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# ELUCIDATION OF COACHING EFFECTIVENESS AND COACH'S BEHAVIOR ON ATHLETE'S SELF- PERCEPTION

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## ABSTRACT

*This research aimed to investigate whether: a) sport experience, coach/athlete sex and sex mismatch predicted athletes' perceptions of their coach's effectiveness on four dimensions of effectiveness, b) athletes' perceptions of coaching effectiveness differed between team and individual sports, and c) the four dimensions of coaching effectiveness were predicted by athletes' perceptions of conceptually related coach behaviors. Male (n=150) and female (n=147) athletes from team and individual sports completed questionnaires assessing athletes' perceptions of their coach's effectiveness and behavior. Results revealed, a) sex predicted three dimensions of coaching effectiveness, such that perceptions of motivation, technique and character-building effectiveness were higher in females than males, b) perceptions of motivation, technique and character-building effectiveness were higher in individual-sport athletes than team-sport athletes, and c) all four dimensions of coaching effectiveness were predicted by conceptually related coach behaviors. This study identified a wide range of antecedents of coaching effectiveness, partially supports past research and provides support for the contention that athletes' perceptions of coaching effectiveness are based upon observations of coach behaviour.*

***Keywords**: Coaching effectiveness, coach's behavior, individual and team sport, sport experience.*

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## INTRODUCTION

Coaches are central figures in athletes' lives with considerable potential to influence athletes' learning and performance, and the effectiveness of sport coaches is therefore an important consideration in research investigating athlete development (Côté & Gilbert, 2009). Importantly, past research has identified how athlete and coach attributes may influence athletes' perceptions of their coach's effectiveness (Kavussanu, Boardley, Jutkiewicz, Vincent & Ring, 2008; Mohd Kassim & Boardley, 2018). In addition, models of coaching effectiveness suggest athletes' perceptions of their coach's effectiveness may be based upon their perceptions of their coach's behavior (Horn, 2002; Smoll & Smith, 1989; Mohd Kassim, Wan Abdullah, Md Japilus, Azanuar Yusri (2020). The primary aim of the current study was to accentuate on coaching effectiveness, and to investigate whether athletes' perceptions of their coach's behavior are predictive of their perceptions of their coach's effectiveness.

One model that has been used successfully to investigate athletes' perceptions of their coach's effectiveness is the coaching efficacy model of Feltz, Chase, Moritz, and Sullivan (1999). Feltz et al. (1999) defined coaching efficacy as the extent to which coaches believe they have the capacity to impact the learning and performance of athletes, identifying four sub-dimensions: motivation, game strategy, technique and character building. First, motivation efficacy represents coaches' confidence in their ability to impact the psychological skills and states of their athletes. Second, game strategy efficacy refers to coaches' belief in their capacity to coach and guide their team to a successful performance during competition. Next, technique efficacy signifies coaches' beliefs regarding their instructional and diagnostic skills. Finally, character building efficacy pertains to coaches' beliefs in their ability to influence their athletes' personal development and positive attitude toward sport.

As indicated above, researchers have successfully applied the coaching efficacy model to the investigation of athletes' perceptions of their coach's effectiveness. Across two studies Boardley, Kavussanu and Ring (2008) and Kavussanu et al. (2008) provided evidence supporting the applicability of the original dimensionality of the coaching efficacy model when assessing athletes' perceptions of their coach's effectiveness. As such, the coaching efficacy model represents a viable framework for researchers looking to investigate athletes' perceptions of their coach's effectiveness. In their research with 291 British university athletes from eight individual and seven team sports, Kavussanu et al. (2008) identified some key predictors of athletes' perceptions of their coach's effectiveness based upon the coaching efficacy model. First, consistent with the relevant study hypotheses they found sport experience negatively predicted all four dimensions of coaching effectiveness; in general, the more experience an athlete had the lower they rated their coach's effectiveness. This was explained through the supposition that increased sport experience is likely associated with exposure to a greater number of coaching styles and behaviors that may facilitate criticality of coaches in athletes. Second, they found mismatch in sex between an athlete and coach negatively predicted perceived motivation and character-building coaching effectiveness such that when athletes were coached by someone of the opposite sex there was an overall tendency to rate the effectiveness of the coach lower on these two dimensions. These findings were consistent with research showing female athletes report more frequent positive feedback and encouragement from female coaches compared to male coaches, and more frequent structure-based and organizational behaviors in male coaches compared to female coaches (Frey, Czech, Kent, & Johnson, 2006).

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In contrast to their findings relating to coach-athlete sex mismatch, Kavussanu et al. (2008) found no effect of athlete sex on athletes' perceptions of their coach's effectiveness for any of the four dimensions. This was not consistent with the study hypotheses, which were based upon research showing sex differences in athletes' perceptions of coach behavior. More specifically, Holembeak and Amorose (2005) found male athletes perceived autocratic coach behaviors to be more prevalent and democratic coach behaviors to be less prevalent than female athletes. Further, Gardner, Shields, Bredemeier, and Bostrom (1996) reported that young male baseball/softball players perceived greater frequency of autocratic, training and instruction, social support, and positive feedback behaviors than female players. In addition, models of coaching effectiveness also describe how athlete sex may influence athletes' perceptions of their coach's behavior (Horn, 2002; Smoll & Smith, 1989).

Kavussanu et al. (2008) also found individual-sport athletes rated their coaches as more effective in technique effectiveness than team-sport athletes. However, team and individual-sport athletes did not differ on their ratings of their coach's effectiveness for the other three dimensions of effectiveness. Although no specific hypotheses were set for these analyses, it is possible athletes from individual sports receive more one-on-one coaching than those from team sports, and as a result experience more frequent behaviors such as coaching individual players on technique which contribute to perceptions of technique effectiveness (cf. Kavussanu et al., 2008).

One yet untested assumption that has underpinned research applying the coaching efficacy model to the investigation of athletes' perceptions of coaching effectiveness is that such perceptions are based upon athletes' observation of relevant coaching behaviors (see Boardley et al., 2008; Kavussanu et al., 2008). This assumption was based on models of coaching effectiveness that propose athletes' perceptions of their coach's effectiveness are based largely on the coaching behaviors they observe (Horn, 2008). A model of coaching behavior suitable for the investigation of potential links between perceptions of coaching effectiveness and coach behavior is that proposed by Côté, Yardley, Hay, Sedgwick and Baker (1999). This model proposes seven dimensions of coach behavior relating to training, competitive and organizational settings. The specific categories of coach behavior are physical training and planning (i.e., coach's involvement in the athlete's physical training and planning for training and competition), technical skills (i.e., refers to coaching feedback, demonstration, and cues), mental preparation (i.e., focusing on how the coach helps the athlete to perform under pressure, stay focused, and be confident), goal setting (i.e., the coach's involvement in the identification, development, and monitoring of the athlete's goals), competition strategies (i.e., focusing on the coach's interaction with athletes and the feedback they provide athletes during competition), coach positive personal rapport (i.e., the approachability, availability, and understanding of the coach), and coach negative personal rapport (i.e., coach's use of negative techniques such as fear and yelling).

The four dimensions of coaching effectiveness discussed earlier are all conceptually linked with one or more of the behaviors categories proposed by Côté et al. (1999). First, it is reasonable to expect athletes perceiving more frequent technical skill coach behaviors would rate their coach's technique effectiveness higher (Feltz et al., 1999). More specifically, athletes who consider they receive frequent specific feedback for correcting technical errors and reinforcement about correct technique should view their coaches as effective in their instructional and diagnostic abilities. Second, coaches seen to be engaging more frequently in goal setting and mental preparation behaviors should be perceived as having greater motivation

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effectiveness (Feltz et al., 1999). More precisely, athletes who consider their coach to be effective in impacting their psychological skills and states are likely to have coaches who engage in behaviors such as helping athletes to set goals and providing advice on how to perform under pressure and stay confident. Third, coaches who engage more frequently in behaviors relating to competition strategies should be considered to be effective in game strategy effectiveness (Feltz et al., 1999). Explicating this proposition, a coach who regularly helps athletes to prepare to face a variety of situations and keep focused during competition should be viewed as more effective in coaching and guiding their athletes to a successful competitive performance. Finally, a high and low frequency, respectively, of positive and negative personal rapport behaviors should lead coaches to be viewed as more effective in character building. More specifically, coaches who demonstrate good listening skills and show concern for athletes' development beyond sport and don't use fear and aggression in their coaching should be considered more effective in their abilities to influence athletes' personal development and positive attitude toward sport (Feltz et al., 1999). However, to date these hypothetical links have not been tested in empirical research. As such, based upon the links proposed above, a second overarching aim of the current study was to investigate whether athletes' perceptions of specific categories of coach behavior predict conceptually related dimensions of coaching effectiveness.

## THE CURRENT RESEARCH

As set out above, the present study had two overarching aims. The first of these was to attempt to replicate the findings of Kavussanu et al. (2008) relating to the prediction of coaching effectiveness using a separate sample. More specifically, we set out to examine whether sport experience, coach/athlete sex mismatch and sex predicted athletes' perceptions of their coach's effectiveness on the four dimensions of effectiveness. Based on past research and the findings of Kavussanu et al. (2008), we proposed and aimed to test the following hypotheses. First, athletes' perceptions of their coach's motivation and character-building effectiveness would be negatively predicted by sport experience and mismatch in sex between athlete/coach, but that there would be no effect of sex or sport type (i.e., team/individual) on such perceptions. Second, athletes' perceptions of their coach's game strategy effectiveness would be negatively predicted by sport experience, but that there would be no effect of mismatch in sex between athlete/coach, sport type and sex on such perceptions. Finally, athletes' perceptions of their coach's technique effectiveness would be negatively predicted by sport experience, but that there would be no effect of mismatch in sex between athlete/coach and sex on such perceptions. We also anticipated athletes from individual sports would report greater technique effectiveness for their coaches compared to athletes from team sports. Our hypotheses pertaining to sex differences were tentative though, given that the findings of Kavussanu et al. (2008) contrasted with evidence in the literature (Gardner et al., 1996; Holembeak & Amorose, 2005) and models of coach effectiveness (Horn, 2008; Smoll & Smith, 1989).

The second overarching aim of the study was to investigate whether athletes' perceptions of specific categories of coach behavior predict conceptually related dimensions of coaching effectiveness. Specifically, we hypothesized: (a) perceptions of technical skill behaviors would positively predict technique effectiveness, (b) perceptions of goal setting and mental preparation behaviors would positively predict motivation effectiveness, (c) perceptions of competition strategy behaviors would positively predict game strategy effectiveness, and (d) perceptions of positive and negative personal rapport behaviors, respectively, would positively

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and negatively predict character building effectiveness (Côté et al., 1999; Feltz et al., 1999; Horn, 2002; Smoll & Smith, 1989).

## METHOD

### *Participants*

Two hundred and ninety-seven athletes from three team (soccer, field hockey, rugby [$n$ = 153]) and three individual (badminton, swimming, gymnastics/trampoline [$n$ =144]) sports, including both male ($n$ = 150) and female ($n$ = 147) athletes, participated in the study. The sample contained athletes competing at local ($n$ = 4), university ($n$ = 161), regional ($n$ = 64), national ($n$ = 45) and international ($n$ = 23) levels, whose ages ranged from 17 to 28 years ($M$ = 19.98, $SD$ =1.41). Sport experience ranged from three months to 18 years ($M$ = 9.71, $SD$ = 4.06) and athletes' time with their current coach ranged from three months to three years ($M$ = 1.26, $SD$ = .76). One hundred and one male athletes had a male coach, whereas 49 had a female coach. For female athletes, 92 had a female coach and 55 had a male coach.

### *Measures*

***Coaching effectiveness.*** An adapted version of the 24-item coaching efficacy scale (Feltz et al., 1999) was used to measure athletes' perceptions of their coach's effectiveness (Boardley et al., 2008). This scale measures four dimensions of coaching effectiveness: motivation (7 items), game strategy (7 items), technique (6 items), and character building (4 items). Athletes' were asked to rate how effective their coach was for the 24 items using an 11-point scale ranging from 0 (*not at all effective*) to 10 (*extremely effective*). The stem for all items was "How effective is your coach in his/her ability to…", and example items are "…maintain confidence in his/her players" (motivation), "…make critical decisions during competitions" (game strategy), "…detect skill errors" (technique), and "…instill an attitude of good moral character" (character building). Kavussanu et al. (2008) reported alpha coefficients of .93 for motivation, .88 for game strategy, .89 for technique, .86 for character building and provided evidence supporting the factorial validity of the adapted scale.

***Coaching behavior.*** The 41-item Coaching Behavior Scale for Sport (CBS-S) was used to assess coaches' frequency on six types of coaching behaviors including technical skills [9 items], mental preparation [5 items], goal setting [6 items], competition strategies [7 items], positive personal rapport [6 items,] negative personal rapport [8 items,]) (Côté et al., 1999). Athletes rated their coach's frequency for each behavior using an 11-point scale ranging from 0 (*never*) to 10 (*always*). Examples items are "Provides me with immediate feedback" (technical skills), "Provides advice on how to stay confident about my abilities" (mental preparation), "Monitors progress towards my goals" (goal setting), "keeps me focused in competition" (competition strategies), "is a good listener" (positive personal rapport), and "uses power to manipulate me" (negative personal rapport). Evidence supporting the reliability and construct validity of the CBS-S has been provided (Baker, Yardley & Côté, 2003; Côté et al, 1999).

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*Procedures*

Once approval for the study was obtained from the ethics committee of the authors' institution, coaches from the relevant sports were contacted and provided with information about the study protocol. For coaches who agreed to permit access to the athletes they coached, a convenient time and date for data collection following a training session was scheduled. Prior to data collection, athletes were provided with an information sheet, informed participation was voluntary, they were free to withdraw at any point and information gathered would be confidential, before being provided with the opportunity to have any questions answered. Once this was done, athletes who volunteered to participate provided written informed consent before completing the questionnaire pack which took approximately 15 to 20 minutes. Data were collected four to six months into the competitive season.

## RESULTS

*Descriptive Statistics, Scale Reliabilities and Bivariate Correlations*

All data analyses were conducted using SPSS version 26.0. Descriptive statistics, Cronbach's (1951) alpha coefficients, and correlations for all study variables are presented in Table 1. On average, athletes perceived their coach to be quite effective for all four dimensions of coaching effectiveness, and that their coaches engaged quite frequently in all types of coach behavior with the exception of negative personal rapport behaviors which were observed infrequently. Alpha coefficients indicated good to excellent levels of internal reliability for all sub-scales of each measure (Nunnally, 1978).

Evaluating the bivariate Pearson's correlations using Cohen s' (1992) guidelines shows strong positive correlations between the four dimensions of coaching effectiveness, and moderate to strong inter-correlations among the seven types of coaching behavior; correlations between the behavior types were all positive with the exception of negative personal rapport behaviors, which were negatively related to the other six behaviors. Relationships between perceptions of coaching effectiveness and coach behavior were moderate to strong, and all positive with the exception of those with negative personal rapport behavior which were negative. Sex had a weak negative relationship with three of the four dimensions of coaching effectiveness, indicating slightly higher perceptions of effectiveness in females than males. In contrast, only two coach behaviors were associated with sex, with positive and negative personal rapport behaviors having negative and positive relationships, indicating that female athletes perceived positive personal rapport behavior to be slightly more frequent than male athletes, whereas male athletes perceived negative personal rapport behaviors to be more frequent than female athletes did. Coach/athlete sex mismatch was not related to any dimension of coaching effectiveness. Next, there were weak to weak-to-moderate associations between sport type (individual/team) and all dimensions of coaching effectiveness; individual sport athletes considered their coach more effective than team sport athletes for all dimensions of effectiveness except game strategy, where the opposite was true.

*Predictors of Coaching Effectiveness*

The first aim of the current study was to attempt to replicate the findings of Kavussanu et al. (2008) relating to the prediction of coaching effectiveness. This was addressed through

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multivariate multiple regression, which indicated a significant multivariate effect for sex, $F$ (1, 296) = 5.66, $p$ = < .01, $\eta_P^2$, 02; the results from these analyses are presented in Table 2. Neither sport experience nor coach/athlete sex mismatch was a significant predictor of any dimension of coaching effectiveness. In contrast, athlete sex was a significant negative predictor of athletes' perceptions of their coach's motivation ($M_{Male}$ = 6.97, $M_{Female}$ = 7.33), technique ($M_{Male}$ = 7.21, $M_{Female}$ = 7.62), character building ($M_{Male}$ = 7.29, $M_{Female}$ = 7.69) and total coaching effectiveness ($M_{Male}$ = 7.16, $M_{Female}$ = 7.51).

Next, to examine whether sport type (i.e., team/individual) and its potential interaction with sex had an effect on ratings of coaching effectiveness, a 2 Sport Type (individual, team) X 2 Sex (male, female) MANOVA was conducted. This analysis revealed significant sport type, $F$ (1, 296) = 3.73, $p$ =.01, $\eta_P^2$ .05, and sex, $F$ (1, 296) = 5.87, $p$ = .02, $\eta_P^2$ .04, multivariate main effects, but no significant interaction. Follow up ANOVAs indicated athletes in individual sports perceived their coach to be: (a) higher in motivation effectiveness ($M$ = 7.48, $SD$ = 1.33) than team sport athletes ($M$ = 6.88, SD = 1.61) did, (b) higher in technique effectiveness ($M$ = 7.72, SD = 1.36) than team sport athletes ($M$ = 7.16, SD = 1.44) did, (c) higher in character building effectiveness ($M$ = 7.68, $SD$ = 1.33) than team sport athletes ($M$ = 7.33, $SD$ = 1.41) did, and (d) lower in game strategy effectiveness ($M$ = 7.02, $SD$ = 1.47) than team sport athletes ($M$ = 7.48, $SD$ = 1.27) did.

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*Table 1: Descriptive statistic, alpha coefficients, and correlations among study variables*

| Variable | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Motivation Effectiveness | .93 | | | | | | | | | | | | | |
| 2. Game Strategy Effectiveness | .68** | .88 | | | | | | | | | | | | |
| 3. Technique Effectiveness | .83** | .69** | .89 | | | | | | | | | | | |
| 4. Character Building Effectiveness | .81** | .65** | .78** | .85 | | | | | | | | | | |
| 5. Technical Skill | .65** | .53** | .67** | .51** | .94 | | | | | | | | | |
| 6. Mental Preparation | .53** | .30** | .44** | .48** | .41** | .96 | | | | | | | | |
| 7. Goal Setting | .48** | .41** | .43** | .47** | .39** | .72** | .95 | | | | | | | |
| 8. Competitive Strategy | .58** | .52** | .52** | .49** | .46** | .60** | .70** | .92 | | | | | | |
| 9. Positive Personal Rapport | .66** | .40** | .48** | .64** | .41** | .48** | .37** | .44** | .88 | | | | | |
| 10. Negative Personal Rapport | -.39** | -.30** | -.39** | -.35** | -.29** | -.16** | -.15** | -.24** | -.26** | .87 | | | | |
| 11. Sex | -.12* | -.08 | -.14* | -.14* | .08 | -.04 | -.01 | -.04 | -.18** | .16** | - | | | |
| 12. Sex mismatch | -.10 | -.09 | -.04 | -.05 | -.15** | .02 | .05 | -.02 | -.01 | .02 | -.05 | - | | |
| 13. Experience | -.00 | -.01 | -.05 | -.01 | -.15** | -.13* | -.07 | .02 | -.10 | .11* | . 15** | .19** | - | |
| 14. Individual/Team Sport | -.19** | .16** | -.19** | -.12* | -.01 | -.11* | -.09 | -.04 | -.05 | .19** | .09 | -.25** | .02 | - |
| *M* | 7.15 | 7.28 | 7.42 | 7.49 | 7.40 | 6.13 | 6.28 | 6.61 | 6.77 | 2.23 | .50 | .35 | 9.71 | 1.51 |
| *SD* | 1.52 | 1.38 | 1.43 | 1.39 | 1.63 | 2.10 | 2.02 | 1.59 | 1.71 | 1.72 | .50 | .47 | 4.05 | .50 |

*Note. N = 297. Sport experience and age are expressed in years. Sex was coded 0 for females and 1 for males. Sex match and mismatch between athletes and their coach, individual and team sport were coded 0 and 1 respectively. Alpha coefficients are presented on the diagonal. **Correlation is significant at the .01 level (2-tailed). *Correlation is significant at the .05 level (2-tail*

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*Table 2: Predictors of coaching effectiveness*

| | Variable | *b* | *95% CI for b* | β | t | $R^2$ |
|---|---|---|---|---|---|---|
| 1 | Motivation Effectiveness | | | | | .02 |
| | Sport experience | -.00 | -.04, .04 | -.00 | -.12 | |
| | Sex match/mismatch | -.36 | -.72, .00 | -.11 | -1.92 | |
| | Sex | -.38 | -.72, -.03 | -.12 | -2.14* | |
| 2 | Game Strategy effectiveness | | | | | .01 |
| | Sport experience | -.00 | -.04, .03 | -.01 | -.29 | |
| | Sex match/mismatch | -.29 | -.63, .04 | -.10 | -1.70 | |
| | Sex | -.23 | -.55, .08 | -.08 | -1.47 | |
| 3 | Technique Effectiveness | | | | | .02 |
| | Sport experience | -.01 | -.05, .02 | -.04 | -.73 | |
| | Sex match/mismatch | -.19 | -.54, .15 | -.06 | -1.08 | |
| | Sex | -.39 | -.72, -.07 | -.13 | -2.38* | |
| 4 | Character Building Effectiveness | | | | | .02 |
| | Sport experience | -.00 | -.04, .03 | -.00 | -.11 | |
| | Sex match/mismatch | -.19 | -.52, .14 | -.06 | -1.12 | |
| | Sex | -.41 | -.73, -.09 | -.14 | -2.54* | |
| 5 | Total Perceived Coaching Effectiveness | | | | | .02 |
| | Sport experience | -.00 | -.04, .03 | -.02 | -.35 | |
| | Sex match/mismatch | -.26 | -.57, .05 | -.09 | -1.63 | |
| | Sex | -.35 | -.65, -.06 | -.14 | -2.38* | |

Note. $N = 297$. CI= Confidence Interval. * $p < .05$, **curriculum development <.01, ***$p$ <.001. Sex coded 0 for females and 1 for males. Sex match and mismatch between athletes and their coach coded 0 and 1 respectively.

The second aim of the study was to investigate whether athletes' perceptions of specific categories of coach behavior predicted conceptually related dimensions of coaching effectiveness. To address this aim, a series of hierarchical multiple regression analyses were conducted. For each dimension of coaching effectiveness, age, years with coach, sport experience, athlete sex, and coach/athlete sex mismatch were entered in the first step to control for any possible effects of these variables on perceptions of coaching effectiveness. The relevant coach behavior type/s was/were then entered in the second step to determine its/their predictive effects. The results of these analyses are presented in Table 3.

In the first analysis, once any effects of the control variables were accounted for, athletes' perceptions of their coach's technical coaching behavior accounted for 51% of the variance in athletes' perceptions of their coach's technique effectiveness. Next, athletes' perceptions of their coach's goal setting and mental preparation coaching behavior collectively accounted for 34% of the variance in their perceptions of their coach's motivation effectiveness. Third, athletes' perceptions of their coach's competition strategies coaching behavior explained 32% of the variance in their perceptions of their coach's game strategy effectiveness. Finally, athletes' perceptions of their coach's positive and negative personal rapport coaching behavior collectively accounted for 45% of the variance in their perceptions of their coach's character-building effectiveness.

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*Table 3: Hierarchical multiple regression analyses predicting coaching effectiveness*

| Variable | *b* | *SE b* | β | *t* | $R^2$ | *F* Change |
|---|---|---|---|---|---|---|
| Technique Effectiveness | | | | | | |
| *Step 1* | | | | | .04 | 2.85* |
| Age | -.07 | 0.06 | -.07 | -1.17 | | |
| Years with coach | -.23 | 0.11 | -.12 | -2.09* | | |
| Sport experience | -.00 | 0.02 | -.01 | -0.26 | | |
| Sex | -.38 | 0.16 | -.13 | 2.30* | | |
| Coach/athlete sex mismatch | -.19 | 0.17 | -.06 | -1.10 | | |
| *Step 2* | | | | | .51 | 278.93*** |
| Technical skill behaviors | .63 | 0.03 | .72 | 16.75*** | | |
| Motivation Effectiveness | | | | | | |
| *Step 1* | | | | | .05 | 2.75* |
| Age | -.12 | 0.06 | -.10 | -1.79 | | |
| Years with coach | -.09 | 0.07 | -.07 | -1.31 | | |
| Sport experience | .00 | 0.02 | .02 | 0.41 | | |
| Sex | -.35 | 0.18 | -.11 | -1.95* | | |
| Coach/athlete sex mismatch | -.37 | 0.19 | -.11 | -1.91 | | |
| *Step 2* | | | | | .34 | 64.37*** |
| Goal setting behaviors | .17 | 0.05 | .23 | 3.34** | | |
| Mental preparation behaviors | .26 | 0.05 | .36 | 5.16*** | | |
| Game Strategy Effectiveness | | | | | | |
| *Step 1* | | | | | .05 | 3.09* |
| Age | -.03 | 0.05 | -.03 | -0.51 | | |
| Years with coach | -.32 | 0.10 | -.17 | -3.06* | | |
| Sport experience | .00 | 0.02 | .01 | 0.23 | | |
| Sex | -.23 | 0.16 | -.08 | -1.41 | | |
| Coach/athlete sex mismatch | -.26 | 0.17 | -.09 | -1.57 | | |
| *Step 2* | | | | | .32 | 115.43*** |
| Competition strategy behaviors | .45 | 0.04 | .52 | 10.74*** | | |
| Character Building Effectiveness | | | | | | |
| *Step 1* | | | | | .05 | 3.15* |
| Age | -.10 | 0.05 | -.10 | -1.82 | | |
| Years with coach | -.18 | 0.10 | -.10 | -1.76 | | |
| Sport experience | .00 | 0.02 | .02 | 0.43 | | |
| Sex | -.40 | 0.16 | -.14 | -2.49* | | |
| Coach/athlete sex mismatch | -.21 | 0.17 | -.07 | -1.21 | | |
| *Step 2* | | | | | .45 | 105.24*** |
| Positive personal rapport behavior | .47 | 0.03 | .59 | 12.53*** | | |
| Negative personal rapport behavior | -.16 | 0.03 | -.20 | -4.32*** | | |

*Note.* $N$ =297. *$p < .05$, **$p < .01$, ***$p < .001$

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## DISCUSSION

To investigate coaches' potential to influence athletes' psychosocial development, researchers have sought to understand factors that influence coaching effectiveness (e.g., Boardley et al., 2008; Kavussanu et al., 2008). The current study aimed to contribute to the body of knowledge on this topic by addressing two primary research aims. The first of these was to seek to replicate the findings of Kavussanu et al. (2008) relating to the prediction of athletes' perceptions of coaching effectiveness with a separate sample. The second was to test a series of hypothesized links between athletes' perceptions of their coach's coaching behavior and their coaching effectiveness. Over the following paragraphs, we review and discuss findings relevant to these two aims.

### *Predicting Athletes' Perceptions of Coaching Effectiveness*

In seeking to replicate some of the findings reported by Kavussanu et al. (2008), we tested whether sport experience, coach/athlete sex mismatch and sex predicted athletes' perceptions of their coach's effectiveness. First, we hypothesized athletes' perceptions of their coach's effectiveness would be negatively predicted by sport experience for all four dimensions of coaching effectiveness. However, contrary to these hypotheses sport experience did not predict athletes' perceptions of coaching effectiveness on any of the four dimensions. These findings contrast with those of Kavussanu et al. (2008), who found sport experience to be a negative predictor for all four dimensions of coaching effectiveness. A potential explanation for these contrasting findings relates to differences between the samples of the two studies. Kavussanu et al. (2008) reasoned that the effect of experience on athletes' perceptions of their coach's effectiveness may have been due to athletes with more experience having trained with a greater number of coaches, which may lead to them being more critical of their current coach. However, in the current study it is possible such an effect was negated due to athletes having on average spent longer with their current coach than those sampled by Kavussanu et al. (2008). To explicate further, it is possible athletes who have had longer relationships with their current coach may have better relationships with them, and therefore be less likely to be critical of them (see Jowett & Cockerill, 2002). Thus, it is possible sport experience may only negatively predict perceptions of coaching effectiveness when athletes have been with their coach for relatively short time periods.

Another hypothesized negative predictor of athletes' perceptions for two dimensions of coaching effectiveness was coach/athlete sex mismatch. More specifically, we expected athletes' perceptions of their coach's motivation and character-building effectiveness would be lower for athletes who had a coach of the opposite sex compared to those who were coached by someone of the same sex. Our results did not support these hypotheses, as athletes' who were coached by coaches of the opposite sex did not perceive their coach to be less effective than athletes with a coach of the same sex for any dimension of coaching effectiveness. However, it should be acknowledged the effect for motivation effectiveness approached significance (i.e., $p$ =.06) and although weaker in magnitude, it was in the same direction ($\beta$ = -.11 vs -.17) as the equivalent effect in the Kavussanu et al. (2008) study. Thus, this would appear to be a fairly consistent yet weak effect.

The equivalent effect for perceptions of character-building effectiveness did not approach significance though, and we found no evidence of an effect of coach/athlete sex mismatch on this dimension of coaching effectiveness. The lack of an effect here – and possibly

the weaker effect for motivation effectiveness – may be explained by differences in the coach-athlete sex balance between the two studies. More specifically, in the Kavussanu et al. (2008) study 59.1% of female athletes were coached by a male coach, whereas only 3.5% of male athletes were coached by a female coach. In contrast, presently 37.4% and 32.7% of female and male athletes, respectively, had a coach of the opposite sex. As such, a far greater percentage of male athletes had a female coach in the present study compared to the Kavussanu et al study. It is possible, therefore, that the differences between the two studies – in terms of the nature of the mismatches in coach/athlete sex – may have led to the disparate findings relating to this variable predicting character building and motivation effectiveness. To explain further, studies have shown that overall female coaches are perceived to (a) be more understanding, (b) have a more caring style of communication, (c) be more able to relate well to others and (d) be more understanding of athletes' feelings in comparison to male coaches (Fasting & Pfister, 2000; Molstad & Whitaker, 1987). Given the apparent relevance of such characteristics for character-building coaching, a male athlete judging a female coach may well not be equivalent to a female athlete judging a male coach on their character-building capabilities. However, the methods used by Kavussanu and colleagues to indicate sex mismatch – replicated in the current study – do not differentiate between the two types of coach/athlete sec mismatch. This suggests a more sensitive (i.e., making the distinction between the nature of the sex imbalance between the coach and athlete) approach to the investigation of coach/athlete sex mismatch may be a useful consideration in similar research in the future.

This study also tentatively hypothesized athletes' sex would not be a predictor of athletes' perceptions of coaching effectiveness for any dimension of effectiveness. Contrary to this hypothesis we found athletes' sex negatively predicted athletes' perceptions of their coach's technique, character building and motivation effectiveness. Thus, in general, female athletes perceived their coach to be more effective in technique, character building and motivation than male athletes did. Although these findings contrast with those of Kavussanu et al. (2008), who found sex did not predict athletes' perceptions of coaching effectiveness for any dimension, it is important to recognize our findings are in fact consistent with Kavussanu et al.'s (2008) original hypotheses. More specifically, Kavussanu et al. (2008) expected to find differences in athletes' perceptions of their coach's effectiveness between male and female athletes. These expectations were based upon relevant aspects of Horn's (2008) model of coaching effectiveness, which suggests athlete sex can influence the way athletes perceive, interpret and evaluate their coach's behavior. Also, male student athletes have reported greater perceived frequency of their coach's autocratic and lower perceived frequency of their coach's democratic coaching behaviors than female student athletes (Holembeak & Amorose, 2005). Similarly, male junior-college baseball and softball players perceived their coach to display more autocratic behaviors, and provide more training and instruction, social support and positive feedback than female athletes did (Gardner, Shields, Bredemeier, & Bostrom, 1996). Thus, our findings demonstrating effects of athletes' sex on perceptions of coaching effectiveness – whilst contrasting with Kavussanu et al. (2008) – are consistent with a body of literature showing sex differences in athlete's perceptions of their coach.

This present study also examined whether athletes' perceptions of coaching effectiveness differed between team- and individual-sport athletes. Results showed that athletes' perceptions of coaching effectiveness were different between team- and individual-sport athletes for all four dimensions of effectiveness. For athletes' perceptions of technique effectiveness, individual-sport athletes rated their coaches higher than team-sport athletes. This

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finding replicates the equivalent finding from Kavussanu et al. (2008), and further supports their contention that this may be explained by coaches of individual-sport athletes potentially spending more time working one-on-one with individual athletes on technique and skill development than coaches working with team-sport athletes. Importantly, such differences in coach behavior can result in relatively permanent changes in athlete skill development (Anshel, 1990). Thus, if individual athletes do on average receive a greater frequency of individual coaching on technique than team-sport athletes, they may draw upon such improvements in their skill development when forming conclusions relating to their coach's technique effectiveness.

Thus, it found team-sport athletes perceived their coach to be more effective in game strategy than individual-sport athletes did. This finding contrasts with Kavussanu et al. (2008) who found no sport-type effect for this variable. This discrepancy between the findings of the two studies may be due to differences in the individual sports represented in the two studies. More specifically, most of the individual sports represented in the Kavussanu et al. study (i.e., badminton, fencing, judo, jujitsu, karate and table tennis) involve coaches giving advice on tactics and strategy during competition. In contrast, only one individual sport (i.e., badminton) represented in the present sample is likely to require similar coach involvement during competition. Therefore, in the current study the higher levels of coach game strategy effectiveness perceived by team-sport athletes in comparison to individual sport athletes may have been due to coaches from the individual sports represented having fewer opportunities to engage in game-strategy-relevant coaching behaviors (e.g., helping players recognize opposing player's strengths and weaknesses and to make critical decisions during competition) compared to the team sport coaches. This difference may not have been found by Kavussanu et al. (2008) due to the individual sports in that study generally having more opportunities for game-strategy coaching than those in the present study.

Another finding that contrasted with those of Kavussanu et al. (2008) was the differences detected between individual- and team-sport athletes' perceptions of their coach's motivation effectiveness. More specifically, in the present study individual-sport athletes rated their coaches as more effective in motivation effectiveness than team-sport athletes did. This finding may be explained in a similar way to that for technique effectiveness. More specifically, individual-sport coaches may have more time to engage individually with athletes using coaching behaviors linked with improvements in psychological development of athletes such as providing feedback, demonstrating high levels of self-efficacy and confidence (see Feltz & Lirgg, 2001; Vargas-Tonsing, Warners, & Feltz, 2003; Vealey et al., 1998) than team-sport coaches. Regarding why this effect was not detected in the Kavussanu et al. (2008), this could potentially be due to a lack of statistical power in that study. In the present study, the number of individual- and team-sport athletes was approximately equal (i.e., $n_{individual}$ = 144, $n_{team}$= 155) as we specifically set out to balance our sample between team and individual sports. However, it is not possible to determine levels of statistical power and effect sizes for these analyses in the Kavussanu et al. (2008) study because relevant information was not reported.

Moreover, this study also found differences between individual- and team-sport athletes' perceptions of their coach's character-building effectiveness. Individual-sport athletes rated their coach as more effective in character building than team-sport athletes did. Of importance is that the individual sports included presently did not involve any contact, meaning the potential for physical interaction and violence between opponents was minimal. Increased physical contact in sports heightens the opportunity for aggressive behavior, which has been

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associated with lower levels of moral functioning (see Kavussanu & Boardley, 2009, 2012). Per Conroy, Silva, Newcomer, Walker and Johnson (2001) this may be due to high-contact sports having different socialization processes that are more forgiving to aggressive behavior in sport. Thus, the lack of physical contact in the three individual sports represented in the current study may mean that coaches in those sports had no reason to potentially condone aggressive behavior. As such, such coaches should mostly be able to promote athletes' character development without at times utilizing behaviors that potentially contradict such efforts. In contrast, coaches from the team-sports in the current study – all medium contact sports – may at times have to choose between punishing aggressive play and gaining competitive advantage through it. Interestingly, Kavussanu et al. (2008) did not detect such group differences. However, this may be explained by differences between the individual sports represented in their study and those sampled presently. More specifically, in the Kavussanu et al. study, several combat sports were represented, whereas in the current study no such sports were sampled from. As such, physical contact and aggression were intrinsic aspects of the individual sports studied by Kavussanu and colleagues. However, more research is needed to determine whether levels of physical contact lead to differences in athletes' perceptions of coach character-building effectiveness.

*Predicting Athletes' Perceptions of Coaching Behavior*

The second major objective of the study was to investigate whether athletes' perceptions of specific categories of coach behavior predicted conceptually related dimensions of coaching effectiveness. Consistent with our hypotheses, regression analyses demonstrated athletes' perceptions of their coach's behavior predicted each of the anticipated dimensions of coaching effectiveness. Collectively these findings provide support for a key aspect of Horn's (2008) model of coaching effectiveness, which suggests athletes' perceptions of their coach's effectiveness are based upon the coaching behaviors they observe. Over the following paragraphs we interpret and discuss the specific findings in more detail.

First, athletes' perceptions of their coach's technical skill behavior were strong positive predictors of athletes' perceptions of their coach's technique effectiveness. Thus, the more frequently athletes perceived receiving advice whilst performing a skill, feedback to correct errors and reinforcement of correct technique, the more effective they considered their coach to be in their instructive and diagnostic skills. This suggests that when athletes perceive greater frequency of such behaviors, they tend to link this greater effectiveness within this coaching domain. A likely implication of this is that coaches who frequently use such behaviors are more likely to enhance athletes' skill development and performance (Gallimore & Tharpe, 2004; Smith, & Cushion, 2006). Thus, it would seem frequent use of technical skill behaviors may be important if coaches are to be perceived as effective in their instructional and diagnostic abilities.

Next, athletes' perceptions of their coach's goal-setting behavior positively predicted their perceptions of their coach's motivation effectiveness. In general, the more often athletes perceived their coach used strategies to help athletes achieve their goals, the more effective they were perceived to be in their capacity to positively impact the psychological skills and states of their athletes. Coaches are thought to use goal setting as a strategy to help athletes to focus their attention on the processes required to achieve improvements in skill and commitment (Locke & Latham, 1985; Schunk, 1995). Development of goal-setting abilities may also generalize to other psychological strategies too, which would explain the link between

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coaches' goal-setting behavior frequency and their perceived effectiveness in developing athletes' physiological abilities more generally. Evidence of such links is seen in research that has linked coach goal-setting behaviors with athletes' use of imagery (see Martin, Moritz, & Hall, 1999; Callow & Hardy, 2001; Short, Bruggeman, Engel, Marback, Wang, Willadsen et al., 2002). Thus, this finding identifies the potential importance of coaches' goal-setting behaviors for athletes' psychological preparation in sport.

Beyond that explained by perceived frequency of goal-setting behaviors, athletes' perceptions of their coach's mental-preparation behaviors explained additional variance in athletes' perceptions of their coach's motivation effectiveness. As such, when athletes perceived their coach more frequently provided advice on how to perform under pressure and stay mentally tough, the coach was considered more effective in psychologically preparing athletes. Perceiving the coach to be high in motivation effectiveness reveals athletes may have experienced coach behaviors that enhanced athlete focus and confidence to perform the skills of their sport (see Feltz et al., 1999). Such coach behaviors may center on development of athletes' use of positive self-talk, verbal persuasion (Gould, Hodge, Peterson, & Gianini, 1989) or a range of efficacy-building coach behaviors such as those identified by Vargas-Tonsing, Myers, Munk and Feltz (2003). This finding highlights the potential importance of coaches engaging in a range of mental preparation behaviors if they are to maximally develop athletes' psychological abilities.

Next, athletes' perceptions of their coach's competitive strategy behavior positively predicted athletes' perceptions of their coach's game strategy effectiveness. Thus, coaches who were perceived to more frequently help athletes keep focused and deal with problems that emerge during competition were perceived as being more effective in preparing athletes to be successful and lead athletes to a better performance during competition. The importance of coaches adopting such behaviors is highlighted by research that has shown coach competitive strategy behaviors can help athletes to focus, perform at their best level and be prepared to face a variety of competitive situations (Côté et al., 1999: Horn, 2008). Thus, coaches' competitive strategy behaviors make an important contribution to athletes' perceptions of their coach's game strategy effectiveness.

Furthermore, athletes' perceptions of their coach's positive personal rapport behavior frequency positively predicted athletes' perceptions of their coach's character building effectiveness. Thus, coaches who were perceived to engage more frequently in behavior such as showing understanding for athletes as people and being a good listener were considered more effective in facilitating athletes' personal development and sportspersonship (Feltz et al., 1999). Adoption of such behaviors may be linked with sportsmanship coach behaviors such as reinforcing, teaching and modelling good sportsmanship (Bolter & Weiss, 2013). Positive personal rapport behaviors demonstrate the importance of coaches developing interpersonal skills that go beyond expertise in their sport (Côté & Sedgwick, 2003).

Finally, beyond that explained by perceptions of positive personal rapport behaviors, athletes' perceptions of their coach's negative personal rapport behavior frequency negatively predicted athletes' perceptions of their coach's character-building effectiveness. In general, coaches seen to engage more frequently in behaviors such as displaying favoritism, disregarding opinions, and using fear to control athletes were perceived to be less effective in instilling an attitude of good moral character in athletes. These negative coach behaviors are likely to reflect poor sportspersonship coach behaviors such as modelling poor

sportspersonship and prioritizing winning over good sportsmanship (see Bolter & Weiss, 2012). Importantly, such coach behaviors have been positively associated with athletes' antisocial behavior (Bolter & Weiss, 2013). In combination these last two findings highlight the potential importance of frequency of both positive and negative coach personal rapport behaviors for optimizing athletes' character development in sport.

## CONCLUSION

In conclusion, the current research identified some contrasting findings to those of Kavussanu et al. (2008), suggesting some of the effects tested may be influenced by specific characteristics of athlete populations. More work is needed to help us understand the specific environmental and/or individual-difference factors that lead to differing relationships between athlete experience, sex, sex mismatch, and athletes' perceptions of coaching effectiveness. The divergent findings further highlight the importance of attempting to replicate findings in psychological research. We also identified some important links between athletes' perceptions of their coach's behavior and their perceptions of coaching effectiveness and in doing so provided support for relevant aspects of the model of coaching effectiveness proposed by Horn (2008).

### *Contribution of Main author and Co - authors*

Ahmad Fikri Mohd Kassim: Lead the research at all parts and Interpretation the data

Syed Shahbudin Syed Omar: lead the data collection process.

Nur Amirah Zaker: Data analysis

Nur Fatehah Ahmad Nasir: data collection and literature and drafting and revising the manuscript.

All authors given final approval – Yes, all the author and agreed to be accountable for all aspects. All authors declared that there is no Conflict interest. Co - authors responsible for specific or other parts of manuscripts

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Contributors who do not meet criteria above.

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