

RELATIONSHIP BETWEEN MALES' COACHING EFFICACY AND  
PRIOR EXPOSURE TO SPORT PSYCHOLOGY

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Coaching efficacy is largely influenced by mastery experiences such as formal education, coaching experience, and sport participation. Further examining specific experiences, such as exposure to sport psychology, may prove helpful in advancing our understanding of coaching efficacy. Thus, the purpose of this study was to explore male high school coaches' coaching experience to determine whether sport psychology education and interactions with sport psychology consultants relate to coaches' coaching efficacy. Participants, 585 males ( $M_{\text{age}} = 43.89 + 10.02$ ), completed an online survey measuring coaching efficacy and coaching and sport psychology experience. A hierarchical regression analysis revealed that after controlling for years of coaching experience and school size, sport psychology education and interactions with sport psychology consultants were associated with higher overall coaching efficacy scores ( $p < .001$ ). Additionally, analysis of covariance revealed that those with extensive sport psychology education had statistically higher coaching efficacy scores than those reporting no sport psychology education ( $p < .05$ ). Knowledge of these phenomena may be relevant for sport psychology consultants, coach educators, and researchers.

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# RELATIONSHIP BETWEEN MALES' COACHING EFFICACY AND PRIOR EXPOSURE TO SPORT PSYCHOLOGY

## Introduction

Coaches perceive themselves as influential agents in the development of their athletes (Camire, 2014). This perception comes from their coaching efficacy (Boardley, 2017; Feltz, Chase, Mortiz, & Sullivan, 1999). Coaching efficacy, a coach's belief in his or her personal ability to successfully influence athletes' learning and performance, is a multi-dimensional concept that is largely influenced by mastery experiences such as formal education and previous coaching and sport participation experience (Feltz et al., 1999; Lee, Maleté & Feltz, 2002; Maleté & Feltz, 2000). Previous sport participation, coach education, and coaching experience are ways coaches gain coaching knowledge (Chase, Feltz, Hayashi, & Hepler, 2005; Côté, 2006; Pope, Stewart, Law, Hall, Gregg, & Robertson, 2015). Coaching knowledge includes understanding several facets of sport science, such as motor learning and development, strength and conditioning, nutrition, leadership, communication, and sport psychology (motivation and goal setting, arousal and emotional control, attentional focus, etc.). The primary topics coaches seek to enhance their coaching knowledge include tactical strategy, team chemistry, and sport psychology (Gould, Giannina, Krane, & Hodge, 1990; Reade, Rodgers, & Hall, 2008). This interest in sport psychology indicates that coaches view it as important to their team's success, and perhaps illustrates their lack of perceived competence and training in the subject matter (Burton & Raedeke, 2008). There appears to be a connection between coaching efficacy and coaches' education related to sport psychology-based training, but limited research exists (Zakrajsek & Zizzi, 2008), none of which has examined high school coaches. Therefore, the

following sections review the conceptual models of coaching efficacy and research on the relationship among coaching efficacy and past experience with sport psychology.

### Conceptual Model of Coaching Efficacy

The conceptual model of coaching efficacy (CMCE) was originally developed to measure sources and outcomes of coaching efficacy based on coaching efficacy dimensions using high school coaches (Feltz et al., 1999). The model has since evolved to include coaches' behaviors, athlete characteristics, and athletes' perceptions of coach's efficacy as additional influences on outcomes (Boardley, 2017). Additionally, the sources and outcomes of coaching efficacy from the original model have been altered (Chase et al., 2005; Myers, Feltz & Chase, 2011). Imagery use and emotional intelligence were added as sources, and the consequences now include both player and team-level outcomes in reference to the four C's (i.e. confidence, connection, competence, and character; see Côté & Gilbert, 2009). Though, the dimensions of the coaching efficacy model have not changed greatly. The five dimensions of coaching efficacy for high school coaches include character building, game strategy, motivation, physical conditioning, and technique (Myers et al., 2011). Character building efficacy (CBE) is the confidence coaches have in their ability to positively influence athletes' character development through sport. Game strategy efficacy (GSE) is the confidence coaches have in their ability to instruct athletes during competition. Motivation efficacy (ME) is the confidence coaches have in their ability to affect their athletes' moods and teach them psychological skills. Physical conditioning efficacy (PCE) is the confidence coaches have in their ability to prepare their athletes physically for participation in their sport. Lastly, technique efficacy (TE) is the confidence coaches have in their instructional and diagnostic skills during practices. These dimensions can be measured as separate subscales, or as a collective total score of coaching efficacy (Myers et al., 2011). When

considered separately, it is expected that ME should have the strongest relationship with coaches' sport psychology knowledge and experience. However, neither sport psychology training nor exposure to sport psychology consultants (SPCs) have been studied relative to high school coaches' coaching efficacy. Thus, additional information is needed on whether relationships exist among coaches' prior sport psychology exposure and the five dimensions of coaching efficacy.

### Prior Sport Psychology Exposure

There are several paths to becoming a high school coach in North America (Sage, 1989), but without mandatory coach training these coaches may not be adequately trained in the fundamentals of coaching (Lacroix, Camire, & Trudel, 2008; Martens, 1986). Less than 2% of the nation's coaches have completed the basic online certification offered by the National Federation of State High School Associations (Howard, 2015). Nevertheless, coaches need basic fundamental sport science knowledge in order to make effective decisions and solve problems when coaching (Abraham, Collins, & Martindale, 2006). An important aspect of fundamental sport science knowledge, especially in the case of coaching education, is sport psychology (Burton & Raedeke, 2008). High school coaches often attribute coaching success, not only to athletes' physical skills, but to athletes' sport psychology skills, which are also likely influenced by prior sport psychology exposure (Burton & Raedeke, 2008; Frost, 2009).

Prior sport psychology exposure includes sport psychology educational experiences and past interactions with sport psychology consultants. When considered relative to coaching efficacy, formal coaching workshops significantly enhance coaching efficacy for high school coaches and similar results are expected to be seen regarding formal coach education courses

(Malete & Feltz, 2000). However, previous research supporting this expectation was particularly vague in the rating and defining of coach education programs (Myers et al., 2011). As a part of the educational process, sport psychology knowledge also appears to predict positive relationships with coaching efficacy. This positive relationship was demonstrated after a sport psychology workshop when coaches' self-efficacy increased and remained elevated at a one-month follow-up (Zakrajsek & Zizzi, 2008). Additionally, coaches' motivation and character building efficacy increased in coaches who attended theoretical coaching courses, as compared to those who attended technical courses (Sullivan & Gee, 2008). Thus, type of educational experience appears to have positive relationships with coaching efficacy.

Coaching efficacy and attitudes toward sport psychology, independent of one another and together, are strongly related to total number of years coaching (Feltz et al., 1999; Malete & Feltz, 2000; Pope et al., 2015; Short, Smiley, & Ross-Stewart, 2005; Zakrajsek, Martin, & Zizzi, 2011). Specifically, coaches with several years of coaching experience are likely to welcome sport psychology services more than those with limited coaching experience (Zakrajsek et al., 2011). Experienced coaches are also likely to seek information related to research on sport psychology, integrate sport psychology skills and strategies with their team, and use sport psychology assessments and measurements (Pope et al., 2015). Similarly, coaches with previous positive, satisfying sport psychology experiences are usually open to using future sport psychology services (Wrisberg, Loberg, Simpson, Withycombe, & Reed, 2010). However, research on attitudes toward sport psychology has consistently indicated that women are more likely to seek sport psychology services than men (Wrisberg et al., 2010; Zakrajsek & Zizzi, 2007). Additionally, previous research on coaching efficacy and effectiveness has provided mixed results regarding the influence of gender of coach (Kavussanu, Boardley, Jutkiewicz,

Vincent, & Ring, 2008; Malete & Feltz, 2000; Myers, Feltz, & Wolfe, 2008; Myers et al., 2011) and match/mismatch of coach and athlete gender at the *collegiate level* (Frey et al., 2006; Kavussanu et al., 2008; Myers, Vargas-Tonsing, & Feltz, 2005; Vargas-Tonsing, Myers, & Feltz, 2004). Consequently, examining the influence of these seemingly related variables on coaching efficacy in coaches, especially those coaching athletes transitioning from adolescence to adulthood, may provide important information for coach education programs.

### Purpose

There are gaps in the literature related to coaching efficacy and sport psychology exposure (i.e., educational training and interactions with sport psychology consultants), especially in regards to high school coaches. Consequently, additional information is needed to determine whether high school coaches' coaching efficacy (CES II – HST; Myers et al., 2008) is related to factors regarding such experiences as exposure to sport psychology education and interaction with sport psychology consultants. Therefore, the purpose of this study is to explore male high school coaches' coaching experience to determine whether sport psychology education and interactions with sport psychology consultants predict coaches' coaching efficacy, particularly when considering the gender of athlete coached.

### Method

#### Participants

Participants in this study represent a smaller portion of high school coaches from a larger national sample. Instead of examining both male and female coaches from public high schools, only male head coaches in Texas were included in this particular study. Male head coaches of the

recognized University Interscholastic League (UIL) varsity sports were included (see <https://www.uiltexas.org/athletics/sports>). High school varsity sports included were baseball, basketball, cross country, football, golf, soccer, softball, swimming and diving, tennis, track and field, volleyball, and wrestling. Texas public schools sports are arranged based on classification (see <http://www.uiltexas.org/alignments>) to ensure that schools compete on a regular basis with other schools in the geographic area of a similar size (1A, 2A, 3A, 4A, 5A, and 6A). In this study, 1A and 2A classification are considered small schools, 3A and 4A are considered medium-sized schools, and 5A and 6A are considered large schools.

## Instruments

### *Coaching Efficacy*

The Coaching Efficacy Scale II for High School Teams (CES II-HST; Myers et al., 2008) was used to measure coaches' confidence in their ability to influence their athlete's learning and performance. Development of this scale resulted from concerns regarding the rating scale and some misfits (Myers, Wolfe, & Feltz, 2005) with the Coaching Efficacy Scale (CES, Feltz et al., 1999). Subsequently, modifications were made to the CES to form the CES II-HST, which included reducing the number of items, changing the ratings, and adding another subscale, physical conditioning efficacy (Myers et al., 2011).

The CES II-HST was responded to using a Likert-type scale made up of 18 items, divided amongst five subscales, with the stem: 'In relation to the team that you are currently coaching, how confident are you in your ability to...'. There are three items for the character building subscale (CBE), four items for the game strategy subscale (GSE), four items for the motivation subscale (ME), three items for the physical conditioning subscale (PCE), and four items for the

technique subscale (TE). Responses ranged from 0 (*no confidence*) to 4 (*complete confidence*).

Overall, coaching efficacy is determined by the average of the 18 responses, whereas the efficacy for each of the dimensions is determined to be the average of the responses related to the questions for that specific subscale. This measure has been shown to be reliable and valid (Myers et al., 2008, 2011).

### *Past Coaching Experience*

Coaching experience was measured using five items. Related to their previous experience, coaches provided (a) number of years coaching high school, (b) number of years as a high school head coach, (c) number of years as a high school assistant coach, (d) highest terminal academic degree, and (e) previous participation in formal coach education programs (Maleté & Feltz, 2000; Myers et al., 2011). Years were provided through fill-in-the-blank items. Degree type and coach education were multiple-choice items. Response choices for degree type varied from high school to PhD. Response choices for coach education included: (a) none, (b) attended coaching workshop(s), (c) completed one coaching-related undergraduate course, (d) completed two or more coaching-related undergraduate courses, (e) completed undergraduate degree and courses that emphasized coaching, (f) completed one coaching-related graduate course, and (g) completed graduate degree and courses that emphasized coaching. Coach education was then re-coded into three groups for analysis: none (a), limited (b, c, or f), and extensive (d, e, or g).

### *Past Sport Psychology Exposure*

Past sport psychology exposure of coaches was measured using three items: (a) previous formal training in sport psychology (Zakrajsek & Zizzi, 2007), (b) frequency of personal

interactions with a sport psychology consultant, and (c) rating the interactions with the consultant. Sport psychology education and training was measured using multiple choice items with responses that included: (a) none, (b) attended sport psychology workshop(s), (c) completed one sport psychology-related undergraduate course, (d) completed two or more sport psychology-related undergraduate courses, (e) completed undergraduate degree and courses that emphasized sport psychology, (f) completed one sport psychology-related graduate course, and (g) completed graduate degree and courses that emphasized sport psychology. Sport psychology education and training was then re-coded into three groups for analysis: none (a), limited (b, c, or f), and extensive (d, e, or g). Frequency of personal interactions with a sport psychology consultant was measured using a Likert-type scale with responses of 0 (*never*), 1 (*occasionally*), and 2 (*frequently*). Rating of interactions responses include 0 (*not applicable*), 1 (*negative*), 2 (*neutral*), and 3 (*positive*).

## Procedure

After the university's Institutional Review Board approval, the questionnaire was pilot tested via online survey for clarity and content of items and completion time with a convenience sample consisting of high school head coaches and graduate kinesiology students with prior coaching experience. Using the UIL's district alignment lists, which divide high schools by sport and size classification (1A-6A), study participants were randomly selected using disproportional stratified random sampling in order to survey equal numbers ( $n = 300$ ) of head coaches for each of the UIL-sponsored sports: baseball, boy's basketball, girl's basketball, cross-country, football, golf, boy's soccer, girl's soccer, softball, swimming and diving, tennis, men's track and field, women's track and field, volleyball, and wrestling. Not all sports were offered at all

classifications, so the 300 coaches emailed in those sub-samples were split amongst the classifications that did offer the sport. Once the list of the randomly selected sport/school/classification pairing was compiled, emails were accumulated by using the Clell Wade Coaching Directory (2017). The selected head coaches were then emailed an introductory letter that invited them to participate in an online survey and enter for a chance to win a \$25 Amazon gift card. The online survey included the informed consent form and the study measures, which took about 15 minutes to complete. Follow-up emails were sent 10 days later to coaches who had not responded. Data were stored in a SPSS file by the researcher to maintain confidentiality.

#### Data Analysis

Means, standard deviations, and frequencies were used to describe the data. Next, correlations were examined to determine the relationships between coaching efficacy, coaching experience, and past experience with sport psychology. Then, a hierarchical regression analysis was conducted to determine which of these variables predicted high school coaches' coaching efficacy. Lastly, an analysis of covariance (ANCOVA) was conducted to determine whether sport psychology education influences the coaching efficacy subscale mean response scores.

### Results

#### Coaches' Demographics

The Clell Wade Coaching Directory (2017) was used to compile the email addresses of 4,500 head coaches out of a predicted population of about 9,000-11,000 high school head coaches in Texas. This population is predicted due to the fact that while there are about 15,500

head coaching positions, according to UIL’s district alignment lists, many high school coaches, especially at the smaller classifications, are head coaches of multiple sports. Of the 4,500 email addresses that were contacted, at least 281 addresses were bad emails, meaning that the email in the directory was incorrect, or the coach had changed schools, retired, or was no longer a head coach. In total, 1,164 participants clicked the link for the questionnaire, and 828 coaches completed the questionnaire, 297 of which completed after the reminder email. Of the 25.9% of those who opened the link (1,164 of 4,500), 71.1% ( $n = 828$ ) completed the questionnaire. Two cases were removed from the data set for reporting to be assistant coaches, five cases were removed for having no variance in any of the scales in the questionnaire, and four cases were removed for missing data. Of those remaining, 585 were male head coaches who ranged from 23 to 73 years of age ( $M = 43.89 \pm 10.02$ ), with an average of  $16.79 \pm 9.79$  years coaching at the high school level and  $11.45 \pm 9.19$  years as a high school head coach (see Table 1).

Table 1

*Means and Standard Deviations of High School Male Coaches Who Coach Female Athletes, Male Athletes, or Both*

Demographic Variables		Coach Females ( $n = 62$ )		Coach Males ( $n = 255$ )		Coach Males & Females ( $n = 268$ )		Total ( $n = 585$ )	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Age		45.98	10.63	43.26	9.46	43.99	10.34	43.89	10.02
Years Coaching	High School	17.66	10.52	16.89	9.39	16.50	10.00	16.79	9.79
	Head Coach	13.13	9.61	10.57	8.57	11.89	9.60	11.45	9.19
	Assistant Coach	5.62	5.66	8.94	7.64	7.80	8.04	8.07	7.70

*Note.* Participants were all head coaches at the time they completed the questionnaire.

For part of the data analysis in this study, the male head coaches were separated based on their current coaching duties with male and female athletes. That is, of the 585 coaches, 255 coached

only male athletes, 62 coached only female athletes, and 268 coached both male and female athletes.

The majority of coaches (77.1%) identified as Caucasian, while 14.4% identified as Hispanic or Latino, 6.7% as Black or African American, 1.2% as American Indian and 0.7% as other (see Table 2). There were slightly more coaches from large schools, or high schools with more than 1100 students enrolled (38.6%) than coaches from medium-sized schools (38.3%). However, only about 23.1% of coaches participating in this questionnaire came from small schools, or high schools with a maximum of 220 students enrolled (see Table 2).

Table 2

*Demographics of High School Male Coaches Who Coach Female Athletes, Male Athletes, or Both*

Demographic Variables	Coach Females		Coach Males		Coach Males & Females		Total	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Caucasian	50	80.6%	193	75.7%	208	77.6%	451	77.1%
Hispanic/Latino	6	9.7%	39	15.3%	39	14.6%	84	14.4%
Black/AA	2	3.2%	22	8.6%	15	5.6%	39	6.7%
American Indian	1	1.6%	1	0.4%	5	1.9%	7	1.2%
Other - Ethnicity	3	4.8%			1	0.4%	4	0.7%
Small School	16	25.8%	57	22.4%	62	23.1%	135	23.1%
Medium School	23	37.1%	98	38.4%	103	38.4%	224	38.3%
Large School	23	37.1%	100	39.2%	103	38.4%	226	38.6%

*Note.* AA = African American; Small School (1A & 2A) = ≤ 220 high school students; Medium School (3A & 4A) = 221 – 1099 high school students; Large School (5A & 6A) = ≥ 1100 high school students.

Coaches' Education Experience

In addition to the other demographic and coaching experience information already introduced, the majority of coaches (65.1%) held a bachelor's degree, whereas three coaches had obtained only a high school degree (0.5%), and 201 obtained at least a master's degree (34.4%).

In addition to their degree, 5.5% reported having no coach education, 35.6% reported having limited coach education, and 59% reported having extensive coach education. Information regarding the education specifics for each group can be found in Table 3.

Table 3

*Education of High School Male Coaches Who Coach Female Athletes, Male Athletes, or Both*

Education Experience	Coach Females		Coach Males		Coach Males & Females		Total		
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	
≤ Bachelor's	46	74.2%	168	65.9%	170	63.4%	384	65.6%	
> Bachelor's	16	25.8%	87	34.1%	98	36.6%	201	34.4%	
Formal Coach Education	None	2	3.2%	11	4.3%	19	7.1%	32	5.5%
	Limited	26	41.9%	87	34.1%	95	35.4%	208	35.6%
	Extensive	34	54.8%	157	61.6%	154	57.4%	345	59.0%

Coaches' Past Sport Psychology Exposure

Sport psychology is a facet of coach education, representing an important aspect of coaching knowledge. However, 28.7% of the high school coaches in this study reported having no sport psychology education, 45.8% reported having limited sport psychology education, and 25.5% reported having extensive sport psychology education. The majority of participants (67.7%) had never personally interacted with a mental skills professional or sport psychology consultant, 27.9% interacted occasionally, and only 4.4% interacted frequently. Of those who had interacted with a mental skills professional or sport psychology consultant ( $n = 189$ ), one reported a negative interaction (0.5%), 78 (41.3%) reported neutral interactions, and 110 (58.2%) reported positive interactions (see Table 4).

Table 4

*Sport Psychology Experience of High School Male Coaches Who Coach Female Athletes, Male Athletes, or Both*

Sport Psychology Experience		Coach Females		Coach Males		Coach Males & Females		Total	
		<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Formal SP Education	None	17	27.4%	70	27.5%	81	30.2%	168	28.7%
	Limited	26	41.9%	121	47.5%	121	45.1%	268	45.8%
	Extensive	19	30.6%	64	25.1%	66	24.6%	149	25.5%
SPC Exposure	None	41	66.1%	169	66.3%	186	69.4%	396	67.7%
	Occasional	19	30.6%	75	29.4%	69	25.7%	163	27.9%
	Frequent	2	3.2%	11	4.3%	13	4.9%	26	4.4%
SPC Interaction	< Positive	10	47.6%	37	43.0%	31	38.3%	79	41.8%
	Positive	11	52.4%	49	57.0%	50	61.7%	110	58.2%

Note. SP = Sport Psychology; SPC = Sport Psychology Consultant.

Descriptive Statistics of the Coaching Efficacy Subscales

Overall, the mean response scores of coaching efficacy subscales ranged from 3.24 to 3.53 on a 0-4 scale (see Table 5). ME was the lowest mean in all of the groups, whereas CBE was the highest mean for each group. As a group, coaches of only female athletes had the lowest coaching efficacy mean response scores, whereas coaches of only male athletes had the highest coaching efficacy mean response scores.

Cronbach's alpha was calculated for the CES II-HST subscales of all participants ( $n = 585$ ) in order to determine levels of internal consistency. Cronbach's alphas of .83, .86, .85, .85, and .88 were obtained for the items related to the CBE, GSE, ME, PCE, and TE subscales, respectively. Split-half reliability of all participants was calculated for the items of the CES II-HST in order to determine levels of external consistency. In the first half, coefficient alphas of .84, .86, .86, .86, .89 were obtained for CBE, GSE, ME, PCE, and TE subscales, respectively. In

the second half, coefficient alphas of .83, .85, .85, .85, & .87 were obtained for CBE, GSE, ME, PCE, and TE subscales, respectively. According to Nunnally (1978), an alpha of .70 represents an acceptable degree of internal consistency; therefore, this instrument is determined to be reliable.

Table 5

*Means and Standard Deviations of High School Male Coaches Who Coach Female Athletes, Male Athletes, or Both*

Efficacy Scales	Coach Females		Coach Males		Coach Males & Females		Total	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
CBE	3.45	.48	3.57	.48	3.51	.54	3.53	.51
GSE	3.38	.52	3.40	.50	3.34	.54	3.37	.52
ME	3.19	.57	3.23	.52	3.25	.56	3.24	.54
PCE	3.30	.58	3.38	.59	3.38	.60	3.37	.59
TE	3.34	.54	3.42	.52	3.35	.56	3.39	.54
Total	3.32	.46	3.40	.44	3.36	.49	3.37	.47

*Note.* CBE = Character Building Efficacy; GSE = Game Strategy Efficacy; ME = Motivation Efficacy; PCE = Physical Conditioning Efficacy; TE = Technique Efficacy.

### Relationships between Coaching Efficacy, Coaching Experience, and Prior Sport Psychology Exposure

Correlation coefficients were computed to examine the relationships between the coaching efficacy subscales, coaching experience, and past experience with sport psychology. The results of the correlational analyses for all male coaches indicated that total CE was correlated strongly ( $r > .75$ ) with the subscales ( $p < .001$ ) for the three different groups of coaches. This strong correlation suggests use of one overall mean response score instead of the five subscales. There was also a significant relationship between school size and frequency of interaction with a SPC ( $r > .17$ ;  $p < .05$ ) in all the groups. Additionally, school size, years of coaching, sport psychology education, and frequency of interaction seemed to be positively

correlated with CE ( $r > .13$ ;  $p < .001$ ) and the coaching efficacy subscales ( $r > .09$ ;  $p < .05$ ) when considering all participants.

Although each group exhibits individual differences, neither gender of the athlete nor coach education were related to any of the coaching efficacy subscales in any of the groups. Similarly, there was not a significant relationship between CBE and frequency of interaction with a SPC in any of the individual groups. For the group that only coached females ( $n = 62$ ), there were no significant relationships between CE and any of the coaching experience variables (school size, years coaching, and coach education) or sport psychology education. However, when considering all of the participants, the significant relationship between coaching efficacy and sport psychology education, but not coach education, indicated that past experience with sport psychology should also be considered when predicting overall coaching efficacy. Additionally, school size and years coaching should also be considered when predicting overall coaching efficacy.

#### Influence of Coach Experience and Prior Sport Psychology Exposure on Coaching Efficacy

To determine the relation of the different demographic and experience variables on male coaches' coaching efficacy, a hierarchical regression analyses was performed (see Table 6). At Step 1, overall years of coaching experience and current school size/designation were entered to control for influences of general experiences. Gender of athlete and coach education variables were not included in this model because there was not a significant correlation between coach education and the coaching efficacy subscales for any of the groups. At Step 2, the sport psychology variables, including sport psychology education and frequency of SPC interactions, were entered to examine their influence on coaching efficacy. Ratings of SPC interactions were

not included due to the small sample size of those who had had interactions with a SPC ( $n = 189$ ). At Step 1, years of coaching experience and current school size/designation were significant, accounting for 4.0% of the variance,  $\text{Adj. } R^2 = .037$ ,  $F(2, 581) = 12.24$ ,  $p < .001$ . Step 2 of the model, which included the sport psychology education and frequency of SPC interaction variables, was significant and accounted for an additional 5.1% of the variance,  $F(2, 579) = 15.99$ ,  $p < .001$ . The overall model was significant, accounting for 9.1% of the variance ( $\text{Adj. } R^2 = .084$ ) of the coaching efficacy scores,  $F(4, 579) = 14.43$ ,  $p < .001$ .

Table 6

*Predictors of Coaching Efficacy from Coaching Experience and Prior Exposure to Sport Psychology*

Variable		Coaching Efficacy		
		Model 1	Model 2	
		$\beta$	$\beta$	95% CI
	Constant	3.166***	3.08***	[2.982, 3.177]
Step 1	Years Coaching	.158***	.122**	[.002, .010]
	School Size	.114**	.090*	[.006, .103]
Step 2	SP Education		.137***	[.036, .137]
	SPC Interaction Frequency		.158***	[.063, .197]
	Adj. $R^2$	.037	.084	
	$F$	12.238***	14.428***	
	$\Delta R^2$		.050***	
	$\Delta F$		15.985***	

Note.  $N = 585$ . CI = Confidence Interval; SP = Sport Psychology; SPC = Sport Psychology Consultant. \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p \leq .001$ .

Within the full model, after controlling for years of coaching experience and school size, having knowledge of sport psychology and interactions with SPCs were associated with higher overall coaching efficacy scores.

## Influence of the Amount of Sport Psychology Education on Coaching Efficacy

A three sport psychology education group (i.e. no sport psychology education, limited sport psychology education, and extensive sport psychology education) analysis of covariance (ANCOVA) using the mean response scores of the five coaching efficacy subscales as the dependent variables with gender of athlete, coach education, school size, and years coaching as covariates indicated a significant effect for the groups, Wilks' Lambda = .967,  $F(10, 1146) = 1.954$ ,  $p < .05$ ,  $n_p^2 = .017$ . The follow-up univariate test revealed that differences in the amount of sport psychology education were significant, CBE  $F(2, 577) = 3.92$ ,  $p < .05$ ,  $n_p^2 = .013$ , GSE  $F(2, 577) = 7.405$ ,  $p = .001$ ,  $n_p^2 = .025$ , ME  $F(2, 577) = 7.096$ ,  $p = .001$ ,  $n_p^2 = .024$ , PCE  $F(2, 577) = 4.624$ ,  $p = .01$ ,  $n_p^2 = .016$ , and TE  $F(2, 577) = 5.603$ ,  $p < .05$ ,  $n_p^2 = .019$ . The extensive sport psychology education group had significantly greater efficacy than the no sport psychology education group for all of the subscales ( $p < .05$ ). Specifically considering motivation efficacy, the extensive sport psychology education group had significantly greater motivation efficacy than the limited sport psychology education group, and the limited sport psychology education group had significantly greater motivation efficacy than the no sport psychology education group.

## Discussion

The purpose of this study was to explore high school coaches' coaching experience to determine whether sport psychology education and interactions with sport psychology consultants predict coaches' coaching efficacy, particularly when considering the gender of the athletes coached. Results from the hierarchical regression analysis demonstrate that after accounting for years coaching and school size, sport psychology education and frequency of

interaction with sport psychology consultants predicted total coaching efficacy scores. However, the gender of athletes was not a significant predictor of coaching efficacy in this sample.

Based on the findings in this study, increased exposure to sport psychology, consisting of formal sport psychology education and interactions with sport psychology consultants, is related to higher coaching efficacy scores. This identification supports previous research suggesting this relationship (Zakrajsek & Zizzi, 2008) and extends previous research examining the relationship between coaching experience and coaching efficacy by focusing on the significance of sport psychology on coach development, specifically for high school coaches. Similar to previous research by Teatro and colleagues (2017), motivation efficacy had the lowest mean response score in every group, and character building efficacy had the highest mean response score in every group. Total years coaching also continues to predict total coaching efficacy and be related to sport psychology, thus supporting findings from earlier research (Feltz et al., 1999; Maleté & Feltz, 2000; Pope et al., 2015; Short et al., 2005; Zakrajsek et al., 2011). However, unlike previous studies that considered coach education in terms of a specific coach development program or workshop and found significant differences between pre- and post-scores or control and experimental groups (Campbell & Sullivan, 2005; Maleté & Feltz, 2000; Sullivan, Paquette, Holt, & Bloom, 2012), this study showed no relationship between formal coach education, such as university courses or degrees, and coaching efficacy subscales.

While sport psychology formal education was a stronger predictor of coaching efficacy than formal coach education in this sample, more research is needed in this area to understand the unique aspect of sport psychology education compared to coach education. Additional explanations for these findings could include that these coaches may: (a) have made broad generalizations about the types of courses that would qualify as coaching-related whereas a sport

psychology course was more specific, (b) feel more confident in their ability to implement sport psychology concepts throughout their coaching which permeates into the other areas of coaching efficacy, or (c) also be participating in additional continuing education opportunities. Likewise, individuals without any coach education may be more likely to acquire confidence from other proposed coaching efficacy sources such as support or win-loss records.

### Limitations and Strengths

Even though these findings offer new information regarding coaching efficacy and sport psychology, this study also has several limitations. Although possibly viewed as a limitation, this study included only male head coaches through purposive sampling procedures to account for previously reported gender differences between male and female coaches. While it was anticipated, based on the demographics of teachers in the state (Ramsay, 2017) and NCAA collegiate head coaches (Lapchick, 2017), the majority of participants who responded to the online survey identified themselves as Caucasian. As such, experiences of those in minority groups may be different. Additionally, the high school head coaches included in this study were purposefully sampled from the same state to control for state differences, as different states have different coaching requirements and may sanction different sports at the high school level. However, this limits the findings to a particular geographical area. Also, the gender-mismatched group (males coaching female athletes) was a much smaller sample than the other two groups, which could have contributed to the fewer number of significant correlational relationships. Finally, the formal education and frequency of sport psychology consultant interaction variables were categorized which could have also contributed to different findings in the relationships reported in the correlations than if the variables had been measured with an ordinal variable.

Despite these limitations, the current study makes several contributions. In terms of the theoretical coaching efficacy model, experience with sport psychology should be considered in future research as a source of coaching efficacy, either individually or within considerations of coaching experience. While most prior research in coaching efficacy has considered the gender of the coach (Boardley, 2017), this study also considers the gender of the athlete being coached, something that has rarely been considered in the coaching efficacy literature at the high school level. Additionally, the relationship between school size and frequency of interaction with sport psychology consultant may prove interesting for those researchers and sport psychology practitioners looking for niche populations and markets.

#### Future Directions

The current research findings suggest that coaches' sport psychology education and interactions with sport psychology practitioners may increase coaching self-efficacy. Interestingly, coaches' mean response scores on motivation efficacy were lower than the other coaching efficacy subscales mean response scores. This finding may be important to consider when developing educational curriculum and sport psychology workshops for coaches. Additionally, it may be important to explore whether coaching efficacy is associated with other important kinesiology subject areas (exercise physiology, biomechanics, etc.). It may also be valuable to gather information on how high school coaches implement sport psychology knowledge or utilize sport psychology consulting in their coaching during practice and competition settings. Future research should continue to investigate the influence of coach gender, athlete gender, and school size, in addition to geographic location, as many smaller schools tend to be in rural areas, and the effect these have on coaching efficacy of high school

coaches. Finally, considering perceived coaching efficacy of coaches by high school athletes (e.g., Teatro et al., 2017) or athletic directors could provide a more comprehensive understanding of the coaching efficacy model.

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