor, but these variables accounted for a minimal amount of the variance in IP. Importantly, this study also provides initial support to Hayes and Davis' (1993) findings that suggest the processes surrounding IP may be different for females and males. Nonetheless, more research is needed to better explain the factors contributing to coaches' imposter experience, and despite the valuable insight gained from this preliminary study, caution should be exercised when generalizing the findings from this study given the use of a nonprobability, convenience sample.

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Table 2.1

Means and Standard Deviations for IP-Self, IP-Others, and IP across Subsamples

		M (SD)		
Subsample	*n*	IP-Self	IP-Others	IP
Total	783	1.73 (0.83)	4.23 (1.35)	2.98 (0.92)
Demographic Variables				
Gender				
Female	237	1.71 (0.76)	4.42 (1.28)	3.06 (0.88)
Male	546	1.73 (0.86)	4.14 (1.37)	2.94 (0.93)
Race				
White	655	1.76 (0.84)	4.28 (1.34)	3.02 (0.92)
Minorities	120	1.49 (0.64)	3.93 (1.36)	2.71 (0.81)
Coaching Experience Variables				
Training – Coaching Mentor				
Mentor	587	1.69 (0.79)	4.24 (1.33)	2.96 (0.88)
Female	187	1.66 (0.74)	4.32 (1.26)	2.99 (0.86)
Male	400	1.70 (0.81)	4.21 (1.36)	2.95 (0.90)
No Mentor	102	1.86 (0.86)	4.56 (1.30)	3.21 (0.91)
Female	38	2.01 (0.85)	5.11 (1.08)	3.56 (0.75)
Male	64	1.77 (0.86)	4.24 (1.32)	3.00 (0.94)
Sport Experience Variables				
Highest Competitive Level Played				
High School or Lower	170	1.86 (0.89)	4.59 (1.29)	3.23 (0.92)
Female	40	1.96 (1.06)	4.90 (1.20)	3.43 (1.00)
Male	130	1.83 (0.83)	4.50 (1.31)	3.166 (0.89)
College	400	1.71 (0.79)	4.28 (1.27)	2.99 (0.85)
Female	147	1.69 (0.68)	4.37 (1.24)	3.03 (0.82)
Male	253	1.72 (0.84)	4.22 (1.29)	2.97 (0.86)
Post-College	108	1.49 (0.67)	3.89 (1.49)	2.69 (0.94)
Female	37	1.58 (0.67)	4.30 (1.36)	2.94 (0.84)
Male	71	1.45 (0.67)	3.68 (1.52)	2.56 (0.96)

Table 2.1 (*continued*)

Subsample	*n*	M (SD) IP-Self	IP-Others	IP
Coaching Experience Variables				
Competitive Level				
Middle School/High School	209	1.85 (0.91)	4.48 (1.31)	3.17 (0.93)
College	543	1.72 (0.82)	4.15 (1.35)	2.91 (0.89)
Current Position				
Head Coach	458	1.73 (0.83)	4.29 (1.33)	3.02 (0.93)
Associate Head or Assistant Coach	299	1.74 (0.85)	4.16 (1.37)	2.95 (0.91)
Current Sport				
Team	554	1.74 (0.87)	4.42 (1.29)	3.02 (0.93)
Individual	208	1.71 (0.77)	4.07 (1.35)	2.89 (0.90)

Table 2.2

Correlations between IP, IP-Self, IP-Others, and Continuous Demographic and Background Variables for Overall Sample

	IP	IP-Self	IP-Others	Age	Years Coached	Levels	Positions	Training	Years Played	Years Current Position
IP	1.00									
IP-Self	0.73*	1.00								
IP-Others	0.91*	0.37*	1.00							
Age	-0.04	-0.05	-0.03	1.00						
Years Coached	-0.06	-0.10*	-0.01	0.84*	1.00					
Levels	-0.09*	-0.12*	-0.05	0.08*	0.22*	1.00				
Positions	0.01*	-0.05	0.04	0.22*	0.30*	0.34*	1.00			
Training	-0.12*	-0.12*	-0.09*	0.20*	0.28*	0.22*	0.24*	1.00		
Years Played	-0.10*	-0.05	-0.11*	0.17*	0.16*	0.09*	0.08*	-0.01	1.00	
Years Current Position	-0.05	-0.06	-0.04	0.50*	0.55*	-0.10*	0.03	0.16*	0.07	1.00
Mean	2.98	1.73	4.23	42.46	16.68	10.00	8.42	3.34	15.02	6.43
SD	0.92	0.83	1.35	12.63	11.52	5.87	3.42	0.98	11.06	7.37

Note: Levels = competitive level experience; Positions = positions held.
*$p < 0.05$

Table 2.3

Correlations between IP, IP-Self, IP-Others, and Continuous Demographic and Background Variables for Female and Male Coaches

	IP	IP-Self	IP-Others	Age	Years Coached	Levels	Positions	Training	Years Played	Years Current Position	*Mean*	*SD*
IP		0.76*	0.92*	-0.09	-0.19*	-0.19*	-0.04	-0.18*	-0.12	-0.11	3.06	0.88
IP-Self	0.72*		0.44*	-0.04	-0.16*	-0.21*	-0.03	-0.16*	-0.10	-0.09	1.71	0.76
IP-Others	0.90*	0.35*		-0.11	-0.16*	-0.13*	-0.03	-0.15*	-0.11	-0.10	4.42	1.28
Age	-0.01	-0.05	0.02		0.86*	-0.09	0.21*	0.32*	0.00	0.56*	38.44	11.21
Years Coached	0.01	-0.08	0.06	0.83*		0.05	0.30*	0.37*	0.05	0.64*	13.47	9.98
Levels	-0.05	-0.10*	-0.01	0.10*	0.25*		0.37*	0.13	0.25*	-0.13*	9.05	5.10
Positions	0.03	-0.06*	0.08	0.19*	0.28*	0.32*		0.21*	0.10	0.02	7.76	3.07
Training	-0.09	-0.10*	-0.06	0.12*	0.23*	0.25*	0.25*		-0.02	0.17*	3.22	1.02
Years Played	-0.09	-0.03	-0.10*	0.22*	0.18*	0.03	0.06	-0.01		0.00	13.96	9.30
Years Current Position	-0.03	-0.05	0.00	0.47*	0.52*	-0.10*	0.02	0.15*	0.09		5.74	7.05
Mean	2.94	1.73	4.14	44.21	18.10	10.42	8.70	3.40	15.54	6.73		
SD	0.93	0.86	1.37	12.82	11.88	6.13	3.52	0.96	11.80	7.49		

Note: Correlations, means (M), and standard deviations (SD) for female and male coaches are listed above and below the diagonal, respectively. Levels = competitive level experience; Positions = positions held; Training = total number of training tools utilized.
*$p < 0.05$

Table 2.4

Analyses of Variance for IP-Self, IP-Others, and IP across Demographic and Background Variables

			IP-Self		IP-Others		IP	
Factor	df_{error}	df_{effect}	F	η^2	F	η^2	F	η^2
Race	1	771	7.168*	0.002	4.387*	0.001	7.643*	0.001
Race x Gender	1	771	0.495	<0.001	0.274	<0.001	0.499	<0.001
Highest competitive level played	2	672	6.346**	<0.001	8.353***	0.001	10.874***	0.001
Highest competitive level played x Gender	2	672	0.749	<0.001	1.456	<0.001	1.631	<0.001
Coaching clinics	1	685	1.970	<0.001	0.064	<0.001	0.672	0.001
Coaching clinics x Gender	1	685	1.096	<0.001	2.644	<0.001	2.235	<0.001
Coaching certifications	1	685	0.306	<0.001	0.087	<0.001	0.220	<0.001
Coaching certifications x Gender	1	685	0.097	<0.001	0.981	<0.001	0.767	<0.001
Coaching books/videos	1	685	2.421	0.001	0.620	<0.001	1.650	<0.001
Coaching books/videos x Gender	1	685	0.771	<0.001	0.015	<0.001	0.236	<0.001
Coaching mentor	1	685	5.627*	0.001	7.750***	0.001	9.881**	0.001
Coaching mentor x Gender	1	685	2.608	0.001	6.638**	0.001	7.005**	0.001
Competitive level of current position	1	748	9.298**	0.002	11.915***	0.001	15.551***	0.002
Competitive level of current position x Gender	1	748	1.296	<0.001	3.312	<0.001	3.484	<0.001
Current position	1	753	0.004	<0.001	2.498	<0.001	1.267	<0.001
Current position x Gender	1	753	0.085	<0.001	0.296	<0.001	0.070	<0.001
Current sport type	1	758	0.054	<0.001	1.569	<0.001	1.045	<0.001
Current sport type x Gender	1	758	0.244	<0.001	2.183	<0.001	1.706	<0.001

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$

Table 2.5

Hierarchical Multiple Regression Analyses Predicting IP-Self, IP-Others, and IP Scores from Demographic, Sport Experience, Coaching Background, and Current Position Variables

	IP-Self					IP-Others					IP				
Variable	*B*	*SE*	*β*	R^2	ΔR^2	*B*	*SE*	*β*	R^2	ΔR^2	*B*	*SE*	*β*	R^2	ΔR^2
Step 1				0.014	0.014				0.015	0.015				0.020	0.020
Gender	0.01	0.06	0.01			0.25	0.11	0.09*			0.13	0.07	0.07*		
Race	-0.28	0.08	-0.13*			-0.35	0.14	-0.10*			-0.32	0.09	-0.13*		
Constant	1.73	0.09				4.02	0.16				2.88	0.10			
Step 2				0.030	0.016				0.039	0.024				0.050	0.030
Gender	0.03	0.06	0.02			0.29	0.11	0.10*			0.16	0.07	0.09*		
Race	-0.25	0.08	-0.12*			-0.29	0.14	-0.08*			-0.27	0.09	-0.11*		
Highest Level Played	-0.17	0.05	-0.13*			-0.34	0.08	-0.16*			-0.25	0.05	-0.18*		
Constant	2.02	0.12				4.60	0.21				3.31	0.14			
Step 3				0.049	0.019				0.043	0.004				0.059	0.009
Gender	0.00	0.07	0.00			0.26	0.11	0.09*			0.13	0.07	0.07*		
Race	-0.24	0.08	-0.11*			-0.29	0.14	-0.08*			-0.27	0.09	-0.11*		
Highest Level Played	-0.14	0.05	-0.12*			-0.34	0.08	-0.16*			-0.24	0.05	-0.17*		
Competitive Levels Experience	-0.01	0.01	-0.07*			0.00	0.01	0.01			0.00	0.01	-0.03		
Training	-0.07	0.03	-0.09*			-0.12	0.05	-0.09*			-0.09	0.04	-0.10*		
Constant	2.36	0.17				5.01	0.28				3.68	0.19			

*$p < 0.05$.

Study 3: Antecedents and Consequences of the Imposter Phenomenon in Coaches: Implicit Theories, Perfectionism, Burnout, and Engagement

Clance and Imes (1978) originally identified the imposter phenomenon (IP) in the late 1970s in a group of highly educated and successful women. The primary characteristic that united these women was persistent doubts about their competence and in their ability to successfully complete an achievement task, often despite a compelling history of success (Clance & Imes, 1978). According to Clance and Imes (1978), these "imposters" disregarded their success, attributing the success to good fortune or inordinate amounts of effort—effort, they believed, that would not be necessary if they were able and competent.

IP refers to an experience of self-perceived intellectual phoniness (Clance & Imes 1978). Imposters believe they have fooled those around them into thinking they are competent and able, and as a result, they fear they will be found out as the frauds they believe themselves to be. Imposter feelings are reinforced by the imposter cycle, which begins with an upcoming task that provokes increased levels of anxiety and self-doubt (Clance, 1985). Imposters frantically prepare and complete the task successfully. However, they diminish the importance of their success because it was achieved either by extraordinary effort or by happenstance (Clance, 1985).

IP has been correlated with a number of negative psychosocial outcomes, such as poor mental health (Cusack, Hughes, & Nuhu, 2013; Sonnak & Towell, 2001), low self-esteem (e.g., Kamarzarrin, Khaledian, Shooshtari, Yousefi, & Ahrmai, 2013; Ross & Krukowski, 2003; Vergauwe, Wille, Feys, de Fruyt, & Anseel, 2014), neuroticism (Bernard, Dollinger, & Ramaniah, 2010; Lester & Moderski, 1995; Ross, Stewart, Mugge, & Fultz, 2001; Vergauwe et al., 2014), self-harm (Ross & Krukowski, 2003), and a history of suicidal ideation and

suicidal attempts (Lester & Moderski, 1995). Given the variety of negative outcomes that appear to be related to IP, more research is needed to better understand the processes surrounding this phenomenon. The purpose of this study was to address this gap in the literature by exploring possible antecedents and consequences of IP in sport coaches.

Two Models of Imposter Phenomenon

This study assessed two structural equation models (SEM) depicting two hypothesized antecedents (i.e., implicit theories and perfectionism) and two hypothesized consequences (i.e., burnout and engagement) of IP in sport coaches (see Figures 3.1 and 3.2). The following sections briefly describe these constructs and outline theoretical and empirical evidence supporting the hypothesized relationships between each construct and IP as well as the specified role of each construct in the SEMs.

Hypothesized Antecedents of Imposter Phenomenon

Implicit theories of ability. Dweck and Leggett (1988) defined implicit theories as individualized, domain-specific beliefs about the nature of human characteristics (e.g., ability, personality, morality). Dweck and Leggett (1988) theorized two types of implicit theories of ability: incremental beliefs and entity beliefs. People with incremental beliefs have growth mindsets and believe that ability is malleable and dynamic (Dweck, 2000, 2008). On the other hand, people with entity beliefs have fixed mindsets and believe that ability is internal, concrete, and unchangeable (Dweck, 2000, 2008).

Perfectionism. Cox, Enns, and Clara (2002) defined perfectionism as a multidimensional, dispositional variable representing the propensity to strive for unrealistically high and rigid performance standards, to fear failure and mistakes, and to be overly self-critical. Gaudreau and Thompson (2010) hypothesized two broad dimensions of

perfectionism: personal standards perfectionism (PF-PSP) and evaluative concerns perfectionism (PF-ECP). PF-PSP is a positive, or adaptive, form of perfectionism that represents the propensity to set high standards for oneself (Gaudreau & Thompson, 2010). PF-ECP is a negative, or maladaptive, form of perfectionism that represents the likelihood to perceive pressure from others to be perfect, to evaluate oneself critically and unforgivingly, and to doubt one's ability to successfully reach high standards (Gaudreau & Thompson, 2010).

Hypothesized Consequences of Imposter Phenomenon

Burnout. One of the most commonly utilized operationalizations of burnout in sport is Raedeke's (1997) sport commitment model, a sport-specific revision of Maslach and Jackson's (1984) conceptualization of burnout. Raedeke (1997) proposed that burnout in sport is characterized by three dimensions: (1) emotional and physical exhaustion, (2) reduced personal accomplishment related to athletic abilities and achievements (i.e., negative feelings toward oneself and feeling less capable and able to compete successfully), and (3) sport devaluation and detachment (i.e., negative feelings toward sport or sport involvement), which replaced Maslach and Jackson's (1984) depersonalization dimension. Raedeke's (1997) burnout model has gained support in samples of both athletes (e.g., Hill, Hall, & Appleton, 2010) and coaches (e.g., Lundkvist, Stenling, Gustafsson, & Hassmén, 2014; Malinauskas, Malinauskiene, & Dumciene, 2010; Raedeke, Granzyk, & Warren, 2000).

Engagement. Schaufeli, Salanova, González-Romá, and Bakker (2002) defined engagement as a positive mental state related to one's work that is characterized by three dimensions: vigor, dedication, and absorption. Vigor, the opposite of emotional and physical exhaustion, refers to high energy and effort, persistence, and resilience (Schaufeli et al.,

2002). Dedication, the converse of sport devaluation and detachment, refers to feelings of pride, excitement, significance, and inspiration (Schaufeli et al., 2002). Finally, absorption, the opposite of reduced feelings of accomplishment, refers to a state of total concentration on and engrossment in one's work, similar to Csikszentmihalyi's (1990) flow experience.

Relationships between Constructs

Dweck (2000) proposed that implicit theories influence one's motivations. As such, implicit theories about ability serve as antecedents of all other constructs in each of the SEMs (see Figures 3.1 and 3.2). Conversely, burnout and engagement serve as outcomes because they are believed to be the result of motivational processes (Schaufeli et al., 2002). Perfectionism and IP are hypothesized mediators of the relationships between implicit theories and burnout and between implicit theories and engagement. Furthermore, given Clance's (1985) imposter profile, which highlights the role of perfectionistic tendencies in the development of imposter feelings, perfectionism also serves as a predictor of IP.

Hypothesis 3.1: The hypothesized full latent variable (FLV) models depicted in Figures 3.1 and 3.2 closely approximate (i.e., fit indices indicate the hypothesized models are reasonable representations of the observed relationships) the observed relationships among implicit theories, perfectionism, IP, burnout, and engagement in this sample of coaches.

Following is a rationale for the hypothesized bivariate relationships among constructs as well as the hypothesized roles each construct plays in the FLV models that simultaneously consider all interrelationships among the constructs.

Implicit theories and perfectionism. Chan (2012) and Shih (2011) examined the relationship between perfectionism and implicit theories of ability in samples of Chinese (N = 251; M_{age} = 12.68) and Taiwanese (N = 481; M_{age} = 13.42) adolescents, respectively. In both

studies (Chan, 2012; Shih, 2011), PF-PSP was positively correlated with incremental beliefs, and PF-ECP was positively correlated with entity beliefs.

However, Chan (2012) and Shih (2011) reported contradictory findings regarding the relationships between PF-ECP and incremental beliefs and between PF-PSP and entity beliefs. Shih (2011) found a positive correlation between PF-ECP and incremental beliefs, whereas Chan (2012) found no correlation. Incremental theorists recognize that mistakes are a part of the learning process and, as such, do not have an overwhelming fear of their mistakes or how they might be judged because of their mistakes (i.e., PF-ECP; Dweck, 2008). Thus, contrary to Shih (2011) and Chan (2012), Dweck's (2008) research may suggest a negative relationship between incremental beliefs and PF-ECP.

Chan (2012) found a positive relationship between PF-PSP and entity beliefs, whereas Shih (2011) found a negative relationship between the two variables. Having high standards or striving for excellence (i.e., PF-PSP) often requires pushing oneself to reach new levels of performance and to invest great effort to meet those standards. However, entity theorists tend to choose tasks that they have already proven they have the ability to successfully complete and to withdraw effort on tasks that may jeopardize their sense of competence (Dweck, 2008). Altogether, Dweck's (2008) research better supports the negative relationship Shih (2011) identified between PF-PSP and entity beliefs.

Hypothesis 3.2: Incremental beliefs will be positively related to PF-PSP and will be negatively related to PF-ECP. Entity beliefs will be negatively related to PF-PSP and will be positively related to PF-ECP. In the FLV models, implicit theories will serve as predictors of perfectionistic tendencies. Specifically, incremental beliefs will positively predict PF-PSP

and will negatively predict PF-ECP, while entity beliefs will negatively predict PF-PSP and will positively predict PF-ECP.

Implicit theories and IP. Two studies (Kumar & Jagacinski, 2006; Langford, 1990) have assessed the relationship between implicit theories and IP. In each study, participants were American undergraduate students (N = 135 and 165, respectively), the majority of whom were white. Kumar and Jagacinski (2006) and Langford (1990) both reported a positive relationship between imposter feelings and entity beliefs. Additionally, Langford (1990) reported that implicit theories and achievement goals together predicted 40% of the variability in the students' imposter feelings.

Hypothesis 3.3: Entity beliefs will be positively related to IP, and alternatively, incremental beliefs will be negatively related to IP. In the FLV models, implicit theories will serve as predictors of IP. Specifically, entity beliefs will positively predict IP, while incremental beliefs will negatively predict IP.

Implicit theories and burnout. Williams (2012) assessed the relationship between implicit theories and burnout in a sample of 183 high school teachers who were predominately white females. Implicit theories, measured on a single continuum ranging from entity to incremental beliefs, were positively related to personal accomplishment and negatively related to exhaustion and depersonalization (Williams, 2012).

Hypothesis 3.4: Incremental beliefs will be negatively related to burnout, and entity beliefs will be positively related to burnout. In the FLV models, implicit theories will serve as predictors of burnout. Specifically, incremental beliefs will negatively predict burnout, while entity beliefs will positively predict burnout.

Implicit theories and engagement. Entity beliefs negatively predicted engagement in samples of French adult students ($N = 76$; $M_{age} = 31$; Dupeyrat & Mariné, 2005) and Dutch professional helpers ($N = 258$; Visser, 2013). On the other hand, incremental beliefs positively predicted engagement in a sample of Dutch financial workers ($N = 497$; $M_{age} = 43.14$; van der Linden, 2013).

Hypothesis 3.5: Incremental beliefs will be positively related to engagement, whereas the opposite relationship will be found between entity beliefs and engagement. In the FLV models, implicit theories will serve as predictors of engagement. Specifically, incremental beliefs will positively predict engagement, while entity beliefs will negatively predict engagement.

Perfectionism and IP. Researchers (Askary & Heydarei, 2011; Cusack et al., 2013; Khazaei & Eslami, 2011) have found a moderately strong relationship between IP and perfectionism. More specifically, the maladaptive dimension of perfectionism, PF-ECP, has been linked with IP in American (Chrisman, Pieper, Clance, Holland, & Glickauf-Hughes, 1995; Thompson, Foreman, & Martin, 2000) and Iranian undergraduates (Khazaei & Eslami, 2011) and in Belgian white-collar workers (Vergauwe et al., 2014). Cusack et al. (2013) and Fraenza (2014) also found IP to be a significant predictor of global perfectionism (i.e., a combination of both PF-ECP and PF-PSP tendencies) in college students.

Hypothesis 3.6: PF-ECP and PF-PSP will be positively related to IP. In the FLV models, perfectionistic tendencies will serve as predictors of IP. Specifically, PF-ECP and PF-PSP will positively predict IP.

Perfectionism and burnout. Researchers (Appleton, Hall, & Hill, 2009; Appleton & Hill, 2012; Gotwals, 2011; Hill, 2013; Hill, Hall, Appleton, & Kozub, 2008; Taris, van Beek,

& Schaufeli, 2010; Zhang, Gan, & Cham, 2007) have demonstrated a positive relationship between PF-ECP and burnout. On the other hand, a negative relationship has been found between PF-PSP and burnout (Chen, Kee, Chen, & Tsai, 2009; Hill et al., 2008; Lemyre, Hall, & Roberts, 2008; Zhang et al., 2007). Furthermore, PF-ECP has positively predicted reduced feelings of accomplishment, emotional and physical exhaustion, and devaluation (Chen et al., 2009). Chen et al. (2009) and Zhang et al. (2007) found PF-ECP to be a positive predictor and PF-PSP a negative predictor of each burnout dimension.

Hypothesis 3.7: PF-ECP will be positively related to burnout, and PF-PSP will be negatively related to burnout. In the FLV models, perfectionistic tendencies will serve as predictors of burnout. Specifically, PF-ECP will positively predict burnout, while PF-PSP will negatively predict burnout.

Perfectionism and engagement. Childs and Stoeber (2010) found a negative relationship between PF-ECP and the vigor dimension of engagement. PF-ECP has also been shown to negatively predict vigor and dedication (Childs & Stoeber, 2010;). On the other hand, researchers (Childs & Stoeber, 2010; Tziner & Tanami, 2013; Zhang et al., 2007) have found a positive relationship between PF-PSP and engagement dimensions, and PF-PSP has been shown to positively predict each of the engagement dimensions (Childs & Stoeber, 2010; Jowett, 2014).

Hypothesis 3.8: PF-ECP will be negatively related to engagement, and PF-PSP will be positively related to engagement. In the FLV models, perfectionistic tendencies will serve as predictors of engagement. Specifically, PF-ECP will negatively predict engagement, while PF-PSP will positively predict engagement.

IP and burnout. In their conservation of resources theory-based model of IP, Whitman and Shanine (2012) theorized that imposter feelings would lead to emotional and physical exhaustion. According to this theory (Whitman & Shanine, 2012), imposter feelings are stressors that drain imposters' coping resources, which leads to feelings of exhaustion. Additionally, Legassie, Zibrowski, and Goldszmidt (2008), in the only empirical study exploring this relationship, studied IP and burnout in a small sample (N = 48) of medical residents, the majority of whom were female, under the age of 30, and Canadian. Although only three residents were identified as "imposters", Legassie and colleagues (2008) found a moderate but significant negative correlation (r = -0.30) between IP and perceived personal accomplishment.

Hypothesis 3.9: IP will be positively related to burnout. In the FLV models, IP will serve as a positive predictor of burnout.

IP and engagement. Contradictory findings exist about the relationship between IP and correlates of job engagement. For example, in a sample of undergraduate students (N = 177; M_{age} = 18.7), Ross and Krukowski (2003) found a positive relationship between IP and workaholism, which has been positively associated with work motivation (Beckers et al., 2004) and engagement (Schaufeli, Taris, & van Rhenen, 2008; Tziner & Tanami, 2013). Alternatively, in a sample of Belgian white collar workers (N = 201; M_{age} = 36.11), Vergauwe et al. (2004) reported a negative relationship between IP and job satisfaction and a positive relationship between IP and continuance commitment (i.e., commitment to continuing one's job, particularly given the perceived costs of leaving the job; Meyer, Stanley, Herscovitch, & Topolnytsky, 2002), which has been negatively linked with job engagement (Albdour & Altarawneh, 2014). Additionally, the anxiety experienced by imposters (Ross et al., 2001)

may undermine their ability to be engaged in their work, which may suggest a negative relationship between the two variables (i.e., IP and engagement).

Hypothesis 3.10: IP will be negatively related to job engagement. In the FLV models, IP will serve as a negative predictor of engagement.

Measuring the Constructs

Prior to assessing the predicted relationships between individual latent constructs (i.e., the structural model), the relationships between indicators and latent constructs (i.e., the measurement model) must first be assessed to ensure that the study constructs were validly measured. In the present study, implicit theories were measured with the Conceptions of the Nature of Coaching Ability Questionnaire (CNCAQ), a modified version of the Conceptions of the Nature of Athletic Ability Questionnaire Version 2 (Biddle, Wang, Chatzisarantis, & Spray, 2003). Perfectionism was measured with the Dispositional Perfectionism Short Scale (DPSS). IP was measured with the Imposter Phenomenon Scale (IPS). Burnout was measured with the Coach Burnout Questionnaire (CBQ), a modified version of the Athlete Burnout Questionnaire (ABQ; Raedeke & Smith, 2001). Finally, engagement was measured with the Job Engagement Instrument (JEI; M. A. Pickering, personal communication, May 15, 2015).

Hypothesis 3.11: The hypothesized measurement models (i.e., the relationships between the scale items and the hypothesized constructs underlying them) for the CNCAQ, DPSS, IPS, CBQ, and JEI (see Appendix J Figures A.1 through A.5) closely approximate the observed relationships between the items and the hypothesized constructs in this sample of coaches (i.e., fit indices indicate the hypothesized model is a reasonable representation of the observed relationships).

Method

Participants

Participants were 779 coaches from the western United States. Approximately 68% of coaches were male, and 83% were white. The average coach was 42.47 years of age (*SD* = 12.92; *Median* = 41.00), had 16.68 years of coaching experience (*SD* = 11.52; *Median* = 15.00), and had been in their current position for 6.43 years (*SD* = 7.37). Three-quarters of coaches were currently coaching at the collegiate level.

Measures

Conceptions of the Nature of Coaching Ability Questionnaire (CNCAQ). The CNCAQ has 12 items (see Appendix K) and four hypothesized dimensions: Learn and Improve subscales, which assess incremental beliefs, and Stable and Gift subscales, which assess entity beliefs. Respondents evaluate each item on a 7-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). Cronbach's alpha values for the Incremental and Entity dimensions were 0.72 and 0.75, respectively.

Dispositional Perfectionism Short Scale (DPSS). The DPSS is an 8-item scale (see Appendix L). The four items of the PF-PSP subscale are from the Personal Standards (PS) subscale of the short version of the Almost Perfect Scale (SAPS; Rice, Richardson, & Tueller, 2014). The four items of the PF-ECP subscale are from the Concern over Mistakes (COM) subscale of the Sport-Multidimensional Perfectionism Scale (S-MPS; Dunn, Dunn, & Syrotuik, 2002). Items are evaluated on a 7-point Likert scale, which ranged from 1 (strongly disagree) to 7 (strongly agree). Cronbach's alpha values for the PF-PSP and PF-ECP dimensions were 0.76 and 0.79, respectively.

Imposter Phenomenon Scale (IPS). The IPS (see Study 1 and Appendix A) has seven items and two hypothesized factors. The Self-Perceptions of Fraudulence (IP-Self) subscale has four items and assesses an individual's own feelings of incompetence and fraudulence. The Concerns about Others' Perceptions of My Success (IP-Others) subscale has 3 items and assesses an individual's concerns about and responses to others' perceptions of his or her success. Each item is evaluated on a 7-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree). Cronbach's alpha values for the Self and Others dimensions were 0.75 and 0.67, respectively.

Coach Burnout Questionnaire (CBQ). The CBQ is a modified version of the Athlete Burnout Questionnaire (ABQ; Raedeke & Smith, 2001) that has been used in recent research (Harris, 2005; Lundkvist et al., 2014; Malinauskas et al., 2010) to examine coaches' experiences with burnout. The CBQ has 15 items (see Appendix H) and assesses three dimensions of burnout: (1) Emotional and Physical Exhaustion (BO-EPE); (2) Devaluation of Coaching (BO-DC), which represents the degree to which coaches place less importance on their experience and performance as coaches; and (3) Reduced Feelings of Accomplishment (BO-RA), which represents the degree to which coaches feel less successful in their coaching roles. Respondents evaluate each item on a 7-point Likert scale, ranging from 1 (almost never) to 7 (almost always). Cronbach's alpha values for the BO-EPE, BO-DC, and BO-RA dimensions were 0.94, 0.78, and 0.82, respectively.

Job Engagement Instrument (JEI). The JEI (M. A. Pickering, personal communication, May 15, 2015) is a 12-item instrument (see Appendix M) with three hypothesized dimensions: Vigor, Investment, and Absorption. The Vigor and Absorption dimensions are conceptually similar to the dimensions of engagement proposed by Schaufeli

et al. (2002). The third dimension, Investment, represents coaches' psychological and behavioral investment in their roles as coaches. Cronbach's alpha values for the Vigor, Investment, and Absorption dimensions were 0.70, 0.41, and 0.73, respectively.

Coaching Demographic and Background Questionnaire (CDBQ). The 15-item CDBQ (see Appendix C) assesses key demographic variables (i.e., gender, age, and race), previous experience playing sport (i.e., number of years and highest competitive level), coaching experience (i.e., total number of years, positions held as coach, competitive levels coached, and coach training), and current coaching position (i.e., current sport and competitive level, current coaching position, number of years in current coaching position, gender composition of team, and racial composition of team).

Procedure

An online survey was developed in Qualtrics (see Appendix D) and distributed to three samples. Coaches (n = 682) were recruited in person at a state coaches association clinic in the Northwest United States. Coaches (n = 6,360) at 320 colleges and universities in the Western United States were recruited through an email campaign that consisted of four personalized and unique emails (see Appendix G) distributed across a five-week period (see Table 1.8 for detailed timeline). Finally, personal contacts of the researchers were each sent a personal email invitation.

Data Analysis Plan

Preliminary analyses. Data were examined for missing values, and cases with more than three missing values were excluded from analysis. The assumption of normality was then assessed for each scale. Finally, complete data is required to utilize modification indices to determine potential misspecifications within the models. Because no case was missing

more than one value on a single scale or more than three values total, regression-predicted scores were calculated with version 22.0 of the Analysis of Moment Structures (AMOS; Arbuckle, 2011) and used to impute missing values.

Specification of measurement models. A measurement model was specified for each scale (i.e., the CNCAQ, DPSS, IPS, CBQ, and JEI). The first item of each factor was the marker indicator and was set to 1.0 to define the metric of the latent factor. The remaining items were freely estimated. Covariances between factors were freely estimated, and all covariances between error terms were set to zero.

The CNCAQ was specified as a second-order, four-factor (i.e., Incremental, Entity; Learn, Improve, Stable, and Gift), 12-item model (see Appendix J Figure A.1; Biddle et al., 2003). The DPSS was specified as a two-factor (i.e., PF-PSP and PF-ECP), eight-item model (see Appendix J Figure A.2). Consistent with findings from Study 1, the IPS was specified as a second-order, two-factor (i.e., IP; IP-Self, IP-Others), seven-item model (see Appendix J Figure A.3). The CBQ was specified as a second-order, three-factor (i.e., Burnout; BO-EPE, BO-RA, and BO-DC), 15-item model (see Appendix J Figure A.4). Finally, the JEI was specified as a second-order, three-factor (i.e., Engagement; Vigor, Investment, and Absorption), 12-item model (see Appendix J Figure A.5).

Confirmatory factor analyses (CFA). AMOS (Arbuckle, 2011) was used to conduct CFAs for the CNCAQ, DPSS, IPS, CBQ, and JEI measurement models. Maximum likelihood estimation (MLE) was used to generate parameter estimates. Subsequently, modification indices were examined, and alternative specifications and factor structures were explored to converge on a measurement model with maximal fit, parsimony, and construct validity. The comparative fit index (CFI; Bentler, 1990) and likelihood chi-square statistic

were used to assess model fit, but because the chi-square statistic is sensitive to sample size (Byrne, 2009), the CFI had more influence on decisions of fit.

Correlations among latent constructs. Prior to specification and estimation of the FLV model, the six individual measurement models were specified as one measurement model, and predicted correlations between latent construct scores were calculated in AMOS to test the bivariate hypotheses.

Full latent variable models (FLV). The FLV models depicted in Figures 3.1 and 3.2 were then specified, with modifications to the measurement models based on findings from the CFAs. Using AMOS (Arbuckle, 2011), MLE was used to generate parameter estimates for both models. Correlation residuals and modification indices were examined to identify possible misspecifications in the model. The following criteria suggested adequate model fit: (1) CFI $\geq$ 0.90; (2) a chi-square statistic with $p > 0.05$; (3) root mean square error of approximation (RMSEA; ε) $\leq$ 0.05; and (4) standardized root mean residual square (SRMR) $\leq$ 0.08 (Kline, 2011).

Finally, several possible mediation paths were assessed with the FLV models. For relationships mediated by one variable, Sobel's test (1982) was calculated to determine the significance level of the indirect paths (the path from the antecedent to the mediator to the outcome). For relationships mediated by two variables, the indirect path was deemed statistically significant if each of the three paths (i.e., the path from the antecedent to mediator A, the path from mediator A to mediator B, and the path from mediator B to the outcome) were statistically significant (Cohen & Cohen, 1983). A significant direct path and nonsignificant indirect path indicated no mediation. A significant direct path and significant

indirect path indicated partial mediation. Finally, a nonsignificant direct path and significant indirect path indicated full mediation.

Results

Preliminary Analyses

Fifty-four (6.9%) coaches were missing more than three data points. More specifically, 51 coaches failed to complete the survey, and three coaches skipped one section (i.e., six to eight items). Thus, of the 779 coaches who participated, 725 (93.1%) coaches were retained.

The majority of the CNCAQ, DPSS, IPS, CBQ, and JEI items were nonnormal, with skewness and kurtosis *z* scores exceeding the recommended |3.3| threshold (Tabachnick & Fidell, 2001; see Appendix B, Table A.9). Only eight items were not skewed (i.e., CNCAQ Gift items 2 and 3, all DPSS PF-ECP items, IPS IP-Others item 2, CBQ BO-EPE item 1), and only three items were not kurtotic (i.e., CNCAQ Stable item 3, CNCAQ Gift item 1, CBQ BO-DC item 4). Furthermore, the Incremental, PSP, Burnout, and Engagement constructs were skewed, and the PSP and Engagement constructs were kurtotic. Tabachnick and Fidell (2001) suggest that transforming nonnormality of this type and severity results in only marginal improvements. Thus, given the increased difficulty of interpreting transformed data, no transformations were made.

Confirmatory Factor Analyses

Conceptions of the Nature of Coaching Ability Questionnaire (CNCAQ). Initial fit of the second-order, 12-item model was good (*CFI* = 0.959; $\chi^2(51) = 135.141$, $p < 0.05$; $\varepsilon = 0.048$ [90% CI: 0.0.38-0.58]). All factor loadings were significant ($p < 0.001$; see Appendix B, Table A.10). The latent Learn, Improve, Stable, and Gift factors accounted for

22 to 33%, 41 to 70%, 31 to 41%, and 32 to 68% of the variance in their respective indicator items. The latent Incremental factor accounted for 38 and 79% of the variance in the latent Learn and Improve factors, respectively, and the Entity factor accounted for 56 and 59% of the variance in the latent Stable, and Gift factors, respectively. The correlation between the Incremental and Entity factors was significant (r = -0.38; *cov*(*Incremental,Entity*) = -0.07, $p <$ 0.05).

Dispositional Perfectionism Short Scale (DPSS). Initial fit of the first-order, 8-item model was good (*CFI* = 0.983; $\chi^2(19) = 45.461$, $p < 0.05$; $\varepsilon = 0.044$ [90% CI: 0.028-0.060]). All factor loadings were significant ($p < 0.001$; see Appendix B, Table A.10). The latent PF-PSP and PF-ECP factors accounted for 31 to 62% and 41 to 64% of the variance in their respective indicator items. However, the correlation between the PF-PSP and PF-ECP factors was not significant (r = 0.02; *cov*(*PF-PSP,PF-ECP*) = 0.03, $p > 0.05$).

Imposter Phenomenon Scale (IPS). Initial fit of the second-order, seven-item model was good (*CFI* = 0.99; $\chi^2(13) = 16.777$, $p > 0.05$; $\varepsilon = 0.020$ [0.000-0.044]). All factor loadings were significant ($p < 0.001$; see Appendix B, Table A.10). The latent IP-Self and IP-Others factors accounted for 22 to 73% and 21 to 64% of the variance in their respective indicator items. The latent IP factor accounted for 44 and 55% of the variance in the latent IP-Self and IP-Others factors, respectively.

Coach Burnout Questionnaire (CBQ). Initial fit of the second-order, 15-item model was acceptable (*CFI* = 0.947; $\chi^2(87) = 419.144$, $p < 0.05$; $\varepsilon = 0.073$ [90% CI: 0.066-0.080]). However, examination of the modification indices indicated BO-DC items 1 and 5 had substantial non-zero cross-loadings on the BO-EPE factor. Given limited evidence of the construct validity of BO-DC items 1 and 5 in this particular sample (i.e., for this sample of

coaches, the items appeared to be indicators of both the BO-DC and BO-EPE constructs), both items were removed.

Upon removal of the two BO-DC items, model fit improved (*CFI* = 0.968; $\chi^2(62) = 239.106$, $p < 0.05$; $\varepsilon = 0.063$ [90% CI: 0.055-0.071]). All factor loadings were significant ($p < 0.001$; see Appendix B, Table A.10). The latent BO-EPE, BO-RA, and BO-DC factors accounted for 60 to 83%, 30 to 59%, and 47 to 68% of the variance in their respective indicator items. The second-order latent Burnout factor accounted for 40, 75, and 68% of the variance in the latent BO-EPE, BO-RA, and BO-DC factors, respectively.

Job Engagement Instrument (JEI). Initial fit of the second-order, 12-item model was fair (*CFI* = 0.915; $\chi^2(51) = 274.056$, $p < 0.05$; $\varepsilon = 0.079$ [90% CI: 0.070-0.088]). Vigor item 2, Invest item 4, and Absorption item 2 were identified as problematic. These items had low loadings on their respective factors, substantial non-zero cross-loadings on at least one other factor, substantial error covariances with a number of other items, and small correlations with other indicators of their respective factors. Altogether, these findings suggested the items were not strong indicators of their hypothesized factors. Thus, all three items were removed.

Overall fit of the final second-order, 9-item model was good (*CFI* = 0.977; $\chi^2(24) = 59.123$, $p < 0.05$; $\varepsilon = 0.045$ [90% CI: 0.031-0.060]). All factor loadings were significant ($p < 0.001$; see Appendix B, Table A.10). The latent Vigor, Invest, and Absorption factors accounted for 31 to 54%, 10 to 34%, and 38 to 62% of the variance in their respective indicator items. The second-order latent Engagement factor accounted for 90, 73, and 68% of the variance in the latent Vigor, Invest, and Absorption factors.

Correlations Among Latent Constructs

Incremental was positively related to PF-PSP ($r = 0.72$) and Engagement ($r = 0.83$), negatively related to IP ($r = -0.20$) and Burnout ($r = -0.45$), and not related to PF-ECP ($r = -0.09$, $p > 0.05$; see Table 3.1). Entity was positively related to PF-ECP ($r = 0.44$), IP ($r = 0.53$), and Burnout ($r = 0.44$) and negatively related to PF-PSP ($r = -0.24$) and Engagement ($r = -0.31$). PF-PSP was positively related to Engagement ($r = 0.89$), negatively related to Burnout ($r = -0.35$), and not related to PF-ECP ($r = 0.07$, $p > 0.05$) or IP ($r = -0.09$). PF-ECP was positively related to IP ($r = 0.90$) and Burnout ($r = 0.48$) and negatively related to Engagement ($r = -0.56$). IP was positively related to Burnout ($r = 0.40$) and negatively related to Engagement ($r = -0.22$).

FLV Models Predicting Burnout and Engagement

The FLV model predicting Burnout demonstrated fair fit ($CFI = 0.914$; $\chi^2(719) = 1737.835$, $p < 0.05$; $\varepsilon = 0.044$ [90% CI: 0.042-0.047]; SRMR = 0.062). Although the chi-square statistic was statistically significant, the CFI, RMSEA, and SRMR indices were within an acceptable range. Overall, the model accounted for 67% of the variance in Burnout, and 53, 29, 82% of the variance in PF-PSP, PF-ECP, and IP, respectively.

The FLV model predicting Engagement demonstrated poor fit ($CFI = 0.886$; $\chi^2(573) = 1519.463$, $p < 0.05$; $\varepsilon = 0.048$ [90% CI: 0.045-0.051]; SRMR = 0.069). The chi-square statistic was once again statistically significant, and the CFI statistic fell below the 0.90 criterion. However, the RMSEA and SRMR indices were within an acceptable range. Overall, the model accounted for 85% of the variance in Engagement, and 88, 62, 29, and 78% of the variance in PF-PSP, PF-ECP, and IP, respectively.

Direct and indirect effects. This section reviews key findings for the specific relationships within each model. Unless otherwise noted, the significance and directionality of the relationship was the same in each of the FLV models (i.e., the FLV model predicting Burnout and the FLV model predicting Engagement). Unstandardized coefficients, standard errors, and standardized coefficients for the FLV models are reported in Table 3.2. Direct effects, indirect effects, and decisions of mediation are reported in Table 3.3. The statistically significant effects are depicted in Figures 3.3 and 3.4.

Outcomes of implicit theories. Incremental and Entity positively predicted PF-PSP and PF-ECP. The positive relationships between Incremental and Entity and IP were fully mediated by PF-ECP. The positive relationships between Incremental and Entity and Burnout were fully mediated by PF-ECP and IP. Finally, Incremental positively predicted Engagement, whereas no direct or indirect relationship was found between Entity and Engagement.

Outcomes of perfectionism. No relationships were found between PF-PSP and IP or Burnout, and PF-PSP positively predicted Engagement. On the other hand, PF-ECP positively predicted IP, and the positive relationship between PF-ECP and Burnout as well as the negative relationship between PF-ECP and Engagement was fully mediated by IP.

Outcomes of imposter phenomenon. IP positively predicted Burnout. No direct relationship was found between IP and Engagement.

Discussion

Measuring the Constructs

Partial support was found for Hypothesis 3.11. The hypothesized measurement models for the CNCAQ, DPSS, and IPS (see Appendix J Figures A.1 through A.5)

demonstrated acceptable overall and local fit, indicating these models were reasonable representations of the observed relationships between the items and hypothesized constructs. In contrast, the initially hypothesized measurement models for the CBQ and JEI had poor initial fit. A number of the items in each of the models were not consistent indicators of a single construct. For example, in this particular sample, BO-DC item 5 ("I have negative feelings toward coaching") was an indicator of both the BO-DC and BO-EPE constructs. Upon removal of these poor indicators, the CBQ and JEI models more closely approximated the observed relationships.

Relationships between Constructs

Partial support was found for Hypothesis 3.1. The hypothesized FLV models were near estimations of the observed relationships among implicit theories, perfectionism, IP, burnout, and engagement in this sample of coaches. The CFI, RMSEA, and SRMR indices provided initial support for the hypothesized models. However, the statistically significant chi-square statistic, coupled with the lower than desirable CFI, suggested there remain misspecifications, which warrant only cautious support for the hypothesized models.

By examining the potential utility of a causal relationship between implicit theories, perfectionism, IP, and burnout, the present study helped to further clarify the relationships among these variables. Specifically, the data supported a model in which PF-ECP and IP fully mediated the relationship between implicit theories and burnout. In other words, entity beliefs led to increased evaluation concerns (i.e., PF-ECP), which led to increased imposter feelings, which then led to increased symptoms of burnout.

The influence of IP on burnout provides an important justification for further research examining IP in sport, particularly the psychological and behavioral consequences (e.g.,

engagement and burnout) stemming from imposter feelings. Furthermore, the proposed models provide insight into potential strategies for combatting imposter feelings. More specifically, practitioners should work with coaches to challenge their entity beliefs and develop stronger incremental beliefs. As their entity beliefs weaken, they will be less likely to experience strong maladaptive perfectionistic tendencies (i.e., PF-ECP). As a result of their diminished maladaptive perfectionistic tendencies, they will experience decreased imposter feelings and, in turn, decreased symptoms of burnout. In the same way, by developing stronger incremental beliefs, coaches will be more likely to cultivate adaptive perfectionistic tendencies (i.e., PF-PSP), which together can improve their level of engagement as coaches.

Another important, yet peripheral, finding emerged from the FLV models, particularly related to the processes leading to burnout or engagement. Schaufeli et al. (2002) proposed that burnout is "an erosion of engagement with the job" (p. 71), suggesting that burnout and engagement are opposite constructs. Although a moderately strong, negative relationship was observed between the latent burnout and engagement constructs in the present study, different mechanisms appeared to create feelings of burnout and engagement. For example, although a combination of entity beliefs, maladaptive perfectionistic tendencies, and imposter feelings tended to create higher feelings of burnout, these mechanisms did not appear to influence coaches' feelings of engagement. Instead, incremental beliefs and adaptive perfectionistic tendencies tended to create higher feelings of engagement.

The following sections discuss specific support for the hypothesized bivariate and predicted relationships among the constructs and examine the observed relationships in light of previous literature.

Outcomes of implicit theories. Partial support was found for the predicted influence of implicit theories (Hypotheses 3.2 through 3.5; see Table 3.1). As predicted, incremental beliefs were positively related to PF-PSP and engagement and negatively related to IP and burnout. Entity beliefs were positively related to PF-ECP, IP, and burnout and negatively related to PF-PSP and engagement. However, no relationship was found between incremental beliefs and PF-ECP.

Notably, two seemingly contradictory findings emerged in the FLV model. Although the bivariate correlations indicated a negative but nonsignificant relationship between incremental beliefs and PF-ECP, the FLV models indicated incremental beliefs had positive effects on PF-ECP. Additionally, although the bivariate correlation between entity beliefs and PF-PSP was negative, the FLV models indicated entity beliefs had positive effects on PF-PSP. These inconsistent findings may best be explained as a statistical phenomenon known as suppression. Statistical suppression is implied when the relationship between two variables increases in magnitude when a third variable is included in the model (MacKinnon, Krull, & Lockwood, 2000). For example, the relationship between Incremental and PF-ECP increased by 0.37 standardized units (i.e., from β = -0.12 to β = 0.25) when Entity, a third variable, was included in the model. Conversely, the relationship between Entity and PF-ECP increased by 0.15 standardized units (i.e., from β = 0.46 to β = 0.61) when Incremental was included in the model. Thus, the predicted relationships between Incremental and PF-ECP and between Entity and PF-PSP within the FLV model should be interpreted with caution.

Incremental beliefs. The observed positive relationships between incremental beliefs and PF-PSP and engagement as well as the negative relationships between incremental beliefs and PF-ECP and burnout were consistent with previous research. For example, Chan (2012)

and Shih (2011) found a positive relationship between incremental beliefs and PF-PSP, Chan (2012) reported no relationship between incremental beliefs and PF-ECP. Finally, Williams (2012) found a negative relationship between incremental beliefs and burnout, and van der Linden (2013) found a positive relationship between incremental and engagement.

Entity beliefs. The observed positive relationships between entity beliefs and PF-ECP, IP, and burnout as well as the negative relationships between entity beliefs and PF-PSP and engagement were consistent with previous research. For example, Shih (2011) identified a positive relationship between entity beliefs and PF-ECP and a negative relationship between entity beliefs and PF-PSP. Kumar and Jagacinski (2006) and Langford (1990) reported a positive relationship between entity beliefs and IP, and Williams (2012) found a positive relationship between entity beliefs and burnout. Finally, Dupeyrat and Mariné (2005) and Visser (2013) also identified a negative relationship between entity beliefs and engagement.

Outcomes of perfectionism. Partial support was found for the predicted influence of perfectionism (Hypotheses 3.6 through 3.8; see Table 3.1). PF-PSP was positively related to engagement and negatively related to burnout. PF-ECP was positively related to IP and burnout and negatively related to engagement. However, PF-PSP was not related to IP.

Interestingly, support was also found for the utility of differentiating adaptive from maladaptive perfectionism. In the present study, the latent adaptive (i.e., PF-PSP) and maladaptive (i.e., PF-ECP) perfectionism constructs were uncorrelated, and each type of perfectionism led to different outcomes (e.g., PF-PSP led to higher levels of engagement, whereas PF-ECP led to higher levels of IP and burnout). Altogether, this research supports findings from previous research (e.g., Bieling, Israeli, & Antony, 2004) and bolsters the

conclusion that perfectionistic tendencies are not inherently maladaptive. Instead, perfectionism may be either adaptive or maladaptive.

PF-PSP. The observed influence of PF-PSP on burnout and engagement was consistent with previous research. PF-PSP was previously found to negatively predict burnout (Chen et al., 2009) and to positively predict engagement (Childs & Stoeber, 2010; Jowett, 2014; Zhang et al., 2007). However, the relationship between PF-PSP and IP has, until this point, been unclear. A number of researchers (Askary & Heydarei, 2011; Cusack et al., 2013; Fraenza, 2014; Khazaei & Eslami, 2011) previously reported a positive relationship between perfectionism and IP, but these researchers made no distinction between positive and negative forms of perfectionism. Results from the current study, which did differentiate between types of perfectionism, suggest that PF-PSP has no influence on IP.

PF-ECP. The observed influence of PF-ECP on IP and burnout was consistent with previous research. PF-ECP was previously found to positively predict IP (Chrisman et al., 1995; Khazaei & Eslami, 2011; Thompson et al., 2000; Vergauwe et al., 2014) and burnout (Appleton et al., 2009; Appleton & Hill, 2012; Gotwals, 2011; Hill, 2013; Hill et al., 2008).

Although PF-ECP was negatively related to engagement, PF-ECP did not predict engagement in the FLV model. This finding is in contrast to the negative influence of PF-ECP on engagement observed by Childs and Stoeber (2010), although these researchers did not account for the added influence of implicit theories. After controlling for the influences of incremental beliefs, PF-PSP, and IP on engagement, PF-ECP explained only a marginal amount of unique variance in engagement. Altogether, this suggests PF-ECP, although related to engagement, is a weaker predictor of engagement compared to incremental beliefs and PF-PSP, which better explained the variability in engagement.

Outcomes of IP. Support was found for the predicted influence of IP on burnout and engagement (Hypotheses 3.9 and 3.10; see Table 3.1). IP was positively related to burnout and negatively related to engagement, which is consistent with previous research by Legassie et al. (2008) and Vergauwe et al. (2004), respectively.

To tease out the potential influence of IP-Self or IP-Others feelings in the relationship between IP and burnout, the FLV model predicting burnout was respecified, replacing the IPS second-order measurement model with a first-order, two-factor measurement model (see Appendix J, Figures A.6 and A.7). Interestingly, IP-Self, but not IP-Others, significantly predicted burnout. Thus, it appears coaches' own feelings of incompetence and fraudulence (i.e., IP-Self), compared to their concerns about and responses to others' perceptions of their success (i.e., IP-Others), are important factors driving one's experience of burnout.

In contrast, IP was not a significant predictor of engagement, although the bivariate correlation indicated a significant, negative relationship. Similar to PF-ECP, IP explained a negligible amount of unique variance in engagement after controlling for incremental beliefs and perfectionistic tendencies (i.e., PF-PSP and PF-ECP), indicating IP is a comparatively poor predictor of engagement.

Strengths and Limitations

This was one of the first studies to examine IP in sport coaches, to present a conceptual model of IP, and to test the conceptual model with sophisticated analysis techniques. As such, this study provides valuable insights into the processes surrounding IP.

However, the results of this study should be interpreted with caution given its limitations. First, the generalizability of the findings from this study is limited given the use of a convenience sample. Second, although the imposed causal structure was tentatively

supported by the data, causation cannot be strongly concluded due to the correlational design of the study. Third, Kline (2011) recommends an *N*:*q* (sample size to parameter) ratio of at least 10:1. However, in the current study, the *N:q* ratio was only 7.2:1 for the FLV model predicting burnout and 7.8:1 for the FLV model predicting engagement. Thus, the results may have limited reliability. Finally, imposters may have been less likely than nonimposters to complete a "Coach Success Survey." As a result, if there is substantial nonresponse error, it is possible that the relationships observed in the present study are not valid for coaches with stronger imposter feelings.

Future Directions

Previous research suggests the processes surrounding IP (i.e., the antecedents and consequences) may be moderated by gender (see Study 2). This may suggest the relationships among implicit theories, perfectionistic tendencies, IP, burnout, and engagement may be different for male coaches compared to female coaches. Thus, future research should assess the extent to which the FLV models are invariant across gender (i.e., the extent to which the FLV models closely approximate the observed relationships for both male and female coaches).

To assess the generalizability of the findings from the present study, the hypothesized models might also be assessed across samples, such as in samples of athletes, students, and educators. Additionally, the constructs of interest might be assessed across a number of time points to improve the extent to which causation can be concluded. Future research should also continue to explore possible antecedents (e.g., achievement goal orientations, attributions) and consequences (e.g., self-efficacy) of IP. Finally, researchers and practitioners should work together to develop interventions that target coaches' implicit

theories and negative perfectionist tendencies as a means to reduce imposter feelings and its associated outcomes (e.g., increased risk of burnout).

Conclusion

Findings from this exploratory study suggested potential mechanisms that may influence coaches' motivation. Specifically, provisional support for the hypothesized models suggested that coaches' reduced motivation for their work (i.e., burnout) seems to be rooted in their beliefs that ability is fixed and unchangeable (i.e., entity beliefs). These beliefs tend to create evaluation concerns (i.e., maladaptive perfectionistic tendencies or PF-ECP), which set the stage for imposter feelings and, subsequently, burnout to develop. In contrast, coaches' enhanced motivation for their work (i.e., engagement) seems to be rooted in their beliefs that ability is malleable and can be developed (i.e., incremental beliefs). These beliefs tend to create high personal standards (i.e., adaptive perfectionistic tendencies or PF-PSP), and together, incremental beliefs and adaptive perfectionistic tendencies lead to engagement.

Although the findings must be interpreted with caution given the correlational nature of the study, the implication is that to improve coaches' experiences and to keep quality coaches in the game, which together will improve their athletes' experiences, more attention needs to be given to coaches' implicit theories of ability. By developing more adaptive implicit theories of ability (i.e., incremental beliefs), coaches will tend to experience more adaptive perfectionistic tendencies, which might protect them from experiencing negative motivational outcomes (e.g., imposter feelings, burnout) and, furthermore, might facilitate their experience of positive motivational outcomes (e.g., engagement).

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Table 3.1

Relationships among Latent Constructs

			Directionality of Relationship		
				Observed	
Predictor	Outcome	*r*	Hypothesized	*r*	*β*
Incremental	PF-PSP	0.72	Positive	Positive	Positive
Incremental	PF-ECP	-0.09[#]	Negative	Negative[#]	Positive[^]
Incremental	IP	-0.20	Negative	Negative	Negative[#]
Incremental	Burnout	-0.45	Negative	Negative	Negative[#]
Incremental	Engagement	0.83	Positive	Positive	Positive
Incremental	Entity	-0.45			
Entity	PF-PSP	-0.24	Negative	Negative	Positive[^]
Entity	PF-ECP	0.49	Positive	Positive	Positive
Entity	IP	0.53	Positive	Positive	Positive[#]
Entity	Burnout	0.44	Positive	Positive	Negative[#,^]
Entity	Engagement	-0.31	Negative	Negative	Positive[#,^]
PF-PSP	IP	-0.09[#]	Positive	Negative[#,^]	Negative[#,^]
PF-PSP	Burnout	-0.35	Negative	Negative	Negative[#]
PF-PSP	Engagement	0.89	Positive	Positive	Positive
PF-PSP	PF-ECP	0.07[#]			
PF-ECP	IP	0.90	Positive	Positive	Positive[#]
PF-ECP	Burnout	0.48	Positive	Positive	Negative[#,^]
PF-ECP	Engagement	-0.05[#]	Negative	Negative[#]	Negative[#]
IP	Burnout	0.72	Positive	Positive	Positive
IP	Engagement	-0.21	Negative	Negative	Negative[#]
Burnout	Engagement	-0.56			

Note. Unless otherwise indicated, all bivariate correlations are statistically significant ($p < 0.05$).

[#]$p > 0.05$

[^]Directionality of observed relationship is different from hypothesized directionality.

Table 3.2

Unstandardized and Standardized Structural Regression Weights for the Full Latent Variable (FLV) Models Predicting Burnout and Engagement

		Burnout				Engagement			
		Unstandardized		Standardized		Unstandardized		Standardized	
Predictor	Outcome	Estimate	S.E.	Estimate	RSQ	Estimate	S.E.	Estimate	RSQ
Incremental	PF-PSP	0.64*	0.10	0.80	0.53	0.65*	0.11	0.86	0.62
Incremental	PF-ECP	0.60*	0.18	0.24	0.29	0.57*	0.17	0.24	0.29
Incremental	IP	-0.04	0.18	-0.03	0.82	-0.03	0.20	-0.03	0.78
Incremental	BO/ENG	-0.37	0.31	-0.23	0.67	0.39*	0.15	0.48	0.88
Entity	PF-PSP	0.10*	0.05	0.16		0.10*	0.05	0.18	0.62
Entity	PF-ECP	1.10*	0.17	0.61		1.11*	0.17	0.60	
Entity	IP	0.06	0.10	0.06		0.01	0.09	0.01	
Entity	BO/ENG	-0.02	0.16	-0.02		0.06	0.05	0.10	
PF-PSP	IP	-0.15	0.16	-0.09		-0.11	0.20	-0.07	
PF-PSP	BO/ENG	-0.13	0.29	-0.07		0.60*	0.14	0.55	
PF-ECP	IP	0.46*	0.05	0.87		0.43*	0.05	0.87	
PF-ECP	BO/ENG	-0.39	0.28	-0.58		-0.02	0.05	-0.06	
IP	BO/ENG	1.52*	0.59	1.19		-0.03	0.10	-0.05	

Note. BO/ENG = Burnout or Engagement.

Table 3.3

Direct Effect, Indirect Effects, and Determinations of Mediation

Variables				Burnout Estimates			Engagement Estimates		
Predictor	Mediator	Mediator	Outcome	Direct	Indirect	Mediation	Direct	Indirect	Mediation
Incremental	PF-PSP		IP	-0.04	-0.10		-0.03	-0.07	
Incremental	PF-PSP		BO/ENG	-0.37	-0.09		0.39*	0.38	None
Incremental	PF-ECP		IP	-0.04	0.27*	Full	-0.03	0.25*	Full
Incremental	PF-ECP		BO/ENG	-0.37	-0.23		0.39*	-0.01	None
Incremental	IP		BO/ENG	-0.37	-0.05		0.39*	0.00	None
Entity	PF-PSP		IP	0.06	-0.01		0.01	-0.01	
Entity	PF-PSP		BO/ENG	-0.02	-0.01		0.06	0.06	
Entity	PF-ECP		IP	0.06	0.50*	Full	0.01	0.47*	Full
Entity	PF-ECP		BO/ENG	-0.02	-0.43		0.06	-0.02	
Entity	IP		BO/ENG	-0.02	0.09		0.06	0.00	
PF-PSP	IP		BO/ENG	-0.13	-0.23		0.60*	0.00	None
PF-ECP	IP		BO/ENG	-0.39	0.70*	Full	-0.02	-0.01*	Full
Incremental	PF-PSP	IP	BO/ENG	-0.37	-0.15		0.39*	0.00	None
Incremental	PF-ECP	IP	BO/ENG	-0.37	0.42^	Full	0.39*	-0.01	None
Entity	PF-PSP	IP	BO/ENG	-0.02	-0.02		0.06	0.00	
Entity	PF-ECP	IP	BO/ENG	-0.02	0.77^	Full	0.06	-0.02	

^All three paths (i.e., Predictor -> Mediator A, Mediator A -> Mediator B, Mediator B -> Outcome) were statistically significant.
*$p < 0.05$

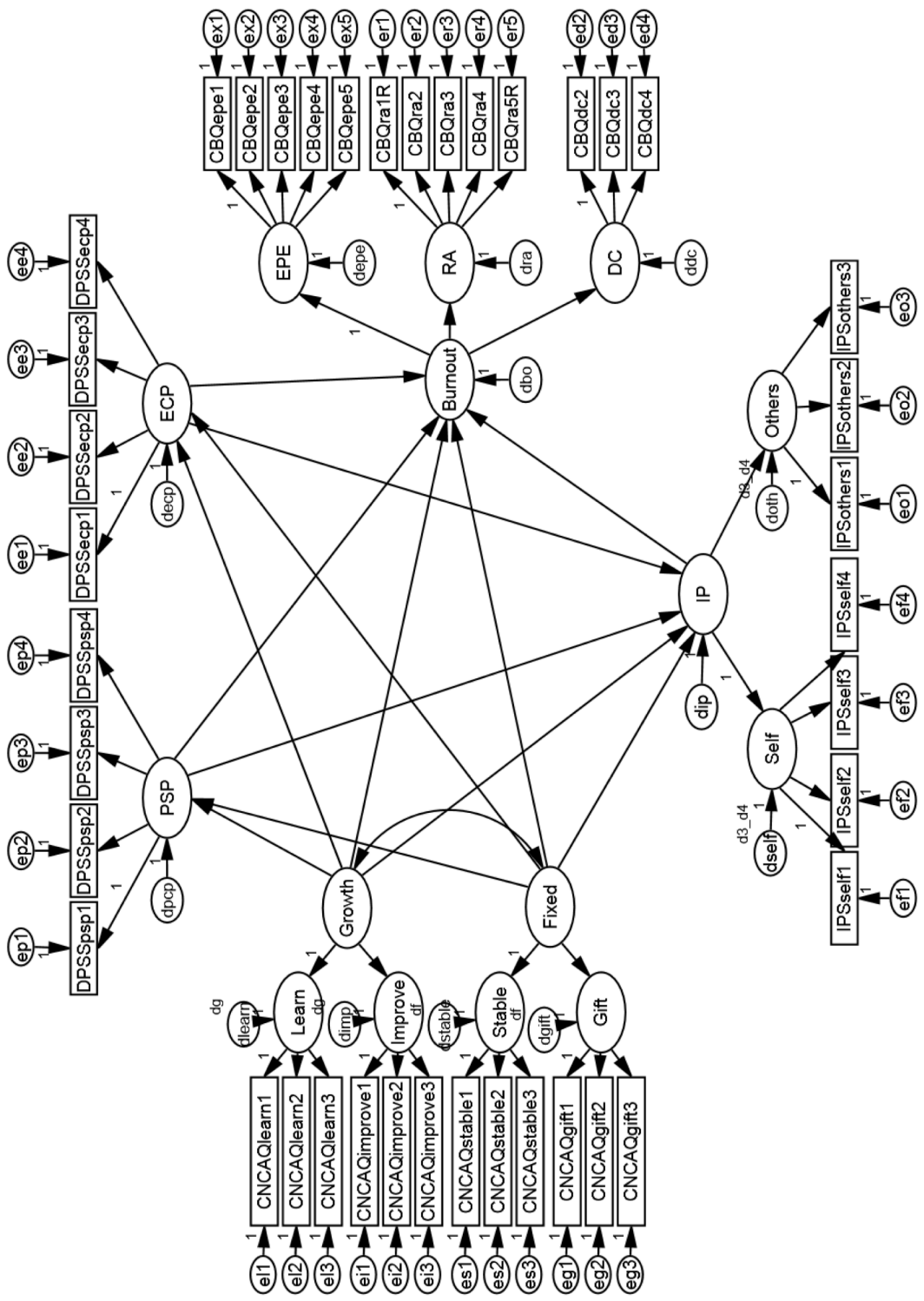


Figure 3.1. Hypothesized full latent variable (FLV) model predicting Burnout.

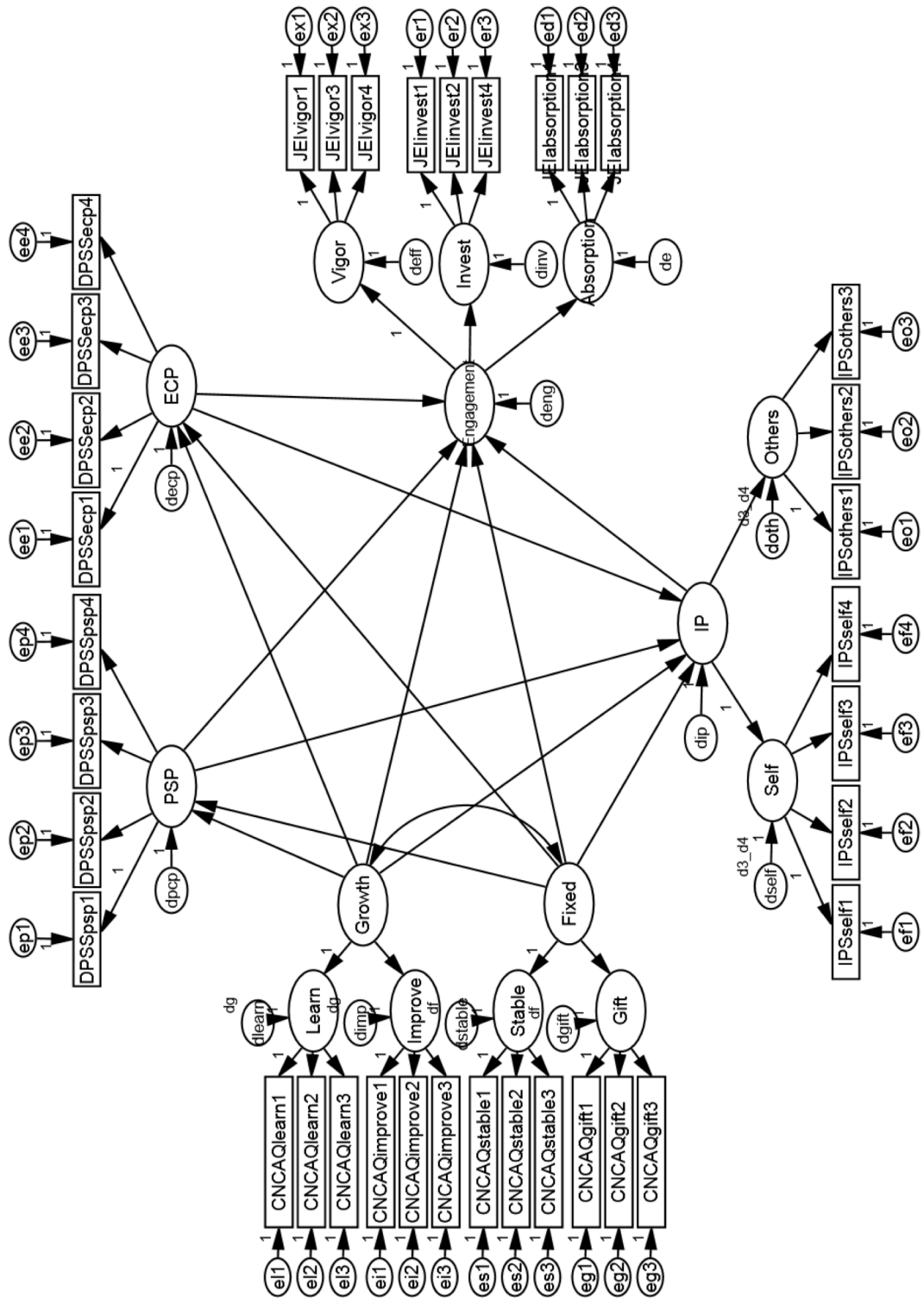


Figure 3.2. Hypothesized full latent variable (FLV) model predicting Engagement.

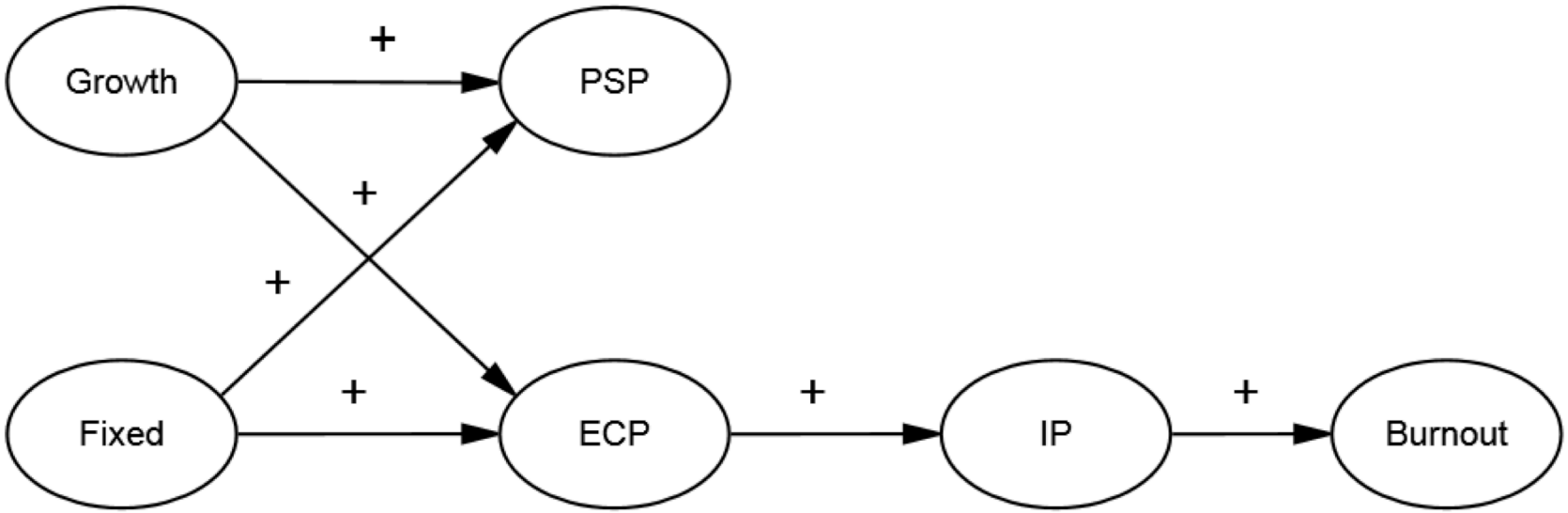


Figure 3.3. Directionality of the relationships in the full latent variable (FLV) model predicting Burnout. For ease of interpretation, the measurement model and nonsignificant paths have been removed. All paths depicted in the model are statistically significant ($p < 0.05$).

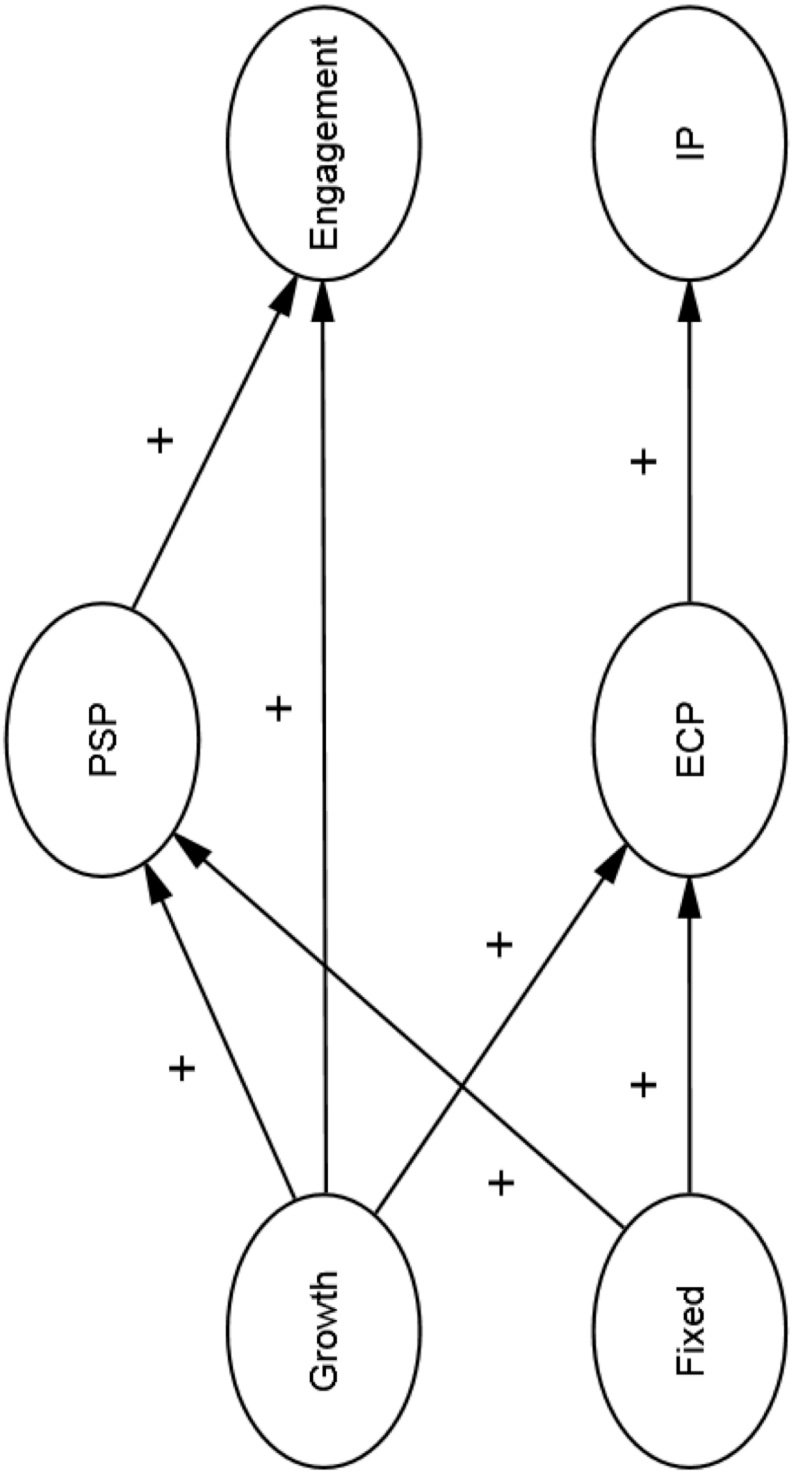


Figure 3.4. Directionality of the relationships in the full latent variable (FLV) model predicting Engagement. For ease of interpretation, the measurement model and nonsignificant paths have been removed. All paths depicted in the model are statistically significant ($p < 0.05$).

Appendix A

Imposter Phenomenon Scale (IPS)

IPS items are evaluated on a 7-point Likert scale (1 = strongly disagree; 7 = strongly agree).

Self-Perceptions of Fraudulence (IP-Self)

1. I worry that it's only a matter of time until others see what a fraud I am.
2. I feel like I'm a fake.
3. I feel that my success has just been some mistake.
4. Nothing I have achieved has been truly meaningful.
5. My successes don't really count because I had to try too hard to achieve them. (*item deleted in final scale*)

Concerns about Others' Perceptions of One's Success (IP-Others)

1. Even when others praise me, I worry I won't be able to keep meeting their expectations.
2. Even though others are confident that I will do well, I worry that I will fail.
3. It's hard for me to accept people's praise.
4. When others celebrate my success, I downplay the importance of what I've done. (*item deleted in final scale*)

Appendix B

Supplementary Tables

Table A.1

Item and Readability Comparison of Three Imposter Phenomenon Scales

IPS			SIPS			CIPS	
Item	Readability	Hypothesized Dimension	Item	Readability	Hypothesized Dimension	Item	Readability
Even when others praise me, I worry I won't be able to keep meeting their expectations.	8.3	Feelings of Fraudulence (*FF1*)	Even when I achieve results that are praised by others, I worry that I might not be able to fulfill their expectations in the future.	11.1	Feelings of Fraudulence toward Others	When people praise me for something I've accomplished, I'm afraid I won't be able to live up to their expectations of me in the future.	11.1
I'm afraid people will find out that I'm not as capable as they thought I was.	5.4	Feelings of Fraudulence (*FF2*)	I am afraid that someone important to me will find out that I have less ability than what people think I have.	9.6	Feelings of Fraudulence toward Others	I'm afraid people important to me may find out that I'm not as capable as they think I am.	7.3
I fear that people will discover how much ability I really lack.	7.7	Feelings of Fraudulence (*FF3*)	I fear that people will be able to detect aspects of me in which I do not actually have any ability.	10.0	Feelings of Fraudulence toward Others	Sometimes I'm afraid others will discover how much knowledge or ability I really lack.	10.9
Even though I generally do well, I fear that I will fail at new tasks.	5.2	Feelings of Fraudulence (*FF*4)	I have been able to achieve success so far, but I fear that I will fail in any new tasks.	6.3	Feelings of Fraudulence toward Others	I'm often afraid that I may fail at a new assignment or undertaking even though I generally do well at what I attempt.	11.3

Table A.1 (*continued*)

IPS			SIPS			CIPS	
Item	Readability	Hypothesized Dimension	Item	Readability	Hypothesized Dimension	Item	Readability
Even though others are confident that I will do well, I worry that I will fail.	6.1	Feelings of Fraudulence (*FF5*)	[d]			I often worry about not succeeding with a project or on an examination, even though others around me have considerable confidence that I will do well.	12.0
I worry that it's only a matter of time until others see what a fraud I am.	6.3	Feelings of Fraudulence (*FF6*)	[c]			[c]	
I feel like I'm a fake.	0.0	Feelings of Fraudulence (*FF7*)	[c]			[c]	
I think I have been successful only because I was at the right place, at the right time.	5.8	Diminishment of Success (*DS1*)	I think that my success up to now has been dependent on being at the right place at the right time, and knowing the right people.	8.6	Subjective Incompetence	I sometimes think I obtained my present position or gained my present success because I happened to be in the right place at the right time or knew the right people.	12.0
I feel that my success has just been some mistake.	2.4	Diminishment of Success (*DS2*)	I feel that my success to this point has just been some mistake.	3.0	Subjective Incompetence	Sometimes I feel or believe that my success in my life or in my job has been the result of some kind of error.	8.5

Table A.1 (*continued*)

IPS			SIPS			CIPS	
Item	Readability	Hypothesized Dimension	Item	Readability	Hypothesized Dimension	Item	Readability
It's hard for me to accept people's praise.	2.2	Diminishment of Success (*DS3*)	I cannot sincerely accept people's praise of my ability.	10.2	Subjective Incompetence	It's hard for me to accept compliments or praise about my intelligence or accomplishments.	10.0
I feel my successes have been due to some kind of luck.	2.8	Diminishment of Success (*DS4*)	I think that I had just been lucky when achieving success.	4.7	Subjective Incompetence	At times, I feel my success has been due to some kind of luck.	2.5
When others celebrate my success, I downplay the importance of what I've done.	7.6	Diminishment of Success (*DS5*)	When my achievements are recognized, and even when I receive high praise, I slight the importance of such recognition.	11.0	Subjective Incompetence	If I receive a great deal of praise and recognition for something I've accomplished, I tend to discount the importance of what I have done.	11.1
Knowing the right people has driven my successes.	6.7	Diminishment of Success (*DS6*)	[c]			[c]	
Nothing I have achieved has been truly meaningful.	6.7	Diminishment of Success (*DS7*)	[c]			[c]	
My successes don't really count because I had to try too hard to achieve them.	5.9	Diminishment of Success (*DS8*)	[c]			[c]	
[c]			I worry a lot about how others evaluate me.	6.2	Feelings of Fraudulence toward Others	I avoid evaluations if possible and have a dread of others evaluating me.	10.3

Table A.1 (*continued*)

IPS			SIPS			CIPS	
Item	Readability	Hypothesized Dimension	Item	Readability	Hypothesized Dimension	Item	Readability
			I remember the events in which I could not do my best, rather than the times that I did do my best.	6.9	Subjective Incompetence	I tend to remember the incidents in which I have not done my best more than those times I have done my best.	7.2
			It is unlikely that I will be able to achieve tasks the way I wanted to.	6.1	Subjective Incompetence	I rarely do a project or task as well as I'd like to do it.	3.6
[c]			[c]			I have often succeeded on a test or task even though I was afraid that I would not do well before I undertook the task.[a]	9.7
[c]			[c]			I can give the impression that I'm more competent than I really am.[a]	5.8
[c]			[c]			I'm disappointed at times in my present accomplishments and think I should have accomplished much more.	9.0
[c]			[d]			When I've succeeded at something and received recognition for my accomplishments, I have doubts that I can keep repeating that success.	12.0

Table A.1 (*continued*)

IPS			SIPS			CIPS	
Item	Readability	Hypothesized Dimension	Item	Readability	Hypothesized Dimension	Item	Readability
[c]			[d]			I often compare my ability to those around me and think they may be more intelligent than I am.	9.2
[c]			[c]			If I'm going to receive a promotion or gain recognition of some kind, I hesitate to tell others until it is an accomplished fact.[b]	11.4
[c]			[c]			I feel bad and discouraged if I'm not "the best" or at least "very special" in situations that involve achievement.[b]	9.9

[a] Item did not factor (Chrisman et al., 1995; Kertay et al., 1991). [b]Item did not factor (Kertay et al., 1991). [c]Item not included in scale. [d]Item not provided by Fujie (2010) because it did not factor.

Table A.2

Item Descriptives for the 15-item IPS

	FF1	FF2	FF3	FF4	FF5	FF6	FF7	DS1	DS2	DS3	DS4	DS5	DS6	DS7	DS8
Full Sample (*n* = 298)															
Mean	4.59	3.35	2.77	3.59	4.07	2.05	1.78	3.77	2.01	4.32	2.67	5.30	4.48	1.69	1.70
SD	1.72	1.79	1.56	1.72	1.84	1.38	1.21	1.65	1.11	1.52	1.40	1.29	1.70	1.05	0.98
Skew *z* Score	**-3.56**	2.20	**4.67**	0.87	-1.18	**11.15**	**13.49**	-0.45	**9.12**	-2.15	**5.82**	**-7.09**	**-4.07**	**15.21**	**14.70**
Kurtosis *z* Score	-2.71	**-4.09**	-2.67	**-4.40**	**-4.31**	**7.25**	**12.15**	**-4.04**	**5.59**	-3.06	-0.94	**3.60**	-2.09	**18.30**	**19.15**
Gender															
Females (*n* = 81)															
Mean	4.94	3.80	3.12	4.02	4.57	2.01	1.75	3.93	2.20	4.52	2.83	5.26	4.48	1.54	1.73
SD	1.59	1.83	1.63	1.64	1.82	1.37	1.20	1.57	1.15	1.65	1.48	1.43	1.71	0.88	1.00
Skew *z* Score	-2.11	0.32	1.83	-1.25	-1.82	**6.02**	**7.86**	-0.94	2.92	-1.76	**3.45**	**-3.84**	-1.57	**8.97**	**6.18**
Kurtosis *z* Score	-1.04	-2.18	-1.81	-2.20	-1.90	**4.08**	**9.14**	-1.63	-0.92	-1.76	-0.33	1.11	-1.61	**13.02**	**4.45**
Males (*n* = 213)															
Mean	4.47	3.14	2.62	3.44	3.89	2.05	1.77	3.70	1.93	4.24	2.62	5.32	4.47	1.73	1.68
SD	1.76	1.75	1.51	1.72	1.83	1.39	1.21	1.68	1.09	1.47	1.38	1.23	1.71	1.10	0.97
Skew *z* Score	-2.83	2.59	**4.48**	1.77	-0.43	**9.55**	**11.46**	0.04	**9.32**	-1.56	**4.63**	**-6.04**	**-3.80**	**12.59**	**13.75**
Kurtosis *z* Score	-2.61	**-3.24**	-1.87	**-3.36**	**-3.67**	**6.43**	**9.99**	**-3.61**	**8.64**	-2.40	-1.11	**3.88**	-1.45	**14.71**	**21.33**

Table A.2 (*continued*)

	FF1	FF2	FF3	FF4	FF5	FF6	FF7	DS1	DS2	DS3	DS4	DS5	DS6	DS7	DS8
Age															
Less than 31 years (*n* = 52)															
Mean	4.31	3.69	2.87	4.00	4.29	1.92	1.60	3.46	1.90	4.04	2.62	5.08	4.90	1.81	1.58
SD	1.80	1.86	1.65	1.62	1.89	1.25	0.77	1.50	1.03	1.61	1.51	1.40	1.45	1.05	0.80
Skew *z* Score	-0.89	0.45	2.09	-0.96	-1.32	**7.10**	**4.19**	0.29	**3.62**	0.25	**3.39**	-2.06	-2.18	**4.75**	**4.99**
Kurtosis *z* Score	-1.95	-1.98	-1.34	-1.94	-1.80	**9.97**	2.92	-1.72	1.30	-1.63	0.88	0.89	-0.14	**3.34**	**4.30**
Equal to or greater than 31 years (*n* = 238)															
Mean	4.66	3.26	2.74	3.52	4.05	2.08	1.81	3.83	2.03	4.37	2.68	5.36	4.39	1.66	1.72
SD	1.72	1.78	1.55	1.74	1.85	1.42	1.29	1.68	1.14	1.51	1.38	1.26	1.75	1.05	1.02
Skew *z* Score	**-3.54**	2.24	**4.18**	1.28	-0.92	**9.22**	**11.77**	-0.71	**8.30**	-2.41	**4.78**	**-7.11**	**-3.27**	**14.74**	**13.30**
Kurtosis *z* Score	-2.03	**-3.52**	-2.27	**-3.76**	**-3.82**	**4.80**	**9.50**	**-3.61**	**5.32**	-2.44	-1.46	**4.07**	-2.25	**19.70**	**17.35**
Years Coaching Experience															
Less than 4 years (*n* = 35)															
Mean	4.51	4.14	3.31	4.29	4.49	2.43	2.23	3.54	2.20	4.09	2.60	5.20	4.83	1.71	1.80
SD	1.72	1.85	1.69	1.56	1.81	1.46	1.52	1.60	0.96	1.54	1.24	1.23	1.65	0.93	0.93
Skew *z* Score	-1.26	-0.33	1.39	-1.39	-0.54	**3.99**	**4.23**	0.89	2.08	0.01	**3.32**	-1.52	-1.04	**4.52**	**3.38**
Kurtosis *z* Score	-1.16	-1.31	-1.16	-1.39	-1.71	3.04	3.28	-1.08	-0.13	-1.59	1.34	0.43	-1.18	**5.22**	1.72
Equal to or greater than 4 years (*n* = 253)															
Mean	4.63	3.23	2.70	3.50	4.04	2.01	1.71	3.83	1.98	4.34	2.70	5.32	4.45	1.69	1.69
SD	1.73	1.77	1.54	1.72	1.86	1.38	1.16	1.65	1.14	1.54	1.44	1.30	1.72	1.07	0.99
Skew *z* Score	**-3.52**	2.44	4.41	1.49	-1.12	**10.29**	**12.59**	-0.88	**8.87**	-2.14	**5.01**	**-7.01**	**-3.96**	**14.39**	**14.22**
Kurtosis *z* Score	-2.29	**-3.74**	-2.50	**-3.80**	**-4.07**	**6.50**	**11.08**	**-3.71**	**5.71**	-2.68	-1.28	**3.84**	-1.88	**17.60**	**19.65**

Note. Skew and kurtosis *z* scores in boldface exceed the conventional |3.3| standard for normality.

Table A.3

Timeline for Study 1B Web Survey Implementation

Contact Number	Data/Time of Contact	Notes
1	Monday, August 10, 2015, 8:00 AM (PST)	The Panel was sent a personalized email with an invitation to participate in the survey; this email will include a link to the survey, instructions for accessing and completing the survey, and a brief description of the study and the importance of response.
2	Monday, August 17, 2015, 8:00 AM (PST)	Panel members who had not yet completed the survey were sent a personalized reminder email.
3	Monday, August 31, 2015, 8:00 AM (PST)	Panel members who had not yet completed the survey were sent a personalized reminder email.
4	Wednesday, September 16, 11:30 AM (PST)	Panel members who had not yet completed the survey were sent a final, personalized reminder email.

Note. See Appendix B for specific content of emails.

Table A.4

Item Descriptives for the 9-item IPS

	Self1	Self2	Self3	Self4	Self5	Others1	Others2	Others3	Others4
Full Sample									
Mean	1.70	1.55	1.74	1.57	1.51	4.36	3.89	4.24	5.17
SD	1.11	0.90	0.91	1.06	0.87	1.80	1.79	1.52	1.26
Skew *z* Score	**20.72**	**19.16**	**15.37**	**26.42**	**22.07**	-3.18	-1.16	-2.61	-7.80
Kurtosis *z* Score	**26.87**	**22.76**	**17.96**	**46.42**	**33.75**	**-4.39**	**-5.84**	**-4.40**	**3.40**
				Gender					
Females (*n* = 156)									
Mean	1.71	1.53	1.83	1.42	1.41	4.58	4.03	4.23	4.92
SD	1.02	0.77	0.92	0.77	0.75	1.69	1.69	1.50	1.24
Skew *z* Score	**5.46**	**7.59**	**6.43**	**8.38**	**5.85**	-2.31	-1.76	-1.73	**-3.98**
Kurtosis *z* Score	**3.75**	**8.91**	2.98	**13.28**	**4.44**	-0.68	-1.77	-1.81	1.55
Males (*n* = 333)									
Mean	1.71	1.55	1.70	1.62	1.54	4.25	3.84	4.24	5.29
SD	1.152	0.954	0.91	1.16	0.909	1.848	1.839	1.545	1.25
Skew *z* Score	**16.98**	**16.67**	**14.33**	**21.49**	**18.51**	-1.78	-0.40	-2.12	**-7.11**
Kurtosis *z* Score	**21.10**	**19.97**	**20.56**	**35.17**	**29.17**	**-4.12**	**-4.98**	**-3.44**	**3.80**
				Age					
Less than 31 years (n = 112)									
Mean	1.87	1.61	1.79	1.45	1.57	4.44	4.06	4.00	5.06
SD	1.33	0.83	0.85	0.80	0.98	1.64	1.67	1.57	1.27
Skew *z* Score	**7.94**	**5.82**	**4.99**	**10.55**	**12.29**	-1.74	-0.90	-0.13	-3.48
Kurtosis *z* Score	**6.03**	2.47	2.12	**14.99**	**22.25**	-1.53	-2.48	-2.92	1.10
Equal to or greater than 31 years (n = 379)									
Mean	1.66	1.53	1.72	1.59	1.48	4.34	3.85	4.31	5.20
SD	1.66	1.53	0.93	1.59	1.48	4.34	3.85	4.31	5.20
Skew *z* Score	**19.55**	**18.33**	**14.58**	**23.41**	**18.20**	-2.63	-0.80	-2.86	**-7.03**
Kurtosis *z* Score	**29.83**	**23.23**	**18.27**	**39.76**	**23.97**	**-4.14**	**-5.30**	**-3.26**	**3.28**

Table A.4 (*continued)*

	Self1	Self2	Self3	Self4	Self5	Others1	Others2	Others3	Others4
Years Coaching Experience									
Less than 4 years (n = 39)									
Mean	2.05	1.74	2.03	1.44	1.51	4.95	4.49	4.28	5.10
SD	1.50	0.97	1.01	0.79	0.94	1.78	1.55	1.65	1.29
Skew *z* Score	**4.55**	**3.90**	2.40	**5.54**	**6.21**	-2.30	-1.28	-1.26	-2.16
Kurtosis *z* Score	**3.27**	**3.12**	-0.14	**5.79**	**7.57**	0.06	-0.02	-1.31	1.88
Equal to or greater than 4 years (n = 445)									
Mean	1.66	1.53	1.69	1.56	1.51	4.31	3.85	4.24	5.17
SD	1.04	0.88	0.86	1.02	0.87	1.80	1.80	1.51	1.26
Skew *z* Score	**19.40**	**18.72**	**13.53**	**24.73**	**20.92**	-2.64	-0.80	-2.27	**-7.54**
Kurtosis *z* Score	**25.39**	**23.33**	**13.16**	**43.66**	**32.56**	**-4.38**	**-5.74**	**-4.27**	**3.22**

Note. Skew and kurtosis *z* scores in boldface exceed the conventional |3.3| standard for normality.

Table A.5

Correlation Matrix with Descriptives for the 7-Item IPS for Female and Male Coaches

	Self1	Self2	Self3	Self4	Others1	Others2	Others3	*Mean*	*SD*
Self1		0.60	0.46	0.37	0.26	0.31	0.31	1.81	1.16
Self2	0.73		0.47	0.50	0.22	0.31	0.19	1.61	0.94
Self3	0.44	0.38		0.37	0.25	0.37	0.23	1.95	1.02
Self4	0.47	0.41	0.32		0.23	0.25	0.19	1.46	0.81
Others1	0.29	0.26	0.23	0.09		0.45	0.37	4.70	1.66
Others2	0.34	0.34	0.22	0.21	0.59		0.37	4.22	1.75
Others3	0.13	0.21	0.11	0.12	0.34	0.40		4.33	1.56
Mean	1.84	1.64	1.79	1.66	4.33	3.86	4.24		
SD	1.26	1.07	0.99	1.14	1.82	1.83	1.52		

Note. Statistics for the Female and Male coaches are reported above and below the table diagonal, respectively. All correlations significant at $p \leq 0.05$ unless otherwise noted.
$^{\#}p > 0.05$.

Table A.6

Correlation Matrix with Descriptives for the 7-Item IPS for Younger and Older Coaches

	Self1	Self2	Self3	Self4	Others1	Others2	Others3	*Mean*	*SD*
Self1		0.77	0.41	0.43	0.22	0.32	0.16	1.87	1.32
Self2	0.61		0.43	0.45	0.19	0.3	0.14	1.67	1.07
Self3	0.49	0.39		0.31	0.23	0.3	0.17	1.84	0.93
Self4	0.45	0.41	0.32		0.14	0.24	0.17	1.64	1.01
Others1	0.35	0.30	0.24	0.09[#]		0.6	0.38	4.46	1.71
Others2	0.34	0.35	0.25	0.18	0.52		0.41	4.11	1.83
Others3	0.21	0.28	0.13	0.11	0.31	0.39		4.21	1.54
Mean	1.81	1.59	1.84	1.57	4.44	3.85	4.33		
SD	1.15	0.99	1.07	1.10	1.84	1.80	1.51		

Note. Statistics for the Younger (age < 41 years) and Older (age ≥ 41 years) coaches are reported above and below the table diagonal, respectively. All correlations significant at $p \leq 0.05$ unless otherwise noted.
[#]$p > 0.05$.

Table A.7

Correlation Matrix with Descriptives for the 7-Item IPS for More and Less Experienced Coaches

	Self1	Self2	Self3	Self4	Others1	Others2	Others3	*Mean*	*SD*
Self1		0.75	0.45	0.42	0.26	0.34	0.15	1.91	1.30
Self2	0.66		0.46	0.47	0.24	0.33	0.15	1.70	1.10
Self3	0.46	0.39		0.30	0.26	0.35	0.18	1.92	0.98
Self4	0.45	0.42	0.27		0.16	0.24	0.17	1.63	0.99
Others1	0.31	0.28	0.25	0.10		0.59	0.41	4.50	1.73
Others2	0.33	0.33	0.23	0.22	0.52		0.43	4.15	1.81
Others3	0.25	0.28	0.16	0.14	0.30	0.38		4.22	1.55
Mean	1.77	1.57	1.74	1.56	4.41	3.83	4.32	1.77	1.57
SD	1.15	0.96	0.99	1.06	1.84	1.81	1.49	1.15	0.96

Note. Statistics for Less Experienced (< 15 years) and More Experienced (≥ 15 years) coaches are reported above and below the table diagonal, respectively. All correlations significant at $p < 0.05$ unless otherwise noted.
[#] $p > 0.05$.

Table A.8

Reported Means and Standard Deviations of Studies Using the CIPS

				Level of Imposter Feelings	
Study	**Sample**	**M**	**SD**	**Moderate**[a]	**Moderate**[a]
Askary and Heydarei (2011)	261 Islamic graduate students	48.62	13.26		
Bernard, Dollinger, and Ramaniah (2010)	190 undergraduate psychology students	52.60	12.70		
Castro, Jones, and Mirsalimi (2004)	213 graduate clinical and counseling psychology students (*M* age = 31)	55.19	14.82	30%	80%
Chae, Piedmont, Estadt, and Wicks (1995)	654 Korean Catholics (*M* age = 34)	56.20	9.70		
Cowman and Ferrari (2002)	436 undergraduate psychology students (*M* age 19.50)	59.25	13.86		
Cusack, Hughes, and Nuhu (2013)	506 undergraduate and graduate college students (*M* age 21.02)	58.68	13.87		
Dinnel, Hopkins, and Thompson (2012)	411 undergraduate psychology students (*M* age = 19.02)	48.66	14.56		
Gibson-Beverly and Schwartz (2008)	170 female graduate students (*M* age = 33.94)	54.37	13.22		
Henning, Ey, and Shaw (1998)	477 graduate students in medical fields (medicine, dentistry, nursing, pharmacy; *M* age = 26.20)				30.2%
Kamarzarrin, Khaledian, Shooshtari, Yousefi, and Ahrami (2013)	65 Iranian doctors	44.95	8.20		
Legassie, Zibrowski, and Goldszmidt (2008)	48 medical students	61.20	14.20		43.8%
McGregor, Gee, and Posey (2008)	186 undergraduate college students	56.33	11.59		
Safarzadeh, Esfahaniasl, and Bayat (2012)	200 Islamic college students	50.59	10.54		
Sightler and Wilson (2001)	163 undergraduate entrepreneur students (median age = 23)	58.32	10.41	50%	

Table A.8 (*continued*)

Study	Sample	M	SD	Level of Imposter Feelings	
				Moderate[a]	Clinical[b]
Sonnak and Towell (2001)	107 undergraduate psychology students	70.59	6.16		43%
Thompson, Davis, and Davidson (1998)	164 Tasmanian undergraduate psychology students (median age = 20)				48.8%
Vergauwe, Wille, Feys, De Fruyt, and Anseel (2014)	201 Dutch-speaking Belgian white-collar workers (*M* age = 36.11)	39.10	12.47		
Want and Kleitman (2006)	115 Australians with miscellaneous occupations	53.61	13.22		
	Mean	54.27		53%	41%

Note: *M* = Mean; *SD* = Standard Deviation.
[a]Clance (1985) suggests individuals with a score of 41 or greater are experiencing moderate levels of imposter feelings. [b]Holmes et al. (1993) suggest individuals with a score of 62 or greater on the CIPS are experiencing clinical levels of imposter feelings.

Table A.9

Item Descriptives for the CNCAQ, DPSS, IPS, JEI, and CBQ

Item	Mean	SD	Skewness *z* Score	Kurtosis *z* Score
CNCAQlearn1	6.220	1.016	-21.066	28.271
CNCAQlearn2	6.420	0.754	-23.516	51.685
CNCAQlearn3	6.450	0.660	-17.374	37.989
CNCAQimprove1	5.730	1.268	-12.714	6.242
CNCAQimprove2	6.040	1.007	-16.341	16.972
CNCAQimprove3	5.930	1.092	-14.681	12.028
CNCAQstable1	2.130	1.331	17.330	11.857
CNCAQstable2	2.420	1.317	14.769	9.674
CNCAQstable3	2.770	1.481	10.582	0.945
CNCAQgift1	4.890	1.492	-9.879	1.088
CNCAQgift2	3.690	1.625	-0.066	-5.995
CNCAQgift3	3.590	1.557	0.484	-5.807
DPSSpsp1	6.750	0.690	-57.593	200.824
DPSSpsp2	6.550	0.720	-33.670	94.387
DPSSpsp3	6.630	0.576	-26.374	78.271
DPSSpsp4	6.330	0.861	-22.473	39.209
DPSSecp1	3.740	1.760	-0.308	-6.286
DPSSecp2	3.680	1.483	-1.352	-5.824
DPSSecp3	3.670	1.697	0.538	-6.337
DPSSecp4	3.610	1.630	1.242	-6.271
IPSself1	1.810	1.197	22.396	24.028
IPSSelf2	1.610	1.004	24.165	30.247
IPSself3	1.840	1.003	17.615	17.530
IPSself4	1.600	1.040	30.330	51.541
IPSothers1	4.530	1.754	-5.011	-4.613
IPSothers2	4.030	1.797	-1.923	-6.802
IPSothers3	4.310	1.526	-3.429	-4.896
JEIvigor1	6.680	0.640	-39.132	121.390
JEIvigor2	6.080	0.879	-15.758	21.687
JEIvigor3	6.210	0.866	-18.429	29.818
JEIvigor4	6.470	0.682	-22.011	51.863
JEIinvest1	6.170	0.967	-19.560	28.425
JEIinvest2	6.410	0.739	-24.198	59.160
JEIinvest3	6.610	0.641	-33.286	104.448
JEIinvest4	6.620	0.628	-34.857	115.187

Table A.9 (*continued*)

Item	Mean	SD	Skewness *z* Score	Kurtosis *z* Score
JEIabsorption1	6.270	0.809	-13.747	12.940
JEIabsorption2	6.600	0.629	-24.165	56.619
JEIabsorption3	6.370	0.689	-13.945	19.495
JEIabsorption4	6.360	0.771	-15.363	15.801
CBQepe1	3.370	1.742	1.714	-6.398
CBQepe2	3.230	1.726	3.923	-5.381
CBQepe3	2.900	1.678	5.714	-4.423
CBQepe4	2.950	1.696	6.143	-4.445
CBQepe5	2.980	1.705	6.286	-3.835
CBQra1	1.909	0.925	12.022	11.508
CBQra2	2.040	1.282	17.791	14.566
CBQra3	2.330	1.365	12.604	4.254
CBQra4	2.140	1.234	14.330	8.071
CBQra5	2.201	1.121	13.780	12.599
CBQdc1	2.130	1.228	13.769	7.392
CBQdc2	2.020	1.413	17.033	9.363
CBQdc3	2.160	1.478	16.341	8.374
CBQdc4	2.360	1.550	11.769	0.597
CBQdc5	1.960	1.246	15.956	8.298

Table A.10

Item-Factor Loading Parameter Estimates for Study 3 Measurement Models

	Parameter Estimates		
Items	Unstandardized	Standardized	SE
	CNCAQ		
Learn[a]	1.00	0.61	
Improve[a]	2.47	0.89	0.43
Stable[a]	1.00	0.75	
Gift[a]	1.06	0.77	0.17
CNCAQlearn1	1.00	0.47	
CNCAQlearn2	0.92	0.58	0.12
CNCAQlearn3	0.70	0.51	0.10
CNCAQimprove1	1.00	0.64	
CNCAQimprove2	0.99	0.80	0.06
CNCAQimprove3	1.12	0.84	0.07
CNCAQstable1	1.00	0.59	
CNCAQstable2	0.93	0.56	0.10
CNCAQstable3	1.19	0.64	0.12
CNCAQgift1	1.00	0.56	
CNCAQgift2	1.55	0.79	0.11
CNCAQgift3	1.56	0.83	0.11
Incremental - Entity	-0.07	-0.38	
	DPSS		
DPSSpsp1	1.00	0.56	
DPSSpsp2	1.45	0.77	0.11
DPSSpsp3	1.18	0.79	0.09
DPSSpsp4	1.37	0.61	0.12
DPSSecp1	1.00	0.65	
DPSSecp2	0.88	0.68	0.06
DPSSecp3	0.95	0.64	0.07
DPSSecp4	1.14	0.80	0.08
ECP – PSP	0.03[#]	0.07	0.02

Table A.10 (*continued*)

Items	Parameter Estimates		SE
	Unstandardized	Standardized	
	IPS		
Self[a]	1.00	0.66	
Others[a]	1.25	0.74	0.19
IPSself1	1.00	0.85	
IPSself2	0.79	0.81	0.04
IPSself3	0.47	0.48	0.04
IPSself4	0.48	0.47	0.04
IPSothers1	1.00	0.65	
IPSothers2	1.26	0.80	0.11
IPSothers3	0.61	0.46	0.06
	CBQ		
EPE[a]	1.00	0.63	
RA[a]	0.51	0.87	0.05
DC[a]	1.12	0.82	0.10
CBQepe1	1.00	0.77	
CBQepe2	1.08	0.85	0.04
CBQepe3	1.14	0.91	0.04
CBQepe4	1.14	0.9	0.04
CBQepe5	1.13	0.9	0.04
CBQra1	1.00	0.55	
CBQra2	1.63	0.64	0.13
CBQra3	2.08	0.77	0.15
CBQra4	1.58	0.65	0.13
CBQra5	1.36	0.61	0.11
CBQdc2	1.00	0.82	
CBQdc3	1.03	0.81	0.05
CBQdc4	0.91	0.69	0.05

Table A.10 (*continued*)

Items	Parameter Estimates		SE
	Unstandardized	Standardized	
	JEI		
Vigor[a]	1.00	0.95	
Invest[a]	0.79	0.86	0.13
Absorption[a]	1.31	0.82	0.14
JEIvigor1	1.00	0.56	
JEIvigor3	1.71	0.7	0.14
JEIvigor4	1.41	0.74	0.11
JEIinvest1	1.00	0.32	
JEIinvest2	1.12	0.48	0.18
JEIinvest4	1.16	0.58	0.18
JEIabsorption1	1.00	0.67	
JEIabsorption3	1.01	0.79	0.07
JEIabsorption4	0.88	0.63	0.07

[a]First-order factor.
[#]$p > 0.05$

Appendix C

Coaching Demographic and Background Questionnaire (CDBQ)

Coaching Background

1. How many years have you been a coach?
   _____ years

2. Which of the following positions have you held as a coach?
   Please check all that apply.
   - ☐ Head Coach, paid
   - ☐ Head Coach, unpaid
   - ☐ Assistant Coach, paid
   - ☐ Assistant Coach, unpaid
   - ☐ Other

3. At which competitive levels have you coached?
   Please check all that apply.
   - ☐ College – NCAA Division I or IAA
   - ☐ College – NCAA Division II
   - ☐ College – NCAA Division III
   - ☐ College – NAIA
   - ☐ College – Community or Junior
   - ☐ Junior Club Level
   - ☐ High school
   - ☐ Middle School
   - ☐ Other

4. Which of the following methods have you used to develop your coaching skills?
   Please check all that apply.
   - ☐ I have <u>not</u> had any type of coach training.
   - ☐ Coaching clinics
   - ☐ Coaching certifications
   - ☐ Coaching books or videos
   - ☐ Mentoring
   - ☐ Other

Current Coaching Position

The following questions will ask you to reflect on your *current* coaching position. If you are currently coaching more than one team, please respond based on your *primary* sport.

5. What sport are you currently coaching?
   _____

6. What is your current coaching position with this team?
   - Head Coach, paid
   - Head Coach, unpaid
   - Assistant Coach, paid
   - Assistant Coach, unpaid
   - Other

7. How many *consecutive* years have you held your current position with this team?
   _____ years

8. At what level of competition does this team play?
   - College – NCAA Division I or IAA
   - College – NCAA Division II
   - College – NCAA Division III
   - College – NAIA
   - College – Community or Junior
   - Junior Club Level
   - High school
   - Middle school
   - Other

9. How would you describe the gender composition of this team?
   - Male
   - Female
   - Co-ed with a fairly even male/female split
   - Co-ed but predominately males
   - Co-ed but predominately females

10. How would you describe the racial/ethnic composition of this team?
    - The team's predominant race/ethnicity is the same as me.
    - The team's predominant race/ethnicity is different from me.
    - The team has no predominant race/ethnicity; all races/ethnicities are represented fairly equally.

11. How many years did you play this sport?
    _____ years

12. What is the highest level of competition at which you played this sport?
    - ○ I only played this sport recreationally.
    - ○ College – NCAA Division I or IAA
    - ○ College – NCAA Division II
    - ○ College – NCAA Division III
    - ○ High school
    - ○ Other

Demographics

13. What is your gender?
    - ○ Male
    - ○ Female
    - ○ I prefer not to answer.

14. What is your age?
    _____ years

15. How would you describe yourself?
    Please check all racial/ethnic groups that apply.
    - ☐ American Indian or Alaska Native
    - ☐ Asian
    - ☐ Black or African American
    - ☐ Native Hawaiian or Pacific Islander
    - ☐ White

Appendix D

Online Survey

Coach Success Survey

What does *your* road to success look like?

>>

You are invited to participate in a research study aimed at understanding sport coaches' motivation and experiences dealing with their success.

Participation will take approximately 10 minutes and will involve completing this brief, anonymous survey. There are no additional responsibilities or expectations, and you will not be asked to provide any personally identifiable information within the survey.

The primary purpose of this study is to explore how coaches deal with success and to identify what motivates coaches.

You are being asked to participate in this study because the project cannot be completed without insights, input, and responses from coaches like yourself, but there are no penalties or ramifications if you choose not to complete the questionnaire or to skip an item(s).

This study has been certified as Exempt by the University of Idaho Institutional Review Board. By responding to items, you are granting permission to the investigators to use your anonymous answers in our research.

If you have any questions at any time regarding the procedures of the study, you may contact Amanda Start at star9677@vandals.uidaho.edu.

◯ **I have read the above information, and I agree to participate in this study.**

<< >>

Survey Instructions

There are no right or wrong answers, so please select the first answer that pops into your head. Please answer each item by clicking on the "bubble" or "rectangle" that best represents you as a coach.

<< >>

Please mark the bubble to indicate how strongly you agree with each statement.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
To be successful as a coach you need to learn techniques and skills, and practice them regularly.	○	○	○	○	○	○	○
I have high expectations for myself as a coach.	○	○	○	○	○	○	○
Even when others praise me, I worry I won't be able to keep meeting their expectations.	○	○	○	○	○	○	○
I really put my heart into my job as a coach.	○	○	○	○	○	○	○
As a coach, if you work hard at it, you will always get better.	○	○	○	○	○	○	○
If I fail as a coach, I feel like a failure as a person.	○	○	○	○	○	○	○

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
I think I have been successful because I was at the right place, at the right time.	○	○	○	○	○	○	○
I get excited when I perform well as a coach.	○	○	○	○	○	○	○
We have a certain level of ability as a coach and we cannot really do much to change that level.	○	○	○	○	○	○	○
I set very high standards for myself as a coach.	○	○	○	○	○	○	○
I'm afraid people will find out that I'm not as capable as they thought I was.	○	○	○	○	○	○	○
When I get up in the morning I look forward to my day as a coach.	○	○	○	○	○	○	○

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
You need to have certain "gifts" to be good at coaching.	○	○	○	○	○	○	○
People will probably think less of me if I make coaching mistakes.	○	○	○	○	○	○	○
I feel that my success has just been some mistake.	○	○	○	○	○	○	○
While performing my coaching duties I typically work with full intensity.	○	○	○	○	○	○	○

<< >>

Please mark the bubble to indicate <u>how strongly you agree</u> with each statement.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
You need to learn and to work hard to be good as a coach.	○	○	○	○	○	○	○
I expect the best from myself as a coach.	○	○	○	○	○	○	○
I fear that people will discover how much ability I really lack.	○	○	○	○	○	○	○
I feel responsible for my own performance as a coach.	○	○	○	○	○	○	○
How good you are as a coach will always improve if you work at it.	○	○	○	○	○	○	○
If another coach performs better than me, I feel like I failed to some degree.	○	○	○	○	○	○	○

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
It's hard for me to accept people's praise.	○	○	○	○	○	○	○
I find the work I do as a coach to be meaningful.	○	○	○	○	○	○	○
Even if you try, the level you reach as a coach will change very little.	○	○	○	○	○	○	○
I have a strong need to strive for excellence as a coach.	○	○	○	○	○	○	○
Even though I generally do well, I fear that I will fail at new tasks.	○	○	○	○	○	○	○
While executing my coaching duties I typically exert maximum effort.	○	○	○	○	○	○	○

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
To be good at coaching, you need to be born with the basic qualities which allow you success.	○	○	○	○	○	○	○
If I do not do well all the time, I feel that people will not respect me as a coach.	○	○	○	○	○	○	○
I feel my successes have been due to some kind of luck.	○	○	○	○	○	○	○
I am very committed to my job as a coach.	○	○	○	○	○	○	○

<< >>

Please mark the bubble to indicate how strongly you agree with each statement.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
To reach a high level of performance as a coach, you must go through periods of learning and training.	○	○	○	○	○	○	○
Even though others are confident that I will do well, I worry that I will fail.	○	○	○	○	○	○	○
My general attitude towards my coaching responsibilities is usually enthusiastic.	○	○	○	○	○	○	○
If you put enough effort into it, you will always get better as a coach.	○	○	○	○	○	○	○
When others celebrate my success, I downplay the importance of what I've done.	○	○	○	○	○	○	○

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
I strive as hard as I can to complete my coaching responsibilities.	○	○	○	○	○	○	○
It is difficult to change how good you are at coaching.	○	○	○	○	○	○	○
I worry that it's only a matter of time until others see what a fraud I am.	○	○	○	○	○	○	○
How well I do my job as a coach matters to me.	○	○	○	○	○	○	○
To be good at coaching you need to be naturally gifted.	○	○	○	○	○	○	○

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
Knowing the right people has driven my successes.	○	○	○	○	○	○	○
My job as a coach is inspiring.	○	○	○	○	○	○	○
I feel like I'm a fake.	○	○	○	○	○	○	○
Nothing I have achieved has been truly meaningful.	○	○	○	○	○	○	○
My successes don't really count because I had to try too hard to achieve them.	○	○	○	○	○	○	○

<< >>

Please indicate how frequently you feel what is described in each statement.

	Almost Never						Almost Always
I feel so tired from coaching that I have trouble finding energy to do other things.	○	○	○	○	○	○	○
I'm accomplishing many worthwhile things as a coach.	○	○	○	○	○	○	○
The effort I spend coaching would be better spent doing other things.	○	○	○	○	○	○	○
I feel overly tired from coaching.	○	○	○	○	○	○	○
I am not achieving much as a coach.	○	○	○	○	○	○	○
	Almost Never	.....	.....	.....	.....	.....	Almost Always
I don't care as much about my coaching performance as I used to.	○	○	○	○	○	○	○
I feel "wiped out" from coaching.	○	○	○	○	○	○	○
I am not performing up to my ability as a coach.	○	○	○	○	○	○	○
I'm not into coaching like I used to be.	○	○	○	○	○	○	○
I feel physically worn out from coaching.	○	○	○	○	○	○	○

	Almost Never	.....	.....	.....	.....	.....	Almost Always
It seems that no matter what I do, I don't perform as well as I should.	○	○	○	○	○	○	○
I feel less concerned about being successful in coaching than I used to.	○	○	○	○	○	○	○
I am exhausted by the mental and physical demands of coaching.	○	○	○	○	○	○	○
I feel successful as a coach.	○	○	○	○	○	○	○
I have negative feelings toward coaching.	○	○	○	○	○	○	○

<< >>

Your Coaching Experience

How many total years have you been a coach?

At which competitive levels have you coached?
Please check all that apply.

- [ ] College – NCAA Division I or IAA
- [ ] College – NCAA Division II
- [ ] College – NCAA Division III
- [ ] College – NAIA
- [ ] College – Community or Junior
- [ ] Junior Club Level
- [ ] High school
- [ ] Middle School
- [ ] Other (please specify):

Which of the following positions have you held as a coach?
Please check all that apply.

- [ ] Head Coach, paid
- [ ] Head Coach, unpaid
- [ ] Assistant Coach, paid
- [ ] Assistant Coach, unpaid
- [ ] Other (please specify):

Which of the following methods have you used to develop your coaching skills?
Please check all that apply.

- [ ] **I have not had any type of coach training.**
- [ ] **Coaching clinics**
- [ ] **Coaching certifications**
- [ ] **Coaching books or videos**
- [ ] **Mentoring**
- [ ] **Other (please specify):**

<< >>

Your Coaching Experience

The following questions will ask you to reflect on your current coaching position. If you are currently coaching more than one team, please respond based on your primary sport.

What sport are you currently coaching?

What is your *current* coaching position with this team?

- ◯ **Head Coach, paid**
- ◯ **Head Coach, unpaid**
- ◯ **Assistant Coach, paid**
- ◯ **Assistant Coach, unpaid**
- ◯ **Other (please specify):**

How many *consecutive* years have you held your current position with this team?

At what level of competition does this team play?

- ◯ College – NCAA Division I or IAA
- ◯ College – NCAA Division II
- ◯ College – NCAA Division III
- ◯ College – NAIA
- ◯ College – Community or Junior
- ◯ Junior Club Level
- ◯ High school
- ◯ Middle school
- ◯ Other (please specify):

How would you describe the gender composition of this team?

- ◯ Male
- ◯ Female
- ◯ Co-ed with a fairly even male/female split
- ◯ Co-ed but predominately males
- ◯ Co-ed but predominately females

How would you describe the racial/ethnic composition of this team?

- ◯ The team's predominant race/ethnicity is the same as me.
- ◯ The team's predominant race/ethnicity is different from me.
- ◯ The team has no predominant race/ethnicity; all races/ethnicities are represented fairly equally.

How many years did you play this sport?

What is the highest level of competition at which you played this sport?

- ◯ I only played this sport recreationally.
- ◯ College – NCAA Division I or IAA
- ◯ College – NCAA Division II
- ◯ College – NCAA Division III
- ◯ High school
- ◯ Other (please specify):

<< >>

Demographics

What is your gender?

- ◯ Male
- ◯ Female
- ◯ I prefer not to answer.

What is your age?

How would you describe yourself?
Please check all racial/ethnic groups that apply.

- ◯ American Indian or Alaska Native
- ◯ Asian
- ◯ Black or African American
- ◯ Native Hawaiian or Pacific Islander
- ◯ White
- ◯ Other (please specify):

<< >>

Are you interested in receiving a copy of the results from this study?

- ◯ **Yes**
- ◯ **No**

Would you like to help complete a survey for future coaching research projects?

- ◯ **Yes**
- ◯ **No**

If you selected "yes" for either of the above questions, please provide your email address:

Thank You!

Thank you for completing this survey and for sharing a little about your journey striving toward success. We appreciate your time and insights! We wish you the best in your upcoming season and in your journey toward reaching new levels!

Please feel free to write any comments in the space below. If you have any additional questions or concerns, please email Amanda Start at star9677@vandals.uidaho.edu.

Please click the ">>" (next) button to submit your responses.

<< >>

We thank you for your time spent taking this survey.
Your response has been recorded.

Powered by Qualtrics

Appendix E

Forum Post for Online Coaching Forums

Forum Post Title: "Coach Success and Motivation—Your Input Needed"

Hello Coaches!

My name is Amanda Start, and I am currently taking a break from coaching to pursue a doctorate in sport psychology at the University of Idaho.

As a former basketball coach and a current "mental" coach, I am fascinated by how coaches handle their successes. Some coaches will shout about their successes from the rooftop, whereas other coaches prefer to keep their successes to themselves. Some coaches feel empowered by their successes whereas other feel a bit intimidated.

Which coach are you?

I would love to hear about how each of you deal with your successes, so I have set up an online survey, which will take about 5-6 minutes to complete! This survey is actually a part of my dissertation research, which is the final step before I can graduate…and get back to coaching! If you'd like, I'll even post what I find to this thread!

To access the survey, please copy and paste the following URL in your web browser: https://uidahoed.az1.qualtrics.com/SE/?SID=SV_3wqQMM21ZGVDI3j.

Your input and experiences are invaluable, and they will help researchers like myself better understand what motivates coaches and what keeps coaches in the game! What does this mean for you? This means that we can help you maximize the impact you have on your athletes and help you become the best coach you can be!

Please know that this study has been certified as exempt by the University of Idaho (Protocol 15-841), and participation is voluntary and anonymous. If you have any questions, please feel free to email me at star9677@vandals.uidaho.edu.

I sincerely thank you for your time and consideration, and I wish you all the very best in your upcoming seasons!

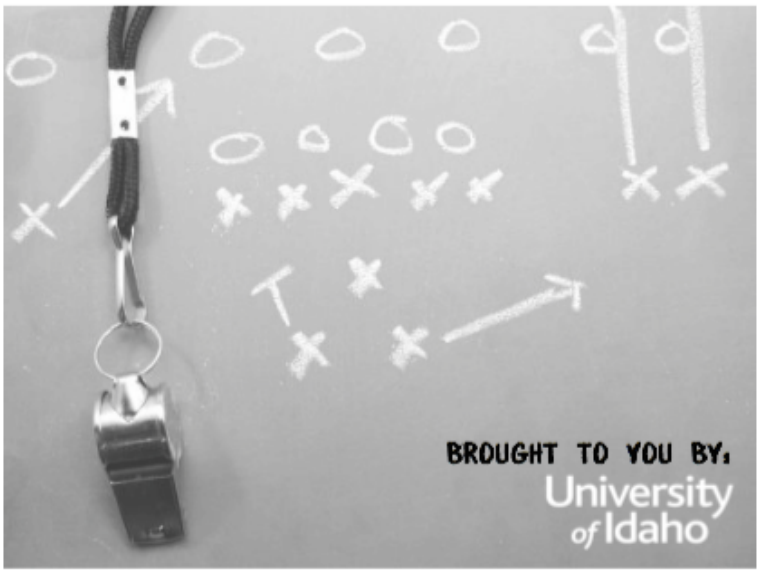
Regards,

Amanda Start
Doctoral Candidate at the University of Idaho
Email: star9677@vandals.uidaho.edu

Appendix F

Paper Survey

COACH SUCCESS SURVEY



{ INFORMED CONSENT. }

You are invited to participate in a research study aimed at understanding sport coaches' motivation and experiences dealing with their success.

Participation will take approximately 10 minutes and will involve completing this brief, anonymous survey. There are no additional responsibilities or expectations, and you will not be asked to provide any personally identifiable information within the survey.

The primary purpose of this study is to understand how coaches deal with success and to identify what motivates coaches.

You are being asked to participate in this study because the project cannot be completed without insights, input, and responses from coaches like yourself, but there are no penalties or ramifications if you choose not to complete the questionnaire or to skip an item(s).

This study has been certified as Exempt by the University of Idaho Institutional Review Board. By responding to items, you are granting permission to the investigators to use your anonymous answers in our research.

If you have any questions at any time regarding the procedures of the study, you may contact Amanda Start at star9677@vandals.uidaho.edu.

②

{ SURVEY INSTRUCTIONS. }

There are no right or wrong answers, so please select the first answer that pops into your head. Please answer each item by placing a legible mark in the "bubble" that best represents you ***as a coach***. For example, any of the following marks will work:

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
1. **To be successful as a coach you need to learn techniques and skills, and practice them regularly.**	○	○	○	○	○	○	○
2. **I have high expectations for myself as a coach.**	○	○	○	○	○	○	○
3. **Even when others praise me, I worry I won't be able to keep meeting their expectations.**	○	○	○	○	○	○	○
4. **I really put my heart into my job as a coach.**	○	○	○	○	○	○	○
5. **As a coach, if you work hard at it, you will always get better.**	○	○	○	○	○	○	○
6. **If I fail as a coach, I feel like a failure as a person.**	○	○	○	○	○	○	○
7. **I think I have been successful because I was at the right place, at the right time.**	○	○	○	○	○	○	○
8. **I get excited when I perform well as a coach.**	○	○	○	○	○	○	○
9. **We have a certain level of ability as a coach and we cannot really do much to change that level.**	○	○	○	○	○	○	○
10. **I set very high standards for myself as a coach.**	○	○	○	○	○	○	○
11. **I'm afraid people will find out that I'm not as capable as they thought I was.**	○	○	○	○	○	○	○
12. **When I get up in the morning I look forward to my day as a coach.**	○	○	○	○	○	○	○
13. **You need to have certain "gifts" to be good at coaching.**	○	○	○	○	○	○	○

Please mark the bubble to indicate how *strongly you agree* with each statement.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
14. **People will probably think less of me if I make coaching mistakes.**	○	○	○	○	○	○	○
15. **I feel that my success has just been some mistake.**	○	○	○	○	○	○	○
16. **While performing my coaching duties I typically work with full intensity.**	○	○	○	○	○	○	○
17. **You need to learn and to work hard to be good as a coach.**	○	○	○	○	○	○	○
18. **I expect the best from myself as a coach.**	○	○	○	○	○	○	○
19. **I fear that people will discover how much ability I really lack.**	○	○	○	○	○	○	○
20. **I feel responsible for my own performance as a coach.**	○	○	○	○	○	○	○
21. **How good you are as a coach will always improve if you work at it.**	○	○	○	○	○	○	○
22. **If another coach performs better than me, I feel like I failed to some degree.**	○	○	○	○	○	○	○
23. **It's hard for me to accept people's praise.**	○	○	○	○	○	○	○
24. **I find the work I do as a coach to be meaningful.**	○	○	○	○	○	○	○
25. **Even if you try, the level you reach as a coach will change very little.**	○	○	○	○	○	○	○
26. **I have a strong need to strive for excellence as a coach.**	○	○	○	○	○	○	○
27. **Even though I generally do well, I fear that I will fail at new tasks.**	○	○	○	○	○	○	○
28. **While executing my coaching duties I typically exert maximum effort.**	○	○	○	○	○	○	○
29. **To be good at coaching, you need to be born with the basic qualities which allow you success.**	○	○	○	○	○	○	○

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Please mark the bubble to indicate how *strongly you agree* with each statement.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
30. **If I do not do well all the time, I feel that people will not respect me as a coach.**	○	○	○	○	○	○	○
31. **I feel my successes have been due to some kind of luck.**	○	○	○	○	○	○	○
32. **I am very committed to my job as a coach.**	○	○	○	○	○	○	○
33. **To reach a high level of performance as a coach, you must go through periods of learning and training.**	○	○	○	○	○	○	○
34. **Even though others are confident that I will do well, I worry that I will fail.**	○	○	○	○	○	○	○
35. **My general attitude towards my coaching responsibilities is usually enthusiastic.**	○	○	○	○	○	○	○
36. **If you put enough effort into it, you will always get better as a coach.**	○	○	○	○	○	○	○
37. **When others celebrate my success, I downplay the importance of what I've done.**	○	○	○	○	○	○	○
38. **I strive as hard as I can to complete my coaching responsibilities.**	○	○	○	○	○	○	○
39. **It is difficult to change how good you are at coaching.**	○	○	○	○	○	○	○
40. **I worry that it's only a matter of time until others see what a fraud I am.**	○	○	○	○	○	○	○
41. **How well I do my job as a coach matters to me.**	○	○	○	○	○	○	○
42. **To be good at coaching you need to be naturally gifted.**	○	○	○	○	○	○	○
43. **Knowing the right people has driven my successes.**	○	○	○	○	○	○	○
44. **My job as a coach is inspiring.**	○	○	○	○	○	○	○
45. **I feel like I'm a fake.**	○	○	○	○	○	○	○

Please mark the bubble to indicate how *strongly you agree* with each statement.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
46. **Nothing I have achieved has been truly meaningful.**	○	○	○	○	○	○	○
47. **My successes don't really count because I had to try too hard to achieve them.**	○	○	○	○	○	○	○

Please indicate how *frequently you feel* what is described in each statement.

	Almost Never						Almost Always
48. **I feel so tired from coaching that I have trouble finding energy to do other things.**	○	○	○	○	○	○	○
49. **I'm accomplishing many worthwhile things as a coach.**	○	○	○	○	○	○	○
50. **The effort I spend coaching would be better spent doing other things.**	○	○	○	○	○	○	○
51. **I feel overly tired from coaching.**	○	○	○	○	○	○	○
52. **I am not achieving much as a coach.**	○	○	○	○	○	○	○
53. **I don't care as much about my coaching performance as I used to.**	○	○	○	○	○	○	○
54. **I feel "wiped out" from coaching.**	○	○	○	○	○	○	○
55. **I am not performing up to my ability as a coach.**	○	○	○	○	○	○	○
56. **I'm not into coaching like I used to be.**	○	○	○	○	○	○	○
57. **I feel physically worn out from coaching.**	○	○	○	○	○	○	○
58. **It seems that no matter what I do, I don't perform as well as I should.**	○	○	○	○	○	○	○

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Please indicate how *frequently you feel* what is described in each statement.

	Almost Never						Almost Always
59. **I feel less concerned about being successful in coaching than I used to.**	○	○	○	○	○	○	○
60. **I am exhausted by the mental and physical demands of coaching.**	○	○	○	○	○	○	○
61. **I feel successful as a coach.**	○	○	○	○	○	○	○
62. **I have negative feelings toward coaching.**	○	○	○	○	○	○	○

{ YOUR COACHING EXPERIENCE. }

How many total years have you been a coach?

_____ years

At which competitive levels have you coached?
Please check all that apply.

- ☐ College – NCAA Division I or IAA
- ☐ College – NCAA Division II
- ☐ College – NCAA Division III
- ☐ College – NAIA
- ☐ College – Community or Junior
- ☐ Junior Club Level
- ☐ High school
- ☐ Middle School
- ☐ Other (*please specify*):

_____

Which of the following positions have you held as a coach?
Please check all that apply.

- ☐ Head Coach, paid
- ☐ Head Coach, unpaid
- ☐ Assistant Coach, paid
- ☐ Assistant Coach, unpaid
- ☐ Other (*please specify*):

_____

Which of the following methods have you used to develop your coaching skills?
Please check all that apply.

- ☐ I have not had any type of coach training.
- ☐ Coaching clinics
- ☐ Coaching certifications
- ☐ Coaching Books or Videos
- ☐ Mentoring
- ☐ Other (*please specify*):

_____

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The following questions will ask you to reflect on your **current** coaching position. If you are currently coaching more than one team, please respond based on your **primary** sport.

What sport are you *currently* coaching?

Sport: _____

What is your *current* coaching position with this team?

- ○ Head Coach, paid
- ○ Head Coach, unpaid
- ○ Assistant Coach, paid
- ○ Assistant Coach, unpaid
- ○ Other (*please specify*):

_____

How many *consecutive* years have you held your current position with this team?

_____ years

At what level of competition does this team play?

- ○ College – NCAA Division I or IAA
- ○ College – NCAA Division II
- ○ College – NCAA Division III
- ○ College – NAIA
- ○ College – Community or Junior
- ○ Junior Club Level
- ○ High school
- ○ Middle school
- ○ Other (*please specify*):

_____

How would you describe the gender composition of this team?

- ○ Male
- ○ Female
- ○ Co-ed with a fairly even male/female split
- ○ Co-ed but predominately males
- ○ Co-ed but predominately females

How would you describe the racial/ethnic composition of this team?

- ○ The team's predominant race/ethnicity is the same as me.
- ○ The team's predominant race/ethnicity is different from me.
- ○ The team has no predominant race/ethnicity; all races/ethnicities are represented fairly equally.

How many total years did you play this sport?

_____ years

What is the highest level of competition at which you played this sport?

- ○ I only played this sport recreationally.
- ○ College – NCAA Division I or IAA
- ○ College – NCAA Division II
- ○ College – NCAA Division III
- ○ High school
- ○ Other (*please specify*):

_____

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{ DEMOGRAPHICS. }

What is your gender?

- ○ Male
- ○ Female
- ○ I prefer not to answer.

What is your age?

_____ years

How would you describe yourself?
Please check all racial/ethnic groups that apply.

- ☐ American Indian or Alaska Native
- ☐ Asian
- ☐ Black or African American
- ☐ Native Hawaiian or Pacific Islander
- ☐ White
- ☐ Other (please specify):

_____

Are you interested in receiving a copy of the results from this study?

- ○ Yes
- ○ No

Would you like to help complete a survey for future coaching research projects?

- ○ Yes
- ○ No

If you selected "*yes*" for either of the above questions, please provide your email address:

_____

_____

THANK YOU.

Thank you for completing this survey. We appreciate your time and insights! We wish you the best in your upcoming season!

Please feel free to write any comments in the space below. If you have any additional questions or concerns, please email Amanda Start at **star9677@vandals.uidaho.edu**, or scan the QR code for our detailed contact information.

Appendix G

Panel Emails

Contact 1

From: Amanda Start [star9677@vandals.uidaho.edu]
Sent: Monday, August 10, 2015, 8:00 AM, PST
To: {insert coach email address}
Subject: Coach Success – What Does Your Journey Look Like?

Good Morning Coach ${m://LastName},

My name is Amanda Start, and I am currently taking a break from coaching to pursue a doctorate in sport psychology at the University of Idaho. As a former basketball coach and a current mental coach, I am fascinated by coaches' journeys to success. For many (myself included!), the journey seems to be full of "wrong" turns, detours, dead-ends, barriers, and roadblocks.

What does **your** road to success look like? How have you handled those wrong turns and roadblocks? What keeps you in the game?

This short survey, which is a part of my dissertation research, should take you no more than ten minutes to complete.
To take the survey, follow this link: ${l://SurveyLink?d=Take the Survey}

Or copy and paste the survey URL below into your internet browser:
${l://SurveyURL}

I would love to hear **your** story! Your experiences are invaluable, and they will help researchers like myself better understand what motivates coaches and what keeps coaches in the game! With this understanding, we can help you **maximize the impact you have on your athletes** and help you become the best coach you can be!

I appreciate your time and consideration in completing this survey. It is only with the help of coaches like you that we can better understand how to serve you!

Many thanks,

Amanda Start
Doctoral Candidate
Movement Sciences Department, University of Idaho
Email: star9677@vandals.uidaho.edu
Phone: 330-831-4863

The IRB at the University of Idaho has certified this study as Exempt (Protocol 15-860). Your participation is entirely voluntary, and your responses will be kept confidential. You may discontinue participation at any point during the survey, and your data will not be used in the study's results. Should you have any further questions or comments, please feel free to contact me at star9677@vandals.uidaho.edu or 330-831-4863.

Follow the link to opt out of future emails:
${l://OptOutLink?d=Click here to unsubscribe}

Contact 2

From: Amanda Start [star9677@vandals.uidaho.edu]
Sent: Monday, August 17, 2015, 8:00 AM (PST)
To: {insert coach email address}
Subject: What Keeps You in the Game?

Coach ${m://LastName},

What keeps you in the game?

What keeps you motivated through the 80 hour work week? Through the "growing years"? Through the midnight film sessions? What keeps you striving for success?

I recently sent you an email asking you to respond to a brief survey about your experiences as a collegiate coach. If you have already completed the survey, I appreciate your help and insight! If you have not yet had a chance to complete the survey, would you please spare 10 minutes today to share your story? This short survey, which is a part of my dissertation research, is a vital step for helping us learn how we can keep great coaches (like you!) in the game longer!

Follow this link to the Survey: ${l://SurveyLink?d=Take the Survey}

Or copy and paste the URL below into your internet browser: ${l://SurveyURL}

Your story is important! Getting direct feedback from coaches is crucial to improving the quality of your experience and to improving the impact you have on your athletes!

Sincerely,

Amanda Start
Doctoral Candidate
Movement Sciences Department
University of Idaho
Email: star9677@vandals.uidaho.edu
Phone: 330-831-4863

The IRB at the University of Idaho has certified this study as Exempt (Protocol 15-860). Your participation is entirely voluntary, and your responses will be kept confidential. You may discontinue participation at any point during the survey, and your data will not be used in the study's results. Should you have any further questions or comments, please feel free to contact me at star9677@vandals.uidaho.edu or 330-831-4863.

Contact 3

From: Amanda Start [star9677@vandals.uidaho.edu]
Sent: Monday, August 31, 2015, 8:00 AM (PST)
To: {insert coach email address}
Subject: A New Year to Reflect – Your Journey to Success

Hello Coach ${m://LastName},

At the beginning of the new school year, I like to take a moment to reflect on where I've been and where I'm going. Am I on the road to success? Am I on the road to becoming the best me that I can be?

As coaches, we talk a lot about our athletes' success--what makes *them* successful, how to maximize *their* potential... But we don't talk enough about ***our*** success--what makes (or will make!) *us* successful, how we can maximize *our* potential, and how we can make the most impact.

So do you have 10 minutes today to talk about ***you***?

I've set up an online survey--part of my dissertation research--that will give you an opportunity to share about ***your*** journey to be the best you can be. And this will give me the opportunity to learn how I can help you, and coaches like you, **leave a legacy**.

${l://SurveyLink?d=Click here} to share your story today.

Or copy and paste the URL below into your internet browser: ${l://SurveyURL}

Your responses are truly invaluable. Learning about ***your story*** is crucial for improving the quality of your experience and for helping ***us*** help ***you*** maximize your efforts and your potential.

Sincere thanks,
Amanda Start
Doctoral Candidate in Sport and Exercise Psychology
Movement Sciences Department, University of Idaho
Email: star9677@vandals.uidaho.edu
Phone: 330-831-4863

The IRB at the University of Idaho has certified this study as Exempt (Protocol 15-860). Your participation is entirely voluntary, and your responses will be kept confidential. You may discontinue participation at any point during the survey, and your data will not be used in the study's results.

Should you have any further questions or comments, please feel free to contact me at star9677@vandals.uidaho.edu or 330-831-4863.

Follow the link to opt out of future emails:
${l://OptOutLink?d=Click here to unsubscribe}

Contact 4

From: Amanda Start [star9677@vandals.uidaho.edu]
Sent: Wednesday, September 16, 2015, 11:30 AM (PST)
To: {insert coach email address}
Subject: Coach Success – Joint the Conversation Today!

Coach ${m://LastName},

I recently came across this article in which Coach "K" talks about success, so I wanted to pass it on to you: http://www.success.com/article/welcome-to-krzyzewskiville.

Over the past few weeks, many coaches from colleges across the Western United States have also been talking with me about their journeys to success.

Would you like to join the conversation today? The Coach Success Survey is a 10-minute survey, which is designed to learn about your journey to success--the barriers you face and how you give of yourself day in and day out. This survey is a part of my dissertation research, and my goal through this experience is to *learn from you* so that, ***together***, we can help coaches maximize their efforts, their time, and their impact.

I am planning to end this study next week, but I wanted to email you to ensure you had a chance to join this discussion, as I think you could make an invaluable contribution.

Follow this link to the Survey: ${l://SurveyLink?d=Take the Survey}

Or copy and paste the URL below into your internet browser: ${l://SurveyURL}

Thank you in advance for completing the survey, Coach ${m://LastName}. Your responses are important! Coaches are the best source of information to help shape your experience and to maximize your impact on your athletes and field!

Sincerely,

Amanda Start
Doctoral Candidate
Movement Sciences Department
University of Idaho
Email: star9677@vandals.uidaho.edu
Phone: 330-831-4863

The IRB at the University of Idaho has certified this study as Exempt (Protocol 15-860). Your participation is entirely voluntary, and your responses will be kept confidential. You may discontinue participation at any point during the survey, and your data will not be used in the study's results.

Should you have any further questions or comments, please feel free to contact me at star9677@vandals.uidaho.edu or 330-831-4863.

Follow the link to opt out of future emails:
${l://OptOutLink?d=Click here to unsubscribe}

Appendix H

Coach Burnout Questionnaire (CBQ)

CBQ items are evaluated on a 7-point Likert scale (1 = almost never; 7 = almost always).

Emotional and Physical Exhaustion (BO-EPE)

1. I feel so tired from coaching that I have trouble finding energy to do other things.
2. I feel overly tired from coaching.
3. I feel “wiped out” from coaching.
4. I feel physically worn out from coaching.
5. I am exhausted by the mental and physical demands of coaching.

Reduced Feelings of Accomplishment (BO-RA)

1. I'm accomplishing many worthwhile things as a coach.
2. I am not achieving much as a coach.
3. I am not performing up to my ability as a coach.
4. It seems that no matter what I do, I don't perform as well as I should.
5. I feel successful as a coach.

Devaluation of Coaching (BO-DC)

1. The effort I spend coaching would be better spent doing other things.
2. I don't care as much about my coaching performance as I used to.
3. I'm not into coaching like I used to be.
4. I feel less concerned about being successful in coaching than I used to.
5. I have negative feelings toward coaching.

Appendix I

Syntax for Creating Composite Variables

Competitive Level Experience Composite Variable

```
COMPUTE CompLvlExp = (8*LvlsCoach_Pro)+(8*LvlsCoach_National)+
        (7*LvlsCoach_Masters)+(6*LvlsCoach_D1)+(5*LvlsCoach_D2)+(5*LvlsCoach_D3)+
        (5*LvlsCoach_NAIA)+(4*LvlsCoach_ComJr)+(4*LvlsCoach_CollegeClub)+
        (3*LvlsCoach_JrClub)+(3*LvlsCoach_HS)+(2*LvlsCoach_MS)+
        (2*LvlsCoach_Youth)+(1*LvlsCoach_Private).
EXECUTE.
```

Positions Held Composite Variable

```
COMPUTE PositionsHeld = (6*PosCoach_HCpd)+(5*PosCoach_HCupd)+
        (4*PosCoach_AHCpd)+(3*PosCoach_ACpd)+(2*PosCoach_ACupd)+
        (1*PosCoach_GA).
EXECUTE.
```

Training Composite Variable

```
COMPUTE Training = (Training_Clinics+Training_Cert+Training_BksVids+
        Training_Mentor+Training_Other).
EXECUTE.
```

Appendix J

Supplementary Figures

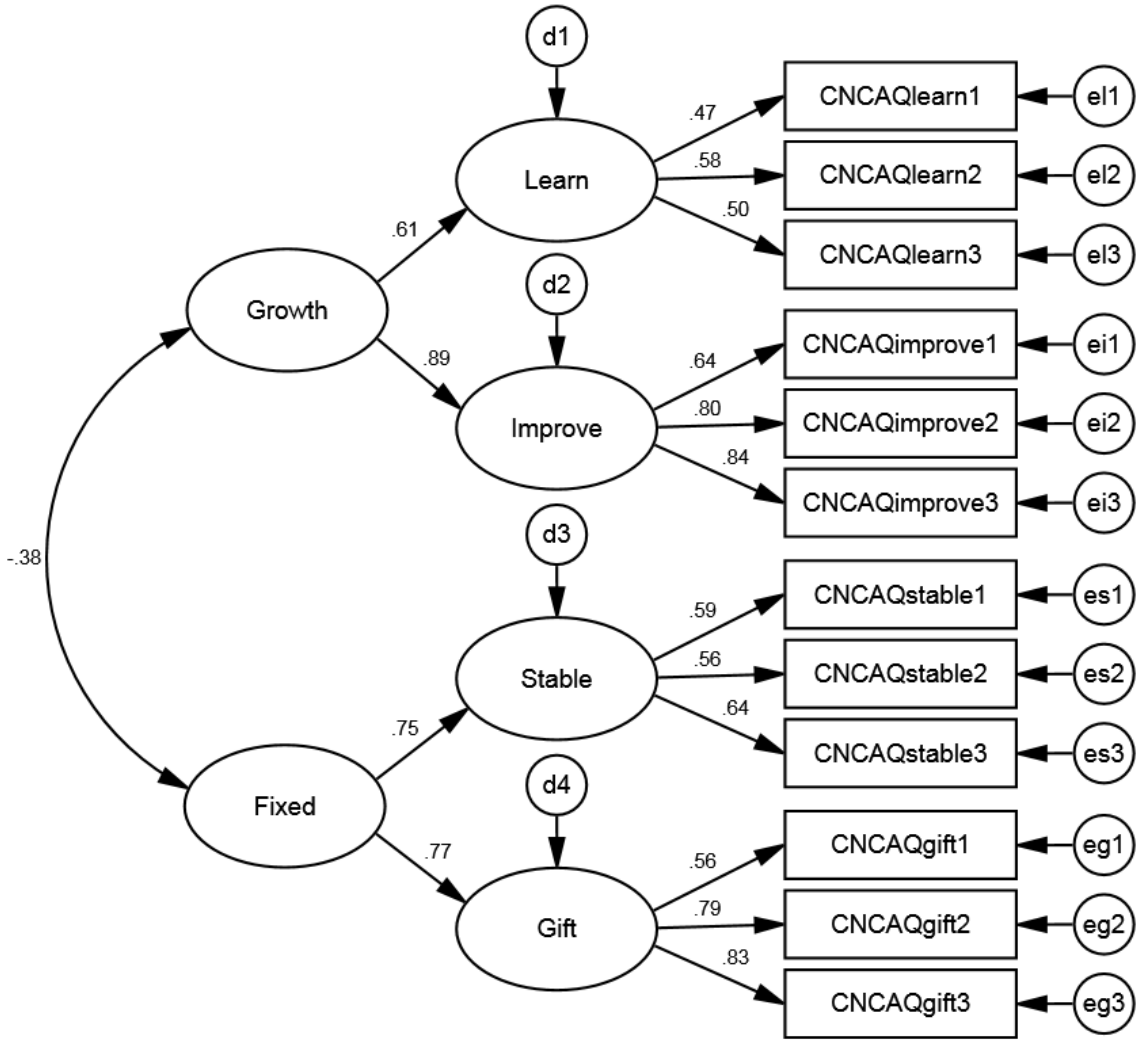

Figure A.1. Measurement model with standardized estimates for the Conceptions of the Nature of Coaching Ability Questionnaire (CNCAQ) fitted to the Study 3 sample. *CFI* = 0.959; $\chi^2(51) = 135.141$, $p < 0.05$; $\varepsilon = 0.048$ [(90% CI: 0.0.38-0.58).

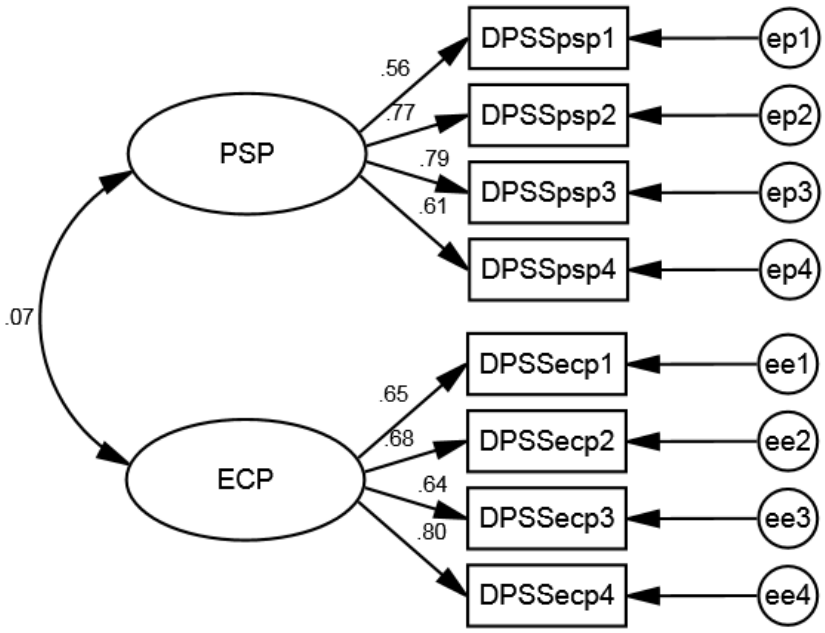

Figure A.2. Measurement model with standardized estimates for the Dispositional Perfectionism Short Scale (DPSS) fitted to the Study 3 sample. CFI = 0.983; $\chi^2(19) = 45.461$, $p < 0.05$; $\varepsilon = 0.044$ (90% CI: 0.028-0.060)

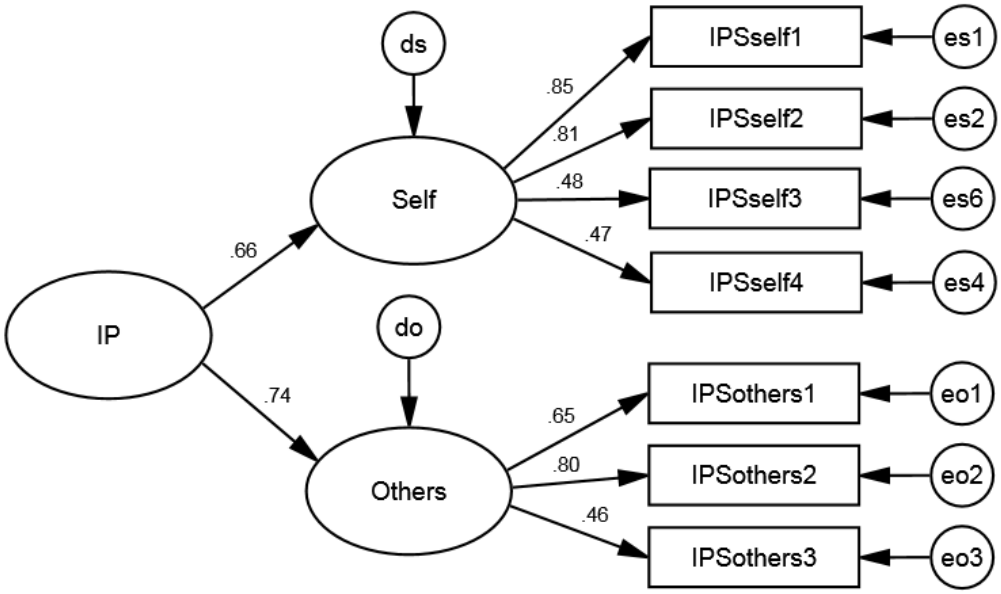

Figure A.3. Measurement model with standardized estimates for the Imposter Phenomenon Scale (IPS) fitted to the Study 3 sample. *CFI* = 0.99; $\chi^2(13) = 16.777$, $p > 0.05$; $\varepsilon = 0.020$ (90% CI: 0.000-0.044).

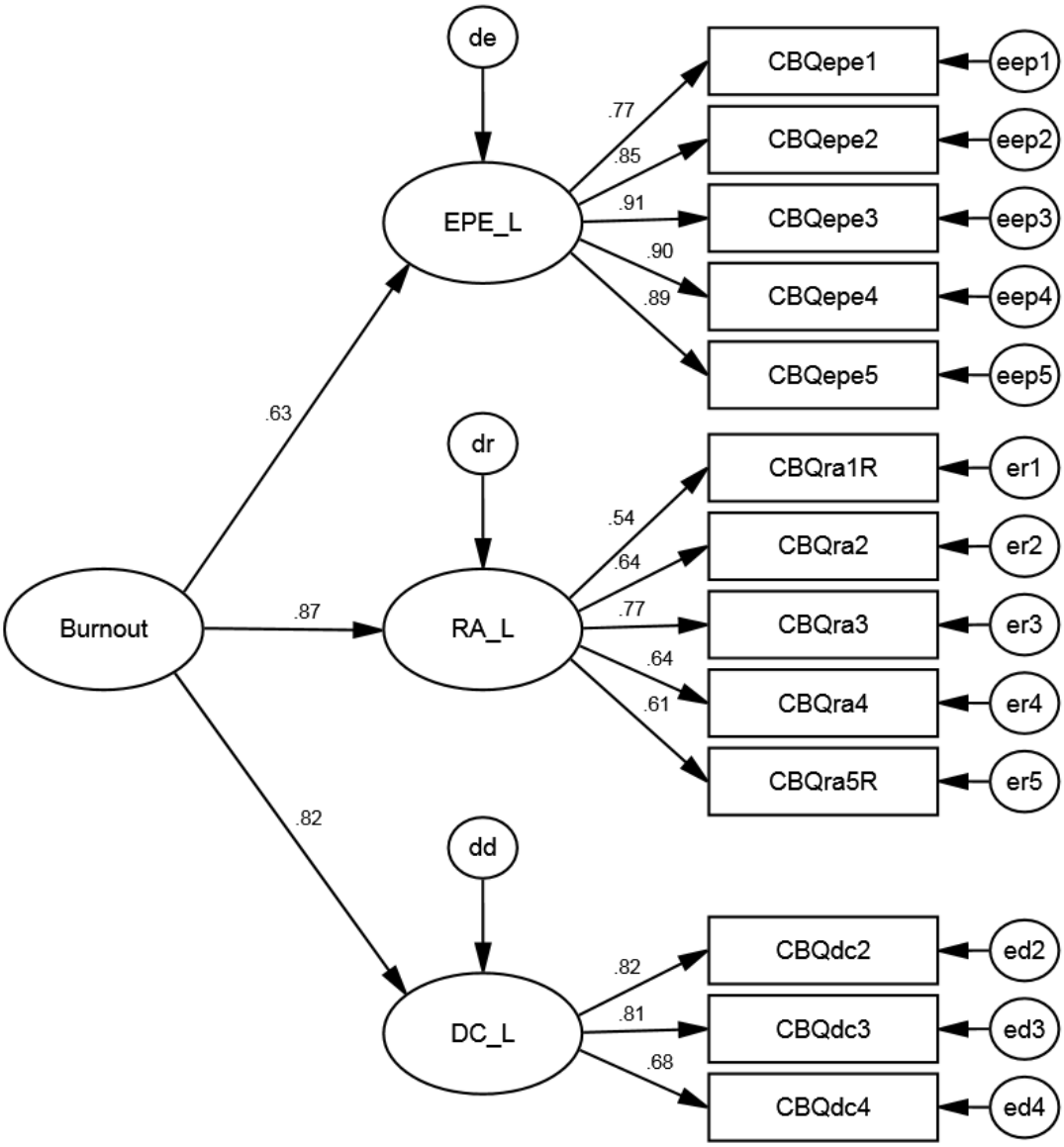

Figure A.4. Measurement model with standardized estimates for the Coach Burnout Questionnaire (CBQ) fitted to the Study 3 sample. *CFI* = 0.968; $\chi^2(62) = 239.106$, $p < 0.05$; $\varepsilon = 0.063$ (90% CI: 0.055-0.071).

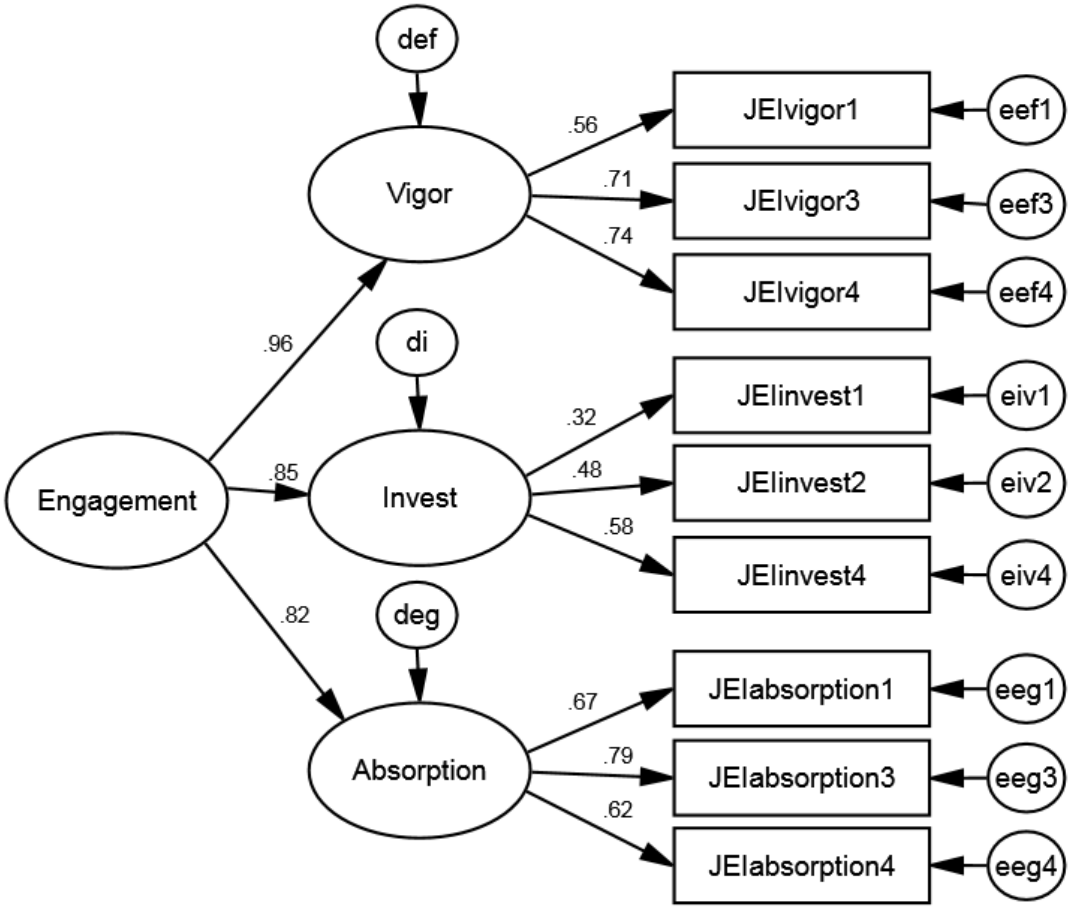

Figure A.5. Measurement model with standardized estimates for the Job Engagement Instrument (JEI) fitted to the Study 3 sample. *CFI* = 0.977; $\chi^2(24) = 59.123$, $p < 0.05$; ε = 0.045 (90% CI: 0.031-0.060).

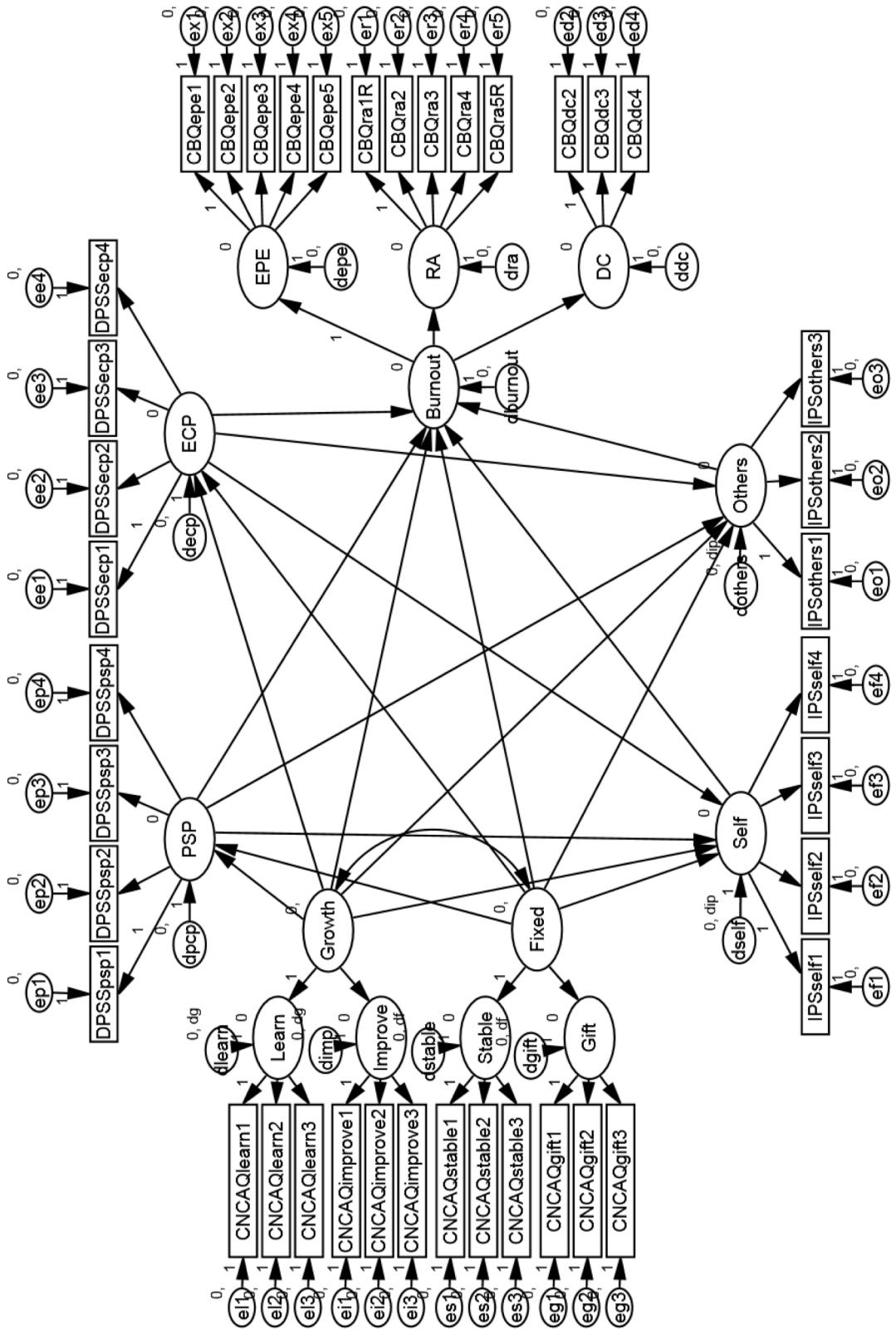

Figure A.6. Respecified full latent variable (FLV) model predicting Burnout.

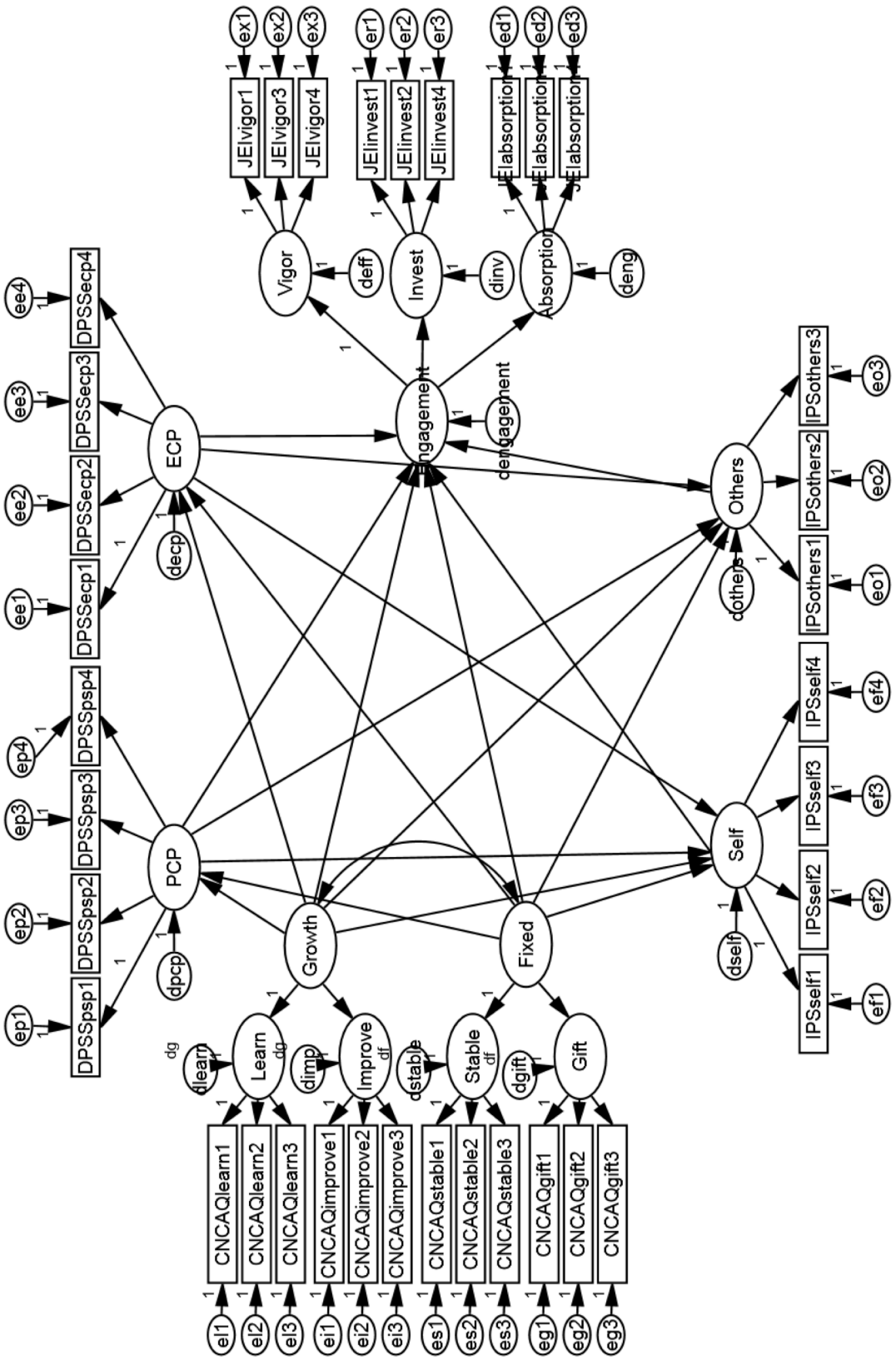

Figure A.7. Respecified full latent variable (FLV) model predicting Engagement.

Appendix K

Conceptions of the Nature of Coaching Ability Questionnaire (CNCAQ)

CNCAQ items are evaluated on a 7-point Likert scale (1 = strongly disagree; 7 = strongly agree).

Learning

1. To be successful as a coach you need to learn techniques and skills, and practice them regularly.
2. You need to learn and to work hard to be good as a coach.
3. To reach a high level of performance as a coach, you must go through periods of learning and training.

Improvement

1. As a coach, if you work hard at it, you will always get better.
2. How good you are as a coach will always improve if you work at it.
3. If you put enough effort into it, you will always get better as a coach.

Stable

1. We have a certain level of ability as a coach and we cannot really do much to change that level.
2. Even if you try, the level you reach as a coach will change very little.
3. It is difficult to change how good you are at coaching.

Gift

1. You need to have certain “gifts” to be good at coaching.
2. To be good at coaching, you need to be born with the basic qualities which allow you success.
3. To be good at coaching you need to be naturally gifted.

Appendix L

Dispositional Perfectionism Short Scale (DPSS)

DPSS items are evaluated on a 7-point Likert scale (1 = strongly disagree; 7 = strongly agree).

Personal Standards Perfectionism (PF-PSP)

1. I have high expectations for myself.
2. I set very high standards for myself.
3. I expect the best from myself.
4. I have a strong need to strive for excellence.

Evaluative Concerns Perfectionism (PF-ECP)

1. If I fail as a coach, I feel like a failure as a person.
2. People will probably think less of me if I make mistakes as a coach.
3. If another coach performs better than me, I feel like I failed to some degree.
4. If I do not do well all the time, I feel that people will not respect me as a coach.

Appendix M

Job Engagement Instrument (JEI)

JEI items are evaluated on a 7-point Likert scale (1 = strongly disagree; 7 = strongly agree).

Vigor

1. I really put my heart into my job as a coach.
2. While performing my coaching duties I typically work with full intensity.
3. While executing my coaching duties I typically exert maximum effort.
4. I strive as hard as I can to complete my coaching responsibilities.

Investment

1. I get excited when I perform well as a coach.
2. I feel responsible for my own performance as a coach.
3. I am very committed to my job as a coach.
4. How well I do my job as a coach matters to me.

Absorption

1. When I get up in the morning I look forward to my day as a coach.
2. I find the work I do as a coach to be meaningful.
3. My general attitude towards my coaching responsibilities is usually enthusiastic.
4. My job as a coach is inspiring.

Appendix N

Institutional Review Board Protocol Exempt Certification

Monday, January 18, 2016 at 11:06:32 AM Pacific Standard Time

Subject: FW: Exempt Certification for IRB project 15-860
Date: Friday, July 17, 2015 at 12:09:31 PM Pacific Daylight Time
From: University of Idaho - Institutional Review Board (irb@uidaho.edu)
To: Start, Amanda (star9677@vandals.uidaho.edu)
Priority: Low

Hi Amanda,

I have certified your project! Good luck with your study and have a great weekend.

Jennifer

From: irb@uidaho.edu [mailto:irb@uidaho.edu]
Sent: Friday, July 17, 2015 12:03 PM
To: Burton, Damon (dburton@uidaho.edu) <dburton@uidaho.edu>
Cc: University of Idaho - Institutional Review Board (irb@uidaho.edu) <irb@uidaho.edu>
Subject: Exempt Certification for IRB project 15-860
Importance: Low

Research Administration Portal Message ATT00002.bin

University *of* Idaho
Office of Research Assurances
Institutional Review Board
875 Perimeter Drive, MS 3010
Moscow ID 83844-3010
Phone: 208-885-6162
Fax: 208-885-5752
irb@uidaho.edu

To: Damon Burton

From: Jennifer Walker
Chair, University of Idaho Institutional Review Board
University Research Office
Moscow, ID 83844-3010

Date: 7/17/2015 12:03:16 PM

Title: Antecedents and Consequences of Imposter Phenomenon

Project: 15-860
Certified: Certified as exempt under category 2 at 45 CFR 46.101(b)(2).

On behalf of the Institutional Review Board at the University of Idaho, I am pleased to inform you that the protocol for the above-named research project has been certified as exempt under category 2 at 45 CFR 46.101(b)(2).

This study may be conducted according to the protocol described in the Application without further review by the IRB. As specific instruments are developed, modify the protocol and upload the instruments in the portal. Every effort should be made to ensure that the project is conducted in a manner consistent with the three fundamental principles identified in the Belmont Report: respect for persons; beneficence; and justice.

It is important to note that certification of exemption is NOT approval by the IRB. Do not include the statement that the UI IRB has reviewed and approved the study for human subject participation. Remove all statements of IRB Approval and IRB contact information from study materials that will be disseminated to participants. Instead please indicate, 'The University of Idaho Institutional Review Board has Certified this project as Exempt.'

Certification of exemption is not to be construed as authorization to recruit participants or conduct research in schools or other institutions, including on Native Reserved lands or within Native Institutions, which have their own policies that require approvals before Human Subjects Research Projects can begin. This authorization must be obtained from the appropriate Tribal Government (or equivalent) and/or Institutional Administration. This may include independent review by a tribal or institutional IRB or equivalent. It is the investigator's responsibility to obtain all such necessary approvals and provide copies of these approvals to ORA, in order to allow the IRB to maintain current records.

As Principal Investigator, you are responsible for ensuring compliance with all applicable FERPA regulations, University of Idaho policies, state and federal regulations.

This certification is valid only for the study protocol as it was submitted to the ORA. Studies certified as Exempt are not subject to continuing review (this Certification does not expire). If any changes are made to the study protocol, you must submit the changes to the ORA for determination that the study remains Exempt before implementing the changes. Should there be significant changes in the protocol for this project, it will be necessary for you to submit an amendment to this protocol for review by the Committee using the Portal. If you have any additional questions about this process, please contact me through the portal's messaging system by clicking the ‘Reply’ button at either the top or bottom of this message.

ATT00001.bin

Jennifer Walker

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sent automatically on 7/17/2015 12:03:16 PM. reply to this message