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AN EXAMINATION OF PSYCHOLOGICAL STRATEGIES USED BY BASKETBALL OFFICIALS

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AN EXAMINATION OF PSYCHOLOGICAL STRATEGIES USED BY
BASKETBALL OFFICIALS

By

Lindsay P. Walsh

A Thesis
Submitted to the Faculty of Graduate Studies
through the Faculty of Human Kinetics
in Partial Fulfillment of the Requirements for
the Degree of Master of Human Kinetics at the
University of Windsor

Windsor, Ontario, Canada

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2011

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1 September 2011

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ABSTRACT

The Cornerstones Performance Model of Refereeing identifies psychological skills as key in optimizing refereeing performance (Mascarenhas et al., 2005). The present study examined the psychological skills most frequently utilized by basketball officials, as well as differences between high (varsity college or higher) and low (high school or lower) level officials and gender. Participants included 513 male ($n = 450$) and female ($n = 58$) basketball officials who completed the Test of Performance Strategies Questionnaire (Thomas et al., 1999). Officials reported using psychological skills most to maintain their emotional control and least to help them relax. There was a significant difference in level of officiating, ($F(2, 507) = 2.22, p < .05, \eta^2 = .03$), with higher level officials reporting higher frequency of self-talk, automaticity, and imagery. An overall gender effect was also found ($F(2, 507) = 2.89, p < .01, \eta^2 = .04$), with female officials reporting a higher frequency of self-talk and automaticity. The implications of these results are discussed.

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RESEARCH ARTICLE

Introduction

Athletic performance involves an evaluative component and as such, has been described as a special kind of behaviour (Pargman, 2006). The actions of the performer are not merely on display for observation, the behaviour is being judged by the audience (Pargman, 2006). This type of evaluation can result in performance anxiety, physiological arousal, irrational fears which affect concentration and information processing, and can consequently negatively impact performance (Pargman, 2006). Therefore, the role psychological skills plays in athletic performance has been a focus of research in sport (e.g., Greenleaf, Gould, & Dieffenbach, 2001; Thomas, Murphy, & Hardy, 1999), yet little attention has been given to the psychological skills utilized by officials.

Researchers believe that the application of psychological skills in sport is important for social-psychological enhancement (e.g., enriching the human experience and increased psychological well-being) and athletic performance enhancement (e.g., increasing motivation and self-confidence; Cox, 2007). Research has consistently noted that psychological skills, such as positive self-talk, positive thinking, mental imagery, relaxation/arousal control, and goal setting significantly impacts athletic performance (Gould, Dieffenbach, & Moffett, 2002; Rogerson & Hrycaiko, 2002).

Research examining the psychological skills used by athletes has consistently revealed that higher level athletes (e.g., international level) use a multitude of psychological skills in combination; whereas their lower level counterparts (e.g., college, regional, and recreational) report using fewer psychological skills (Thomas et al., 1999).

The results with respect to differences between male and female athletes' use of psychological skills have been equivocal. More specifically, male youth swimmers reported higher levels of relaxation and self-talk than female swimmers (Hardwood, Cumming, & Fletcher, 2004). Contrastingly, Thomas et al. (1999) reported that male athletes scored higher on automaticity, but lower on imagery than female athletes. These equivocal findings may be reflective of the different athletic samples used in each of these studies, suggesting the psychological skills required by swimmers are different than those psychological skill used to perform other sports.

Researchers have recently turned their attention to coaches, realizing that they too are performers in sport. In a qualitative study by Thelwell, Weston, Greenlees, and Hutchings (2008), they found that coaches do indeed use psychological skills before, during, and after coaching a practice or competition. More specifically, coaches reported using imagery and self-talk most frequently for the purposes of controlling their emotions, boosting confidence, maintaining focus, and helping them to remain relaxed. To a lesser extent, coaches also reported using relaxation techniques and goal setting. Given the strong support to indicate that both athletes and coaches use psychological skills, specific interventions have been developed to teach and encourage the use of such skills to enhance one's athletic experience (Kendall, Hrycaiko, Martin, & Kendall, 1990).

Preliminary research with officials explored the type and magnitude of stress experienced by officials, as well as factors which influence decision making (Rainey, 1999; Snyder & Purdy, 1987), however, researchers failed to recognize the importance of psychological skills to officiating. More recently, however, researchers have begun to consider the psychological skills of sport officials, who are also under extreme pressure

to perform. Specifically, Mascarenhas, Collins, and Mortimer (2005) examined the key areas of effective performance for officials, which resulted in the development of the Cornerstones Performance Model of Refereeing (see Figure 1). Although initially developed for rugby referees, the Cornerstones Performance Model of Refereeing places psychological characteristics of excellence as its overarching component. Consequently, recognizing that the use of psychological skills directly impacts each of the four cornerstones of successful refereeing performance (i.e., knowledge and application of the law, physical fitness, positioning and mechanics, contextual judgment, personality and game management skills) and as such is essential in reaching optimal performance (Mascarenhas et al., 2005). Although research has suggested that these four key components of successful refereeing are impacted by the officials' use of psychological skills, research has yet to identify those psychological skills which comprise the "psychological characteristics of excellence," which are most relevant to officials' performance and incorporate these into officials' training (Hardy & Parfitt, 1994). As such, the current study will seek to build on the Cornerstones Performance Model of Refereeing by examining which psychological skills officials of various levels use and thus, may be considered "psychological characteristics of excellence."

At the most basic level, the role of a sport official is to apply the rules and regulations in accordance with the sport being played (Lopez & Falco, 2008) and in the presence of a social audience (Alker, Straub, & Leary, 1973). With the role of official comes the inherent expectation that the individual demonstrates a specialist competence and qualification for occupying the role of expert (Pargman, 2006). Consequently, the goal and expectation of any sport official is to be fair, impartial, and objective while

making consistent judgments (Alker et al., 1973). The complexity of officiating becomes more apparent when considering that their behaviors are executed in a short time frame, under conditions of mental stress, in ambiguous situations (Lopez & Falco, 2008) and in the presence of a social audience (e.g., athletes, fans, coaches and fellow officials). In order to be a competent official, a high degree of consistency in decision making is necessary. Inconsistent judgments by an official often results in social disapproval (e.g., players' disagree with their judgment on the play), which could decrease the official's credibility (Anshel & Weinberg, 1995; Rainey, 1999). Consequently, striving to make consistent judgments in a context where the audience may doubt the worth or accuracy of one's decision can be stressful for an official. Therefore, beyond simply having an in-depth understanding of the rules, in addition to meeting the physical demands of officiating (e.g., using proper game mechanics, being physically fit, looking professional, and communicating effectively with participants), an official's performance could be enhanced through the use of psychological skills.

With the growing importance placed on sport outcomes, competition at every level has risen. Accordingly, it becomes essential that officials be trained and equipped with the skills, both physically and psychologically, to officiate top quality athletes, as well as deal effectively with game situations (e.g., inappropriate coach behavior; Lopez & Falco, 2008). In a recent *Fédération Internationale de Basketball Amateur (FIBA) Assist* magazine article by Stokes (2009), he recognized that psychological and emotional factors can influence the judgment of an official, but provides no direction on how an official can improve one's psychological skills. Moreover, Stokes referred to judgment as an 'instinctive ability' leading a reader to infer that an official either 'has it or doesn't',

and thus failed to recognize that an official's judgment could be impacted by the presence of others. For instance, social facilitation posits that the mere presence of an audience can increase arousal and interfere with performance (Zajonc, 1965). Furthermore, research has reported that anxiety, for less confident athletic performers, may be interpreted as detrimental to performance (Mellalieu, Hanton, & Shearer, 2008). Similarly, an official who lacks confidence in her ability may be more likely to experience anxiety while officiating, which could negatively impact her judgment and result in inconsistent calls.

Despite the comments from a 13 year veteran hockey official stating that officials are overlooked with respect to sport psychology (Schinke, Handcock, Dubuc, & Dorsch, 2006), Weinberg and Richardson (1990) acknowledged the importance of psychological skills for officials. Moreover, FIBA Assist Magazine has published four articles in the last eight years directed to promoting the use of psychological skills for elite basketball officials. One article, based on anecdotal evidence from veteran officials, outlined mental skills for referees, and recommended developing various techniques to improve performance, such as focusing on mental preparation, and developing performance routines (Richardson, 2005). Although encouraging, research with athletes and coaches has found that simply suggesting the use of psychological skills rarely results in athletes utilizing them; rather, individuals are more likely to use psychological skills if they are educated on their use and benefits to performance and are continually encouraged to use psychological skills (Gould et al., 1999; Short et al., 2005; Vadocz, Hall, & Moritz, 1997). For example, education on the content of psychological skills and the benefits has been shown to improve coaches' encouragement of psychological skills with their

athletes (Gould et al., 1999; Hall, Jedlic, Munroe-Chandler, & Hall, 2007) and improve and even increase athletes' ability to use psychological skills (Vadocz et al., 1997). Thus, simply identifying the importance or suggesting the use of psychological skills is unlikely to result in officials employing these skills.

The International Federation of Association Football (FIFA) organization was one of the first officiating organizations to introduce sport psychology concepts, procedures and techniques when preparing the elite level soccer referees for the 2006 FIFA World Cup in Germany (Lopez & Falco, 2008). Although not an empirical investigation, all those involved in the psychological skills training reported positive results and felt the psychological training was very specific to their needs and helped them achieve 'optimum mental qualities' (e.g., remaining calm, focused and maintaining confidence; Lopez & Falco, 2008). This may serve as preliminary evidence that officials respond positively and are open to the introduction of psychological skills and that formal training of officials should incorporate teaching the use of psychological skills, similar to the initiatives taken with athletes and coaches.

Despite a recent conceptual framework suggesting psychological characteristics are the overarching component of successful refereeing (Mascarenhas, et al., 2005), it is unknown which psychological skills are those "psychological characteristics of excellence" and which are most relevant to an official's performance. Additionally, despite the recognition that psychological skills are essential to officiating, there is a lack of formal investigations on officials' use of psychological skills. Anecdotal evidence from elite officials, as well as an unpublished dissertation examining how Division 1 NCAA basketball officials cope with stressful game conditions (Brennan, 2001),

proposed that many elite officials employ psychological skills while refereeing. For instance, goal setting, positive self-talk, and visualization (imagery) were used most often during stressful game situations than were coping methods of emotional support, religion, and humor (Brennan, 2001). Although some gender differences emerged with respect to the psychological skills used most often, both male and female top ranked referees reported using positive self-talk most often to cope with stress while officiating.

Although Brennan's (2001) findings provided insight into the psychological skills being used by basketball officials, it was limited in that it only examined elite officials. As such, the competitive level at which one officiates may be an important variable to examine. Given that officials and athletes are the two primary performers during a competition, their experiences are similar and therefore comparable. Research with athletes has found that elite level athletes are more likely to employ a broader range of psychological skills (e.g., self-talk, goal setting, mental preparation, concentration, imagery, positive thinking, and relaxation) than lower level non-elite athletes and are generally more successful as a result (Gould et al., 2002; Thomas et al., 1999; Williams & Krane, 2001); we may find similar results with officials.

Given the advances made in understanding and recognizing the importance of psychological skills by top level athletes, coaches, and more recently officials, there remains a gap in the research for those psychological skills used by sport officials. The few studies examining Canadian basketball officials have focused on factors which influence decision making (MacMahon, Starkes, & Deakin, 2007), and their personality profiles (Balch & Scott, 2007). To date, there remain no empirical studies examining Canadian basketball officials' use of psychological skills during competition. Thus, the

purpose of the study was to explore the psychological skills most frequently utilized by Canadian basketball officials.

Based on the limited research conducted with officials and their use of psychological skills, it is hypothesized that officials will employ all eight psychological skills measured in the Test of Performance Strategies (TOPS). Furthermore, given the research that has been able to distinguish elite and non-elite athletes based on their use of psychological skills, (Gould et al., 2002; Williams & Krane, 2001), it is hypothesized that officials currently refereeing at higher levels (i.e., varsity college, varsity university, national, and international) will report a higher frequency of psychological skills than officials refereeing at lower levels (i.e., grade school, junior high and high school). In addition, based on the gender differences, albeit few, noted in Brennan's (2001) study, it is hypothesized that some gender differences will emerge between male and female officials' use of psychological skills.

Method

Participants

A total of 570 participants entered the study, however, 57 (i.e., 10%) participants were excluded from the analysis as those participants either chose to withdraw from the study ($n = 21$) or failed to complete the survey beyond the demographic section ($n = 36$). As such, the remaining participants included 513 male ($n = 455$) and female ($n = 58$) certified basketball officials who were currently officiating at any level in Canada. The participants ranged in age from 16 to 76 ($M = 45.85$; $SD = 12.94$) and had been officiating for an average of 15 years ($M = 15.47$; $SD = 11.86$). The sample included a representation of officials from every province across Canada with the exception of

Newfoundland and Labrador and the Northwest Territories. The majority of referees were from the provinces of Ontario ($n = 247$; 48.4%) and British Columbia ($n = 106$; 20.8%), followed by a lower representation from Alberta ($n = 50$; 9.8%), New Brunswick ($n = 42$; 8.2%), Nova Scotia ($n = 25$; 4.9%), and Saskatchewan ($n = 22$; 4.3%). The provinces of Manitoba, Nunavut, Prince Edward Island, Quebec and the Yukon made up the remainder of the sample with six or fewer participants from each. Thirty one percent of the sample indicated being high school or college educated, whereas the majority of the officials completed a university undergraduate degree (50.5%) and fewer being educated with a masters or doctorate level (18.3%). The majority of officials indicated being locally certified ($n = 501$) and registered as a national Canadian Association of Basketball Official (CABO) member ($n = 416$). Additionally, the sample included 133 officials who were currently officiating on a University panel and 82 participants indicated that they are internationally FIBA carded officials.

At present, the national officials' certification levels range from level 1 to level 5. There were 65 officials certified at Level 1, 114 certified at Level 2, 130 certified at level 3, 68 certified at Level 4, and 14 certified at Level 5. Alternatively, 116 officials indicated they were unsure of their certification level. Four hundred and sixty six officials indicated their province offered a provincially run improvement camp, while 307 reported that they had attended, and 122 indicated that their formal training as an official included discussion about the use of psychological skills while officiating. The majority ($n = 472$) of officials indicated they competed as a former athlete with many competing at the high school level ($n = 105$; 22.0%) and 50% competing at the provincial, varsity

college and varsity university level combined. Of those who formerly competed as an athlete, 56% indicated they used psychological skills during their playing career.

Participants were grouped into higher or lower level of officiating based on the level at which they were currently officiating. The lower level group ($n = 248$) officiated high school levels and below (i.e., elementary, junior high, high school levels), while the higher level ($n = 270$) officiated at the varsity college, varsity university, national, international or professional levels.

The demographic make-up of the current sample of Canadian officials is similar to reports from past research (Purdy & Snyder, 1985), which suggests that the typical basketball official is male and well-educated. Purdy and Snyder suggested, however, that the average official is under the age of 40, while the current study's sample had a mean age of 45.

Measures

Frequency of psychological skills. Officials completed the competitive version of the Test of Performance Strategies questionnaire (TOPS; Thomas et al., 1999) during their officiating season. The TOPS is comprised of 32 items, assessing eight psychological skills, each having four items. The psychological skills included positive self-talk, emotional control, automaticity, goal setting, mental imagery, activation, relaxation, and negative thinking (Appendix A). The TOPS was originally designed to measure the range of aforementioned psychological skills with athletes in both a competitive and practice setting. However, given that the current study was conducted online, the original instructions were altered as the participants were not circling, but in fact asked to “click” the appropriate number for each question (i.e., “Using the italicized

statement below, read each question and indicate by *circling* the appropriate number (1 to 5)”, was changed to read “Using the italicized statement below, read each question and indicate by *clicking* the appropriate number (1 to 5)”. Furthermore, given that officials do not consistently find themselves in a practice setting, they were only asked to complete the competitive version of the TOPS. Each question requires the official to respond, on a five-point Likert scale anchored at 1 (*never*) to 5 (*always*), indicating how often (during competition) they experienced a given statement.

In addition, the competition version of the scale was developed for a general sample of athletes, which utilized the language “in competition” or “during competition.” In order to make the statements relevant to officials any item which read “in competition” were changed to “in the game.” Furthermore, items which originally read “during competitions” were reworded to read “while officiating games.” A sample item from each psychological skill and how it was altered includes “I talk positively to get the most out of competition” (self-talk), was changed to read “I talk positively to get the most out of the game.” For emotional control the original item read, “My emotions keep me from performing my best at competition” and was changed to read “My emotions keep me from performing my best while officiating.” An original sample item for automaticity which read “During competition I perform on ‘automatic pilot,’ was changed to “While officiating games I perform on automatic pilot.” “I set very specific goals for competition (goal setting), now reads “I set very specific goals for officiating.” A sample imagery item, “I visualize my competition going exactly the way I want it to go,” was altered to read “I visualize my officiating performance going exactly the way I want it to go.” “I do what needs to be done to get psyched up for a competition” (activation), was

changed to read, “I do what needs to be done to get psyched up for a game.” Similarly, relaxation items, such as, “I am able to relax if I get too nervous at a competition,” was changed to read “at the game.” Lastly, negative thinking items, such as “I keep my thoughts positive during competitions,” also now reads “during a game.”

The current study demonstrated acceptable internal consistencies (.70 or greater; Nunnally, 1975) for all subscales of the TOPS, except the activation subscale ($\alpha = .68$). However, given that this study is the first to use the TOPS with a sample of officials, this level of internal consistency is considered acceptable (Nunnally, 1975).

Procedure

After receiving approval from the University of Windsor Research Ethics Board (REB), participants were recruited through snowball sampling. Snowball sampling involves sending the study information to relevant individuals who then forward the information onto their network of possible participants. Given the nature of snowball sampling, determining a rate of return is impossible. For example, it is unknown to the primary investigator who receives the study information beyond those who are initially contacted. At the outset, the primary investigator located the contact information of the president of each local officiating board (e.g., Windsor District Basketball Referee Association) across Canada. Each board president was sent the recruitment e-mail (Appendix B) with the request that they forward the e-mail to each active official in their association requesting the official’s participation in the study. Officials wishing to participate were directed to the study’s online link which required them to sign on to the study using a generic user ID and password. Participants were then directed to a welcome page (Appendix C), which outlined relevant information pertaining to the study

(e.g., primary investigator name, contact information, estimated time for completing the study, and benefits of participating in the research). Participants wishing to complete the study were asked to select the “click to participate” link directing them to the Letter of Information to Consent (Appendix D), which provided information on the study procedure and participant’s right to withdrawal. Participant consent was obtained when the individual selected the *“I agree to participate (click here to continue to the survey)”* link. Completion of the demographic questionnaire and online version of the TOPS took approximately 20 minutes. Upon completion, participants were thanked and provided with the option of entering a draw for a chance to win one of two \$50 gift certificates to Honig’s Whistle Stop.

Data Analysis

Descriptive statistics were calculated on the entire sample of officials in order to determine the frequency with which officials use each of the eight psychological skills. In addition, to ensure the subscales representing each psychological skill were not too highly correlated ($r > .90$; Tabachnick & Fidell, 2007), Pearson correlations were conducted between each competition subscale. Lastly, a Multivariate Analysis of Variance (MANOVA) was conducted to determine whether there were differences in the use of psychological skills between those who referee higher levels of competition when compared to those who officiate at lower levels, as well as between male and female basketball officials. This particular technique allows simultaneous analysis of multiple dependent variables (i.e., subscales of the TOPS), while also examining two or more independent variables (i.e., male versus female; lower versus higher level of officiating; Tabachnick & Fidell, 2007).

Preliminary tests were conducted to ensure the assumptions for conducting a MANOVA were not violated. The assumptions for conducting any parametric test stipulate that the sample be a random selection of the population. Specifically, assumptions which must be met in order to conduct a MANOVA include, normally distributed data, observations are independent, and homogeneity of covariance (Field, 2009). Measures of central tendency (mean, median, and mode) were calculated for each subscale and examined to ensure they had similar values, thus indicating that the distribution was normal. In addition, the analyses of the total skewness (e.g., ideal values fall between -2 and 2) and kurtosis for each subscale (e.g., ideal values fall between -3 and 3) and for each grouping variable were examined to confirm the sample was generally normally distributed (Garson, 2011). The subscales as well as the level grouping of officials did not violate normality, however given the small portion of female officials represented within the sample (11.3%), the gender grouping violated the assumption of normality as skewness and kurtosis fell outside the recommended values. Although there is evidence indicating that parametric tests are generally robust to violations of normality when sample sizes are equal, there was an unequal sample size of male referees ($n = 450$) to female referees ($n = 58$) and therefore, caution should be taken when interpreting gender differences (Field, 2009). The second assumption is that of independence of observations; measures to protect against violation of this assumption are embedded in the experimental design. Finally, the assumption of homogeneity of covariance was assessed with the use of Box's M test (Ntoumanis, 2001) and was found to be non-significant ($p > .05$), indicating there was no violation of the assumption of homogeneity of covariance. In addition, to test multicollinearity between the subscale

scores on the TOPS, Pearson correlations were calculated and revealed no violation of the assumption of homogeneity of covariance (Table 1; $r = < .90$; Tabachnick & Fidell, 2007).

Results

Correlations Between Subscales Measuring Psychological Skills

Correlations among each of the competition subscales of the TOPS are displayed in Table 1. Among the subscales, the most highly correlated psychological skills were between self-talk and automaticity ($r = .52, p < .001$), goal setting and automaticity ($r = .46, p < .001$), goal setting and activation ($r = .53, p < .001$), and activation and negative thinking ($r = .53, p < .001$). In summary, most psychological skills were unrelated to achieving automaticity, with the exception of self-talk and goal setting; thus, suggesting that officials who use self-talk and goal setting are likely to demonstrate higher levels of automaticity. Furthermore, with the exception of goal setting and negative thinking, all other psychological skills were unrelated to one's use of activation.

Use of Psychological Skills

Results confirmed the first hypothesis, indicating that officials employed all eight psychological skills measured by the TOPS. With respect to the psychological skills most frequently used by basketball officials, mean trends indicated that regardless of gender or level, officials report using psychological skills most to maintain their emotional control, and least for relaxation. Table 2 displays the means and standard deviations for the frequency of psychological skills used by Canadian basketball officials. Figure 2 provides a visual depiction of officials' use of the psychological skills.

To examine whether there were differences between lower level and higher level officials' use of psychological skills, as well as whether there were differences between male and female officials' use of psychological skills and higher level officials' use of psychological skills, a two-way MANOVA was performed. The level at which one officiates (i.e., lower level and higher level) and gender (i.e., male and female) were the two independent variables and the eight psychological skills measured by the TOPS served as the dependent variables.

Level of official. Results confirmed the second hypothesis, with mean trends indicating that officials currently refereeing at higher levels (i.e., varsity college, varsity university, national, and international) reported a higher frequency of all psychological skills than officials refereeing at lower levels (i.e., grade school, junior high and high school), with the exception of relaxation. The overall multivariate effect for level of officiating, was significant, Pillai's trace = .03, $F(2, 507) = 2.22, p < .05, \eta^2 = .03$. In addition, there were overall significant univariate effects found for the dependent variables of self-talk ($F(1, 506) = 7.06, p < .01, \eta^2 = .01$), automaticity ($F(1, 506) = 7.67, p < .01, \eta^2 = .01$), and imagery ($F(1, 506) = 5.46, p < .05, \eta^2 = .01$) subscales of the TOPS. Mean values for self-talk were then examined for the level of officiating, which revealed that higher level officials use significantly more ($M = 3.17$) self-talk than their lower level counterparts ($M = 2.97$). With respect to automaticity, mean values revealed that higher level officials ($M = 3.17$) reported higher levels than those officiating at lower levels ($M = 2.98$). Lastly, for imagery, mean values revealed that higher level officials ($M = 3.10$) also used significantly more than those officiating at lower levels ($M = 2.90$).

Table 3 displays the means and standard deviations for each of the TOPS subscales by level. Figure 3 provides a bar graph depicting the significant mean differences by level.

Gender of official. Examination of gender resulted in the emergence of differences between male and female officials' use of psychological skills, confirming the third hypothesis. The overall multivariate effect for gender of officials was significant (Pillai's trace = .04, $F(2, 507) = 2.89, p < .01, \eta^2 = .04$). General mean trends suggested male officials reported using emotional control, goal setting, activation, relaxation and activation more than female officials, whereas imagery, self-talk and automaticity were reported to be used by female more than male officials. Specifically, there were significant univariate effects found for self-talk ($F(1, 507) = 6.78, p < .01, \eta^2 = .01$) and automaticity ($F(1, 507) = 4.93, p < .05, \eta^2 = .01$). Mean values indicate that female officials ($M = 3.26$) used significantly more self-talk than male officials ($M = 3.05$), and more automaticity (females, $M = 3.23$) than male officials ($M = 3.06$). Table 4 displays the means and standard deviations for each subscale on the TOPS by gender. Figure 4 provides a bar graph depicting the mean differences by gender.

Interaction of gender by level of official. The interaction multivariate effect between gender of official and level of official was not significant: Pillai's trace = .05, $F(4, 507) = .297, p > .05, \eta^2 = .00$.

Discussion

The Cornerstones Performance Model of Refereeing (Mascarenhas et al., 2005) was the first step in recognizing the importance of psychological skills to officiating performance. Although researchers recognized the importance of psychological skills by placing "psychological characteristics of excellence" at its peak, the model is not without

its limitation given that research has yet to explore which psychological skills officials are using and which are most relevant to officiating performance (i.e., which skills comprise the “characteristics of excellence”). As such, the current study builds on the belief that psychological skills are essential to successful officiating and expands upon the Cornerstones Performance Model of Refereeing by illuminating the specific psychological skills being used by officials at various levels. As such, the current study’s results provide some preliminary evidence for which skills may be considered “psychological characteristics of excellence” for officials.

Overall, findings indicated that regardless of gender or level, officials reported using psychological skills most to maintain their emotional control and increase activation, and least to relax. Given that the role of an official is to evaluate relevant information (e.g., the play happening on the court) and make a decision on that particular play, their success depends on their ability to quickly access, retrieve, and evaluate relevant information in the sporting context. However, research has found that emotions can narrow the individual’s attention and could result in task-irrelevant processing (Easterbrook, 1959; Moran, 1996). Therefore, it is essential that officials effectively cope with the emotion involved during competition (i.e., emotional control), and not allow their own emotion to negatively impact their decision making (Richardson, 2005).

Given that officials and athletes are the two primary performers (i.e., performing sport action) in a basketball game, their experiences could be considered most similar and therefore comparable. Indeed, this seems to be true when comparing the current study’s results with officials to those with athletes. Hanin (2000), in his research with athletes, suggested that managing one’s emotions was essential to successful sport performance.

More generally, research with athletes has alluded to the idea that achieving and maintaining attentional control and concentration is difficult without the ability to control one's emotions (Thomas et al., 1999). Thomas and Over (1994) reported that golfers who had the ability to maintain emotional control had lower handicaps (i.e., superior performance). Similar to elite athletes who have a superior ability to effectively cope with negative feeling states (Bull, Shambrook, James, & Brooks, 2005; Gould et al., 2002), officials must maintain their optimal state of arousal by controlling their own emotional reaction, which may be evoked in response to continuous taunting, criticism or negative emotional reactions of athletes, coaches, parents and fans.

Officials also reported a moderate to high frequency of activation ($M = 3.63$ out of a possible 5), suggesting that raising psychological and physiological arousal is important while officiating. Although research has examined the detrimental impact emotions and arousal can have on performance, it is also important to consider the idea of optimal levels of activation and its influence on performance. Reaching a state of optimal activation for performance is thought to be individual and task specific, and requires the individual to generate enough energy (e.g., activation) to begin and maintain the effort to most effectively complete the task, without exceeding their zone of optimal functioning (Martens, 1987). Weinberg and Richardson (1990) noted the importance of officials to increase activation states as a means of being sufficiently energized by positive emotions (e.g., alertness, energy, enthusiasm, and vigor), with the goal of making prompt and definitive decisions. Activation is defined as the required level of cognitive and physical activity necessary for an individual to perform optimally given the task demands faced in sport (Hardy et al., 1996, Woodman & Hardy, 2001). Previous

research has consistently shown that activation remains one of the most frequently used psychological skills with athletes (Thomas et al. 1999). As such, it is likely that similar to athletes who manipulate their activation states in preparation for performance, officials are also activating their psychological and physiological states in order to perform their role effectively and possibly to counter the effects of being under-aroused (e.g., lack interest in the game, lethargic or bored; Weinberg & Richardson, 1990).

Although initially one may question how officials could report using both moderate to high levels of activation and low levels of relaxation, researchers have emphasised that the skill of raising physiological arousal is not the same as having the ability to lower physiological arousal (Hardy & Parfitt, 1991). Perhaps basketball officials do not rely on relaxation, given that previous research has found officials to report only a moderate amount of stress (e.g., Rainey, 1995; Rainey & Hardy, 1997; Rainey & Winterich, 1995; Stewart & Ellery, 1996). Furthermore, research has examined whether basketball referees were more likely to actively deal with an acute stressor or avoid the stress by ignoring it. Findings indicate that Level 1 Australian and Greek basketball referees tended to use more avoidant coping skills, whereas American referees employed different coping skills depending on the individual and the type of stressor (Anshel & Weinberg, 1995; Kaissidis-Rodafinos, Anshel, & Porter, 1997). As such, it is possible that officials in the current study do not report high level of relaxation because they actively and effectively avoid stress or do not appraise the situation as stressful. Furthermore, high school and college basketball officials reported experiencing significantly less anxiety after a game when compared to before the game (Burke, Joyner, Pim, & Czech, 2000). Given that officials in the current study were asked to recall their

officiating experiences retrospectively, perhaps the true level of stress or level of relaxation required during performance was underestimated.

Although the current study did not explore what psychological skills officials use to increase their energy levels or psych themselves up, the moderate positive correlation found between the subscales of goal setting and activation suggests that an official who uses goal setting is more likely to have the ability to increase their physiological arousal or vice versa. This finding is counter to research with athletes, which indicates that imagery and verbal persuasion (i.e., self-talk) are utilized most often to obtain optimal activation states for performance (Thomas et al., 2009). Overall, the findings from the current study indicate that officials are using moderate levels of self-talk, imagery and goal setting during performance. However, causality cannot be inferred based on correlations and therefore, it is unknown whether officials are using these skills specifically as a means of manipulating their activation states. In comparison to athletes in Taylor et al.'s (2008) study ($M = 3.71$, Olympic medalist; $M = 3.58$, Olympic non-medalist), officials in the current study reported using slightly less self-talk ($M = 3.07$), imagery ($M = 3.00$, officials; $M = 3.59$, Olympic medalist; $M = 3.82$, Olympic non-medalist), and goal setting ($M = 2.86$, officials; $M = 3.94$, Olympic medalist; $M = 4.12$, Olympic non-medalist; Taylor et al., 2008).

With respect to negative thinking, and counter to what might be expected, officials reported experiencing moderate levels of negative thoughts, including thoughts of failure and making mistakes. It is a fair assumption that during a sporting event unfavourable situations can unfold, be it for a coach, athlete, or official (e.g., an official makes a foul call on your team's best player). Beyond the objective characteristics of the

situation, the psychological effects of the situation on each participant are dependent on one's subjective interpretation (Lazarus, 1966). That is, an official has the ability to evaluate the situation and attend to either the positive or negative of a given stressful situation. Research has reported that in the general population, individuals who choose to attend to the negative aspects of stressful situations (i.e., negative thinking) report higher psychological difficulty and lower well-being (Goodhart, 1995). Moreover, research has posited that negative thoughts can impact performance through a misdirection of attention, and can result in feelings of inadequacy (Singer, 2002), which may interfere with an official's decision making. Officials are subjected to various environmental demands (e.g., experiencing ridicule, criticism and verbal abuse over a missed call; Kaissidia-Rodafinos et al., 1997), which if not dealt with effectively could result in negative thoughts. Therefore, in an effort to perform optimally, it is important that officials develop the psychological skills to appropriately deal with negative thoughts, such as self-talk and imagery use (Finn, 2008; Hardy, Gammage, & Hall, 2001).

Overall, despite lack of formal training in the use and benefits of psychological skills, basketball officials utilize psychological skills while officiating. Additional research with officials is needed to support the current study's findings as well as to determine if officials in sport other than basketball require different psychological skills to perform or if sport officials are not effectively utilizing the psychological skills most relevant to maximizing officiating performance.

Level of Official

The mean scores of the TOPS subscales indicated that officials refereeing higher levels of competition reported more frequent use of all psychological skills, with the

exception of relaxation, thus partially supporting our second hypothesis. Stress is defined as occurring when the perceived demands of the role are inconsistent with the individual's perceived ability to cope with those demands (Hardy, Jones, & Gould, 1996; Taylor, Daniel, Leith, & Burke, 1990). As such, one explanation for why lower level officials in the current study may have reported lower levels of relaxation while officiating reflects the lower level of perceived demands while officiating lower levels of competition. That is, higher level officials must effectively cope with higher demands while refereeing higher levels of competition (i.e., varsity college, varsity university, national, international, professional), such as being held to a more professional standard through game evaluations and greater importance is placed on the game outcome. With the exception of relaxation, the finding that higher level officials use more psychological skills than their lower level counterparts is consistent with research exploring athletes' use of psychological skills. That is, higher level athletes report more frequent use of psychological skills and experience greater performance benefits than lower level athletes (Thomas, Hanton, & Maynard, 2007; Thomas & Over, 1994). More specifically, in the current study, higher level officials reported using the psychological skills of self-talk and imagery significantly more than their lower level counterparts. These findings are congruent with the research conducted with elite NCAA basketball officials, who also reported positive self-talk, and visualization (i.e., imagery) as being used most frequently during stressful game situations (Brennan, 2001). Although not based on an empirical investigation, Weinberg and Richardson (1990) reported that "imagery is one of the most powerful mental techniques [an official] can use" (p. 21), and noted that it is important for officials to imagine themselves being successful (e.g., mentally rehearsing correct

officiating mechanics). Elite officials must effectively cope with the multitude of demands of officiating high performance athletes, including the physical demands of keeping up with the play and the psychological stress of making consistent judgments and effectively dealing with controversial situations (e.g., missing a call). Previous findings with officials reported that disruptive behaviour by coaches, such as verbal abuse, evoked the most stress for officials during competition (Burke et al., 2000). The top five stressors experienced by American and Australian basketball referees, included making the wrong call, verbal abuse by coaches, threats of physical abuse, being out of position when making a call, and experiencing injury (Anshel & Weinberg, 1995).

There is support for the current study's findings in research with coaches. Specifically, past research examining coaches' use of psychological skills found that coaches reported frequent use of both self-talk and imagery as a means of controlling their emotions, boosting confidence, maintaining focus, and remaining relaxed (Thelwell et al., 2008). Many of these same functions for imagery use and self-talk (reducing anxiety, Page, Sime, & Nordell, 1999; improving motivation, Martin & Hall, 1995; and increasing self-efficacy, Munroe-Chandler, Hall, & Fishburne, 2008) have been noted in an athlete sample. Positive self-talk and imagery have been reported to be the most influential in increasing athletic self-confidence, when the self-talk and images contain success and competency (Martin, Moritz, & Hall, 1999; Zinsser et al., 2006). Furthermore, in an examination of the relationship between psychological skills usage and competitive anxiety responses with a sample of swimmers, Fletcher and Hanton (2001) found that the psychological skills of self-talk and imagery accounted for 33% of the variance in the reduction of anxiety. Given the purported benefits of imagery and

self-talk for athletes (e.g., Ungerleider & Golding, 1991), it is not surprising that referees officiating higher levels of competition utilize self-talk and imagery more frequently than their lower level counterparts and that they may use imagery for many of the same purposes as those noted by athletes.

In addition, officials refereeing higher levels of competition reported significantly higher levels of automaticity while officiating (e.g., hand mechanics and floor procedures) than those officiating at the lower levels. Automaticity is defined by one's ability to perform without thinking about it, performing on "automatic pilot" or performing instinctively with minimal conscious effort (Thomas et al., 1999). Becoming automatic at the task-relevant skills first requires the individual to gain expertise through deliberate repeated practice (Ericsson, Krampe, & Tesch-Römer, 1993; Singer, 2000). Perfecting the science of officiating involves becoming automatic with floor mechanics and hand signals, which according to Deshaies (2003) can be achieved by any official who is willing to put in the time and effort. As such, it is possible that higher level officials have gained superior levels of automaticity through repeated deliberate practice (i.e., experience) and consistently demonstrate the officiating performance required to referee the highest levels of competition in Canada.

These findings are in support of previous research which consistently demonstrates that superior athletes (e.g., highly skilled golfers, Thomas & Over, 1994; Olympic medalists, Taylor et al, 2008) reported higher levels of automaticity. More specifically, athletes who reported higher levels of automaticity reported being more relaxed, having greater self-control, and showing superior concentration when it came to attending to the sport specific task (Cohn, 1991). Specifically, golfers' use of

automaticity was one of three significant predictors of better golf performance (Hayslip, Trent, Petrie, MacIntire, & Jones, 2010). Although higher level officials have likely gained the sufficient expertise required through deliberate repeated practice to become automatic with the required hand signals and floor mechanics (Ericsson et al., 1993; Singer, 2000), research has shown that external distractions (e.g., verbal argument for a coach after a call) or internal distractions (e.g., irrelevant thoughts or feelings) may interfere with performing skills automatically (Finn, 2008). As such, the use of psychological skills by higher level officials may assist in their ability to cope effectively, despite distractions, and continue to perform automatically.

Gender of Official

Another purpose of the current study was to examine whether male and female basketball officials differed with respect to their use of psychological skills. The overall findings supported the hypothesis indicating that there were differences between male and female officials' use of psychological skills. Specifically, female officials reported employing self-talk significantly more than male officials. These findings reflect what has been reported in the general psychologically literature examining the sex differences in coping behaviour. For example, a meta-analytic review summarizing gender differences in coping reported that women are more likely than men to cope with stress using strategies that involve verbal expressions to the self or others, to seek emotional support, ruminate about problems, and use positive self-talk (Tamres, Janicki, & Helgeson, 2002). Consistent with previous coping research, the current findings seem to suggest that female officials appraise and cope (i.e., use of self-talk) with the demands of officiating differently than their male counterparts.

Moreover, female officials may use more self-talk than their male counterparts as a means to affirm their position and performance within a profession that has been traditionally male dominated (Brennan, 2001). For example, similar to the corporate business setting, which has been traditionally male dominated the minority of women who do occupy a corporate role become subject to scrutiny in a way that men are not (Wajcman, 1998). Similarly, female officials may perceive additional stress related to being female in a traditional male role and use more self-talk as a means to cope with this additional stress.

It is also possible that significant differences found between male and female officials' use of self-talk may be attributed to males' reluctance to self-report the use of psychological strategies, such as self-talk, to counter psychological difficulties while officiating. Past research has found that men are less likely to report lower state and trait anxiety than females (Jones, Swain, & Cale, 1991).

Similarly, results indicated that female officials reported achieving a state of automaticity more frequently than male officials. It is possible that female officials' higher frequency use of self-talk influences their ability to perform without consciously thinking about it. For example, although the current study did not examine the type of self-talk being used by officials, it is possible that female officials are using instructional self-talk directed at improving their performance. Female officials may be using cue words to draw their attention to key aspects of performing a particular skill assisting in their ability to achieve automaticity. Further explanation for this finding may stem from the expectation of professionalism within officiating. It may be that female officials report higher degrees of automaticity than male officials because they deliberately focus

on and ensure their mechanics are crisp and automatic, thus leading to more success in a male dominated field. Corporate business women have reported experiencing scrutiny in a way that men do not (Wajcman, 1998); as a result, her female gender plays a significant role in how she behaves in the workplace and how she is treated in the role. Similarly, female officials may place additional importance of performing mechanics automatically with perfection, to legitimize and gain respect within the officiating profession.

Furthermore, it is important to note that researchers have critically examined these counterintuitive findings suggesting that it is possible that participants misinterpret the automaticity items as a suggestion that they are laissez-faire in their performance or care less about managing their performance (Thomas et al., 1999). As such, automaticity in officials requires further investigation.

Limitations and Directions for Future Research

Despite the breadth of research suggesting the many uses and benefits of psychological skills for athletic performance, there have been limited studies examining their use among sport officials. The current study's strengths include a large sample size representing an understudied population. The current study has provided insight into what psychological skills are being employed by basketball officials; however, many questions remain. For example, future research could replicate this study examining sport officials from an array of sports (e.g., football, hockey, volleyball, lacrosse) to examine whether there are differences between officials' use of psychological skills across all sports. It is possible the current results may not be generalizable to officials refereeing sports which have different demands or training than basketball (e.g., volleyball). . Given the quantitative nature of the current study, it is limited in providing insight into the specific

content and context of officials' use of psychological skills. Although the current study revealed that officials refereeing higher level games (i.e., varsity college, varsity university, national, international, professional) use more self-talk than their lower level counterparts (i.e., high school and below), the TOPS does not distinguish the type of self-talk being employed (i.e., instructional vs. motivational) or at which level and under what conditions it is operating (i.e., specific vs. general; Hardy et al., 1996). As such, future research is needed to examine the content and type of self-talk being used by more elite officials and whether it is instructional or motivational in nature. Future qualitative research is necessary to investigate and broaden our understanding of the specific content and effectiveness of psychological skills with sport officials, as well as provide a more in-depth understanding of female officials' use of psychological skills. In addition, psychological skill usage does not indicate skill ability. As such, a limitation of the current study is that the simple usage of these skills does not provide an indication of differences among individual officials' ability to employ those psychological skills. Additionally, as with any self-report measure, the results are subject to self-report bias as participants seek to be socially desirable. It is also important to note that results reflect what officials are able to recall retrospectively and as such may not be as accurate as if participants completed the TOPS promptly after officiating.

Furthermore, the current study focused primarily on the eight psychological skills measured by the TOPS and as such did not examine whether more elite officials possess and utilize the remaining psychological characteristics, which are said to comprise excellence, as outlined in the Cornerstones Model of Refereeing Performance (Mascarenhas et al., 2005). Consequently, investigations are needed to explore whether

additional psychological skills are being utilized by officials (e.g., commitment, planning, distraction control, response to pressure situations, and the referees' ability to realistically evaluate their performance).

Practical Implications

Basketball officials play a crucial role in how a game is executed; as such their psychological and physical functioning is of great importance. The findings of the current study have several practical implications not only for officials themselves, but also for the CABO and the National Certification Program for officials. The National Certification Program for officials and provincial camp organizers could use these results to emphasize the importance psychological skills play in the performance of officials and develop a mental training module which educates supervisors, evaluators and officials on the importance of effectively implementing psychological skills to benefit and optimize officiating performance. Moreover, these results provide insight into the psychological skills that higher level officials possess over their lower level counterparts. Those officials who are striving to referee higher levels of competition may want to learn and implement those psychological skills to assist in their officiating performance in order to reach a higher level of competition.

Psychological skills are being utilized by sport officials; however, more information is required to determine which psychological skills are most effective in improving the performance of officials. Arguably, in order for an official of any level to achieve the desired result of being fair and consistent in their calls, while experiencing the mental stress of performance, they must go beyond simply perfecting the rules and mechanics and begin to develop superior psychological skills. It is important that sport

psychology research recognize that the performance of sport officials is equally as important as athletes, as they are also crucial performers in the sport domain.

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Table 1

TOPS Subscale Correlations

	Self-talk	Emotional Control	Automaticity	Goal Setting	Imagery	Activation	Relaxation	Negative Thinking
Self-talk	-	-.238**	.524**	.330**	.355**	.215**	-.005	.237**
Emotional Control	-	-	-.340**	-.075	-.040	.328**	-.229**	.162**
Automaticity	-	-	-	.465**	.368**	.254**	.101*	.259**
Goal Setting	-	-	-	-	.349**	.533**	-.055	.512**
Imagery	.-	-	-	-	-	.387**	.046	.286**
Activation	-	-	-	-	-	-	-.063	.530**
Relaxation	-	-	-	-	-	-	-	-.137**
Negative Thinking	-	-	-	-	-	-	-	-

Note. **. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 2

Means and Standard Deviations for the Frequency of Psychological Skills Used by Canadian Basketball Officials

TOPS Psychological Skill	Mean	Std. Deviation	Alpha Level
Emotional Control	3.88	.63	.74
Activation	3.63	.68	.68
Negative Thinking	3.16	.48	.74
Automaticity	3.08	.56	.70
Self-talk	3.07	.59	.70
Imagery	3.00	.50	.82
Goal Setting	2.86	.62	.87
Relaxation	2.79	.42	.80

Note: Scores on the Test of Performance Strategies (TOPS) subscales range from 1 (*never*) to 5 (*always*).

Table 3

Means and Standard Deviations for each Subscale on the TOPS by Level

TOPS Psychological Skills	High School & Below		College & Above		Total	
	Mean	Std. Deviation	Mean	Std. Deviati on	Mean	Std. Deviation
Self -talk	2.97**	.58	3.16**	.58	3.07	.59
Emotional Control	3.79	.67	3.97	.58	3.88	.63
Automaticity	2.99**	.56	3.16**	.56	3.08	.57
Goal Setting	2.82	.61	2.90	.63	2.86	.62
Imagery	2.90*	.50	3.10*	.48	3.00	.50
Activation	3.53	.68	3.73	.67	3.63	.68
Relaxation	2.81	.44	2.78	.41	2.79	.42
Negative Thinking	3.12	.48	3.21	.48	3.17	.48

Note: Scores on the Test of Performance Strategies (TOPS) subscales range from 1 (*never*) to 5 (*always*).

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Table 4

Means and Standard Deviations for each Subscale on the TOPS by Gender

TOPS Psychological Skill	Male		Female		Total	
	Mean	Std. Deviation	Mean	Std. Deviation	Mean	Std. Deviation
Self-talk	3.05**	.59	3.26**	.54	3.07	.59
Emotional Control	3.90	.64	3.74	.62	3.88	.64
Automaticity	3.06*	.57	3.23*	.49	3.08	.57
Goal Setting	2.87	.63	2.80	.59	2.86	.62
Imagery	3.00	.51	3.07	.41	3.00	.50
Activation	3.65	.68	3.47	.69	3.63	.68
Relaxation	2.80	.43	2.71	.35	2.79	.42
Negative Thinking	3.18	.48	3.08	.45	3.16	.48

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

FIGURE CAPTIONS

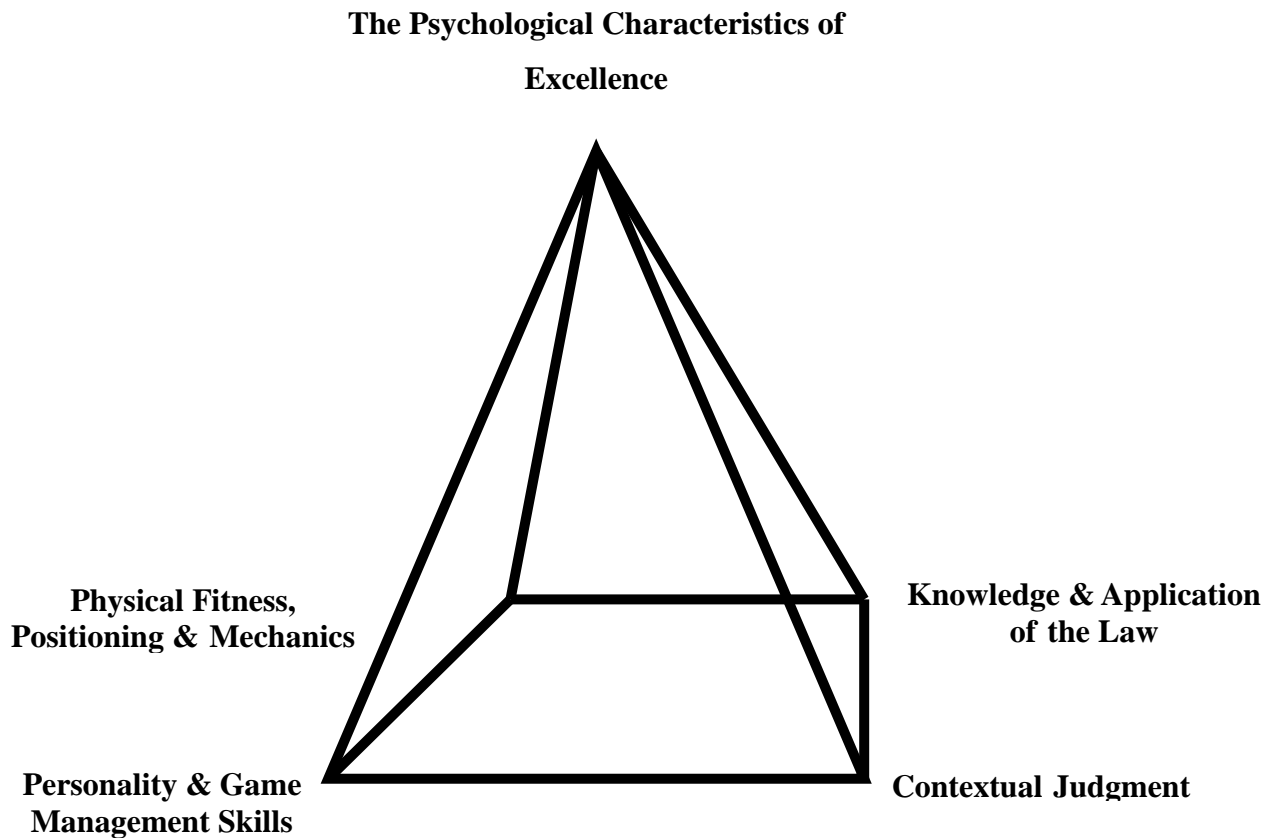
Figure 1. The Cornerstones Model of Refereeing Performance

Figure 1. Adapted from “Elite Refereeing Performance: Developing a Model for Sport Science Support,” by D. R. Mascarenhas, D. Collins, and P. Mortimer, 2005, *School of Health, Social Care, Sports and Exercise Sciences*, 19, p. 371. Copyright 2005 by Human Kinetics Inc.

Figure 2. Mean Trends of Officials' Use Psychological Skills as Measured in the TOPS

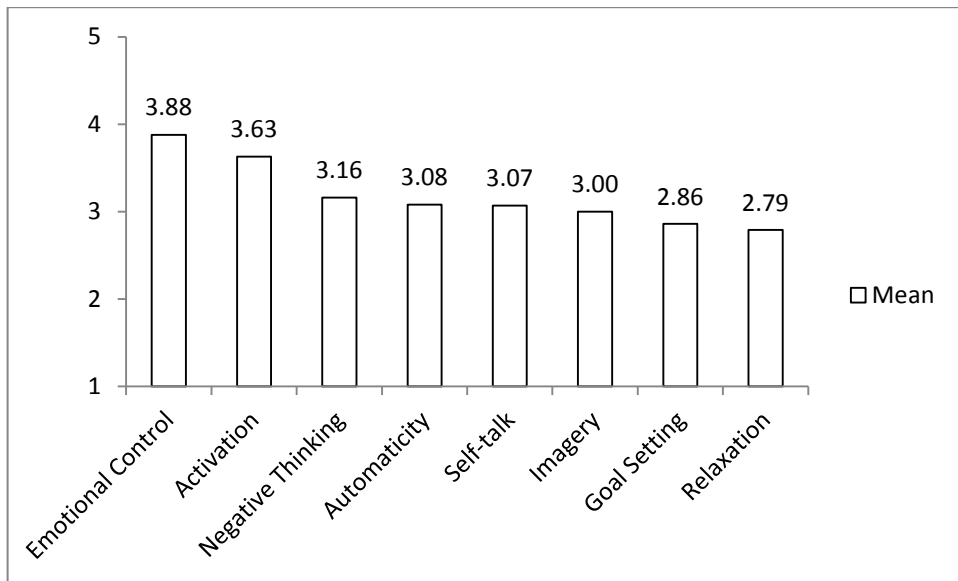


Figure 3. Mean Scores of the TOPS by Level of Official

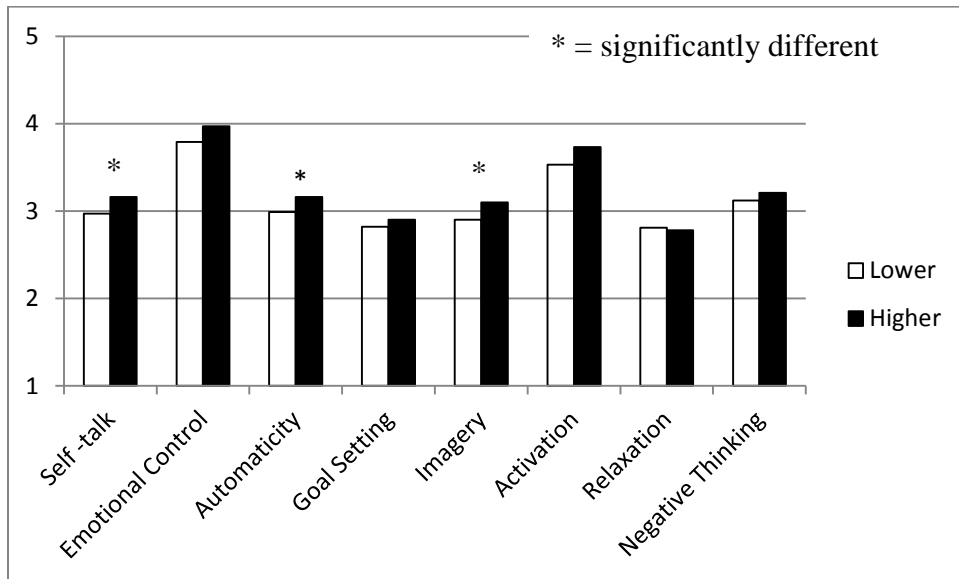
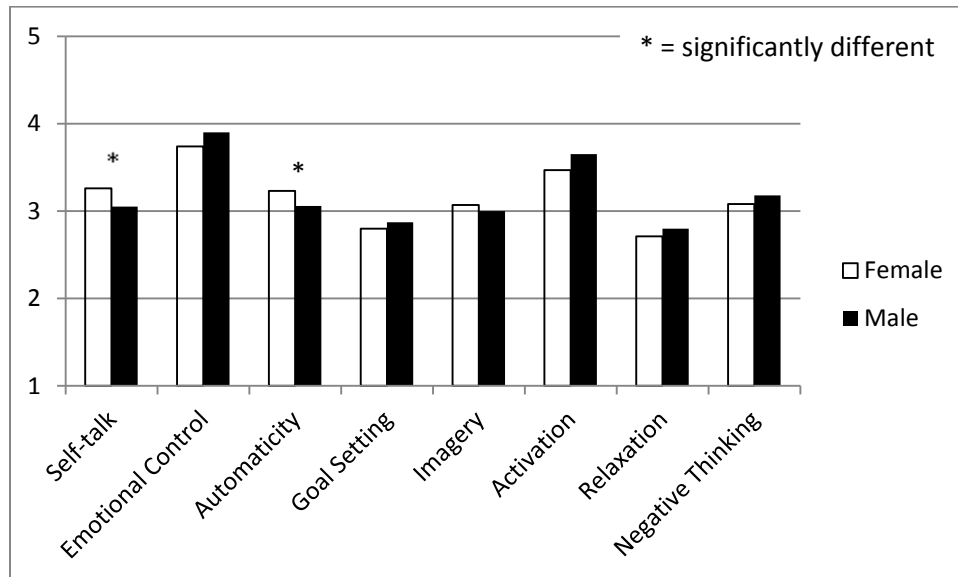


Figure 4. Mean Scores of the TOPS by Gender of Official



REVIEW OF LITERATURE

Introduction

Officiating has been described as a “masochistic” role, which suggests that individuals who become officials gain enjoyment from pain or degradation (Snyder & Purdy, 1985). However, research has found that sport officials are no different than the general population on personality characteristics, with the exception of being slightly more extroverted (Balch & Scott, 2007). Moreover, research findings indicate that officials report entering refereeing because of their enthusiasm for sport, the challenge, the excitement, to stay involved with sport, and as a way to give back to athletics (Furst, 1991; Purdy & Snyder, 1987). Perhaps the use of the term “masochistic” alludes to the cultural views surrounding officials, their role and what is deemed acceptable in the sporting context. For example, it has been said that what is acceptable in a sporting context often extends beyond behaviour deemed acceptable in society (e.g., a player may act aggressively by intentionally fouling another player to stop the game clock). At the most basic level, the role of an official is to apply the rules and regulations in accordance with the sport being played (Lopez & Falco, 2008). Similar to police officers, judges, and arbitrators, the profession of officiating requires enforcing norms (i.e., rules which govern the sport being played) in the presence of a social audience (Alker, Straub, & Leary, 1973). With this comes the inherent expectation that the individual demonstrates an expert competence and qualification for occupying the role of expert (Pargman, 2006). As such, appropriate training to effectively perform the role as official seems necessary.

Cornerstones Performance Model of Refereeing

Research has begun to realize that referees are also under pressure to perform and as such it became of interest to researchers to investigate the key areas of effective performance for officials (Mascarenhas, Collins, & Mortimer, 2005). This investigation resulted in the development of the Cornerstones Performance Model of Refereeing (see Figure 1); a pyramid framework identifying the key components of successful refereeing (Mascarenhas et al., 2005). The Cornerstones Performance Model of Refereeing was developed through the rigorous evaluation of 20 assessor reports (e.g., evaluations of English panel rugby referees), an analysis of the rugby training literature over more than a ten year span, performance profiling of 20 nationally ranked referees and an examination of all published research in sport science journals related to referee performance (Mascarenhas et al., 2005). Content analysis resulted in the development of the framework, which places psychological characteristics of excellence as its overarching component. Additionally, the model recognizes that the use of psychological skills directly impacts each of the four cornerstones of successful refereeing performance (i.e., knowledge and application of the law, contextual judgment, personality and management skills and fitness, positioning and mechanics) and as such is essential in reaching optimal performance (Mascarenhas et al., 2005). More specifically, the authors outline the psychological characteristics of excellence to include; commitment, goal setting, imagery, planning, distraction control, response to pressure situations, and realistic performance evaluation (Mascarenhas et al., 2005). Each of the four corners of the pyramid identify a key component of successful refereeing, for example, physical fitness, positioning, and mechanics and knowledge and application of the law are

described as the robotic skills of refereeing, which have a specific standard of application and are more easily trained. For example, physical fitness, positioning, and mechanics can be measured by a required standard and knowledge and application of the law includes decision making timing and consistency throughout a given performance. Whereas the remaining two corners (i.e., contextual judgment, personality and game management skills) are harder to train, given that they are humanistic elements of officiating which lack definite form (Mascarenhas et al., 2005). Contextual judgment includes understanding the intent of the game, environmental management and empathy for the participants, whereas personality and management skills encompass the official's body language, communication, personality, presence, integrity, image and personal management. Although research has suggested that these four key components of successful refereeing are impacted by the officials' use of psychological skills research, has yet to identify the important psychological skills which are most relevant to officials' performance and incorporate these in officials' training (Hardy & Parfitt, 1994).

Officials' Training

Becoming an official in any sport requires the individual to demonstrate mastery of the technical aspects, such as knowledge of the rules and mechanics. Similarly, referees (i.e., officials) are required to meet fitness standards which ensure they have the physical ability to keep up with the play. However, beyond the technical aspects of enforcing rules and being physically fit, officials must possess superior psychological skills to effectively perform their job under any circumstances (Deshaies, 2003). Sport psychologists have long since recognized that improving athletic performance entails more than technical knowledge and physical ability; however, the training of sport

officials in psychological skills continues to be limited (Weinberg & Gould, 2007). Thus, similar to athletes who simply train to be physically fit and run preset plays, officials who limit their repertoire of skills to the rules, mechanics, and physical fitness will fall short of optimal performance (Deshaies, 2003).

Basketball officials' training. Currently the basic training and selection of basketball officials is comprised of technical and physical preparation, for example, having a comprehensive understanding of the rules of play, understanding the floor mechanics, and proper game procedures (Deshaies, 2003). These two aspects of officiating, understanding what players can and cannot do on the floor and where to position oneself on the floor and how to proceed when a player commits an infraction, are essentially the 'science' or 'black and white' of officiating (Deshaies, 2003).

Becoming a certified official begins at the local level, within a township or city (e.g., Windsor District Basketball Referees Association). The individual begins as an associate member of the board, first attending local meetings and expressing interest in becoming a local board official. Local meetings are utilized to supply rule books, address rule changes, and discuss interpretations of the rules (Constitution of Ontario Association of Basketball Officials [OABO], 2010). The associate member is provided with on-floor training, which covers the floor mechanics, hand signals and provides the associate a chance to clarify rules or on-court procedures. Practical experience is gained by shadowing an experienced official on the floor and officiating scrimmages or exhibition games, while being provided on-court feedback and receiving a post-game debriefing. An associate official becomes an active official of the local board once they demonstrate

on-floor competency and attain a mark of 70% or higher on a written exam, testing their knowledge of game rules being played in that jurisdiction (Constitution of OABO, 2010).

Certification. Canadian officials can obtain certification from levels 1 through 5 and members are classified in accordance with the following: Level 1 and 2 are administered at the local board level, Level 3 is administered by the provincial association (e.g., OABO), Level 4 is administered by Canadian Association of Basketball Officials (CABO), and Level 5 is international standing, administered by FIBA (Fédération Internationale de Basketball Amateur; Constitution of OABO, 2010). In Ontario for example, Level 1 and 2 certified officials are required to pass Part I and Part II of the National Federation of State High School Associations exam (i.e., for officials in Ontario only), and the International Association of Approved Basketball Officials applicant exam (i.e., officials in every province across Canada). As an active member of a local board, the official must be evaluated on an annual basis and demonstrate competence in floor mechanics. In addition, an inexperienced novice official gains experience officiating lower level local games (e.g., elementary, novice, and atom), continues to learn through these experiences and receives advice and feedback from veteran officials.

For officials who are looking to move beyond the local level (e.g., Level 3 certified), they have the opportunity to attend provincial camps hosted by the provincial board (e.g., OABO). Officials must apply or be recommended by their local board officials to attend provincially organized development camps, which provide officials with the opportunity to attend class sessions on applying the rules, communicating with coaches and athletes, game management, and the professionalism required by an official

(Constitution of OABO, 2010). The camp also provides officials with on-floor sessions, as well as actual game experience accompanied by video evaluations with the use of a voice over (i.e., a provincial evaluator commentates during the official's game) on video. The campers are provided with an 'on the spot' debriefing (i.e., feedback regarding game procedures, judgment and errors made by the officiating crew) during stoppages in play and after each game by a provincial evaluator. Finally, an overall written evaluation covering various aspects of their performance is provided to the official and forwarded to the assigner and president of their local board (Constitution of OABO, 2010).

Evaluation of performance. A typical evaluation of an official's performance covers physical appearance, physical condition, confidence, game control, over officious (e.g., blowing their whistle so much that it impacts the flow of the game), reaction to players, coaches, and the crowd (e.g., maintaining emotional control). Moreover, mechanics are evaluated; for example, use and sound of their whistle, signals, floor position, and alertness to play situation (e.g., number of team fouls, clock management). Teamwork with officiating partner, on ball and off ball coverage, rules knowledge, and judgment consistency are also evaluated. Through development camps and practical experience, officials are recognized by their provincial board and given the opportunity to officiate at higher levels. The highest official (i.e., Level 4 and Level 5 certified) must first be recognized as a member of the CABO and an international FIBA member by obtaining a mark of 86% or better on a proctored CABO-FIBA exam, in addition to demonstrating competence in floor mechanics (Constitution of OABO, 2010). At the highest level of officiating, the Executive Officers of CABO and FIBA consult with the Executive Committee and put forth top quality officials to work national and international

competitions, such as Junior Nationals, World Championships, and the Olympics. As a result, officials who have strived to officiate at the higher levels (e.g., CIS, National Competitions) are subjected to evaluation at every competition and are assigned future games according to their performance as determined by a provincial evaluator (Constitution of OABO, 2010). Throughout the formal training and additional development camps, it becomes apparent that training officials involves mainly a focus on physical techniques and demonstrating mastery of the rules, with no attention given to teaching officials about psychological skills and their benefits in relation to their performance as an official.

Research with Basketball Officials

Preliminary research with basketball officials examined the effect of audience presence on basketball officials' behaviours and their ability to achieve consistency while attempting to enforce the formal rules (Alker et al., 1973; Askins, Carter, & Wood, 1981). This sociological research recognized that there is both a technical (i.e., being capable of detecting an infraction in relation to the rules) and a social (i.e., considering the social context in which the rule is being enforced) reality of officiating. For example, when enforcing the formal rules of a basketball game, the official may use dramatics to legitimize a controversial or unpopular call. Askins et al. also noted that decision making among officials is influenced by a variety of factors, including understanding the spirit of the rules, being consistent in calls, and keeping order within the game. Similarly, research has examined the influence of various factors on referee decision making and judgment in a variety of sports (Brand, Schmidt, & Schneeloch, 2006; Dohmen, 2005; Nevill, Balmer, & Williams, 2002; Snyder & Purdy, 1987). Findings indicate that

decision making by officials is influenced by previous judgments made by the official throughout the contest (e.g., selectively enforcing the rules in accordance with previous calls or the context in which the infraction takes place; Brand et al., 2006) and priming statements (MacMahon, Starkes, & Deakin, 2007). Specifically, research examining referees' decision making reported that decisions in a given game situation are influenced by previous calls made throughout a game (Brand et al., 2006). Moreover, researchers have found that the use of a priming statement (i.e., watch for defensive fouls) before viewing a video-clip influenced basketball officials' decision making (MacMahon et al., 2007). Hack, Memmert, and Rupp (2009) posited that when refereeing a particular game situation the official must take into consideration many factors beyond simply applying the written rules of the game. In other words, more successful officials go beyond simply understanding and applying rules; they also have a grasp on the art of officiating. The art of officiating encompasses having a feel for the game (i.e., applying the rules realistically, as opposed to literally and thus minimizing unnecessary stoppage in play) and understanding the spirit and intent of the game (Plessner & Betsch, 2001). More specifically, a referee is expected to apply the rules, while recognizing advantage and disadvantage situations of the particular play (Hack et al., 2009). Consequently, there are many factors which may influence an official's decision making, and these go beyond simply applying the rule book (Hack et al., 2009).

Research has also investigated high school basketball officials' characteristics and personalities (Purdy & Snyder, 1985; Scott & Scott, 1996). Findings indicate that the typical basketball official is male, married, under 40 years of age, well educated, the eldest child, a professional, and politically conservative (Purdy & Snyder, 1985).

Moreover, several researchers have found basketball officials tend to be extroverted (Balch & Scott, 2007), and possess sensing and judging personality types (Scott & Scott, 1996).

Those studies with officials reaching beyond personality types have examined both the types of stress experienced by officials, including the impact of experiencing assaults, as well as the magnitude of such stress (e.g., Anshel & Weinberg, 1995; Rainey & Duggan, 1998; Rainey & Winterich, 1995; Stewart & Ellery, 1996; Stewart, Ellery, Ellery, & Maher, 2004). Several researchers have suggested that officials report experiencing a moderate amount of stress (e.g., Rainey, 1995; Rainey & Hardy, 1997; Rainey & Winterich, 1995; Stewart & Ellery, 1996). Expanding on these findings, the personal and situational factors which determine how an official copes with acute stress have been examined (Kaissidis-Rodafinos, Anshel, & Porter, 1997). More specifically, researchers were interested in whether basketball referees are more likely to actively deal with an acute stressor or avoid the stress by ignoring it. On the one hand, findings indicate that Level 1 Australian and Greek basketball referees tended to use more avoidant coping skills, whereas American referees employed different coping skills depending on the individual and the type of stressor (e.g., situation; Anshel & Weinberg, 1995; Kaissidis-Rodafinos et al., 1997). In support of the latter finding, a study examining Greek basketball referees concluded that their coping strategy also varied across situations (Kaissidis-Rodafinos & Anshel, 2000).

Perhaps providing the most insight into how elite basketball officials cope with the various stressors of officiating is a two phase unpublished dissertation (Brennan, 2001). In the first phase, Brennan qualitatively investigated the coping skills of 212

Division 1 NCAA referees. Phase two of the study involved a qualitative follow-up on a subset ($n = 30$) of the original sample, investigating the most frequent coping methods, thus gaining a more in-depth understanding of the referees' personal experiences.

Brennan found that elite level officials employed psychological skills while refereeing. More specifically, goal setting, positive self-talk, and visualization were used more often during stressful game situations than the coping methods of emotional support, religion, and humour. Positive self-talk was ranked as the number one most effective psychological skill used by male and female top ranked referees during stressful game situations. Female referees ranked visualization and goal setting as the second and third most effective coping strategy, whereas male officials ranked humor and emotional support as the second and third most effective ways to cope with stressful situations while officiating. With the exception of less experienced officials reporting more use of religion, no significant differences in the use of psychological skills were found between more (i.e., 15 or more years of officiating) and less (i.e., less than 15 years) experienced referees. In addition, female officials reported utilizing all four coping methods (i.e., mental toughness skills, emotional support, religion/spiritual beliefs, humor) significantly more than male officials (Brennan, 2001). Currently research on basketball officials has described their personalities, the sources and magnitude of stress experienced during performance, coping style, as well as the social and situational influence on decision making. However, little has been accomplished in studying officials' use of mental skills and the potential implications on officials' performance.

Environmental Demands

As a result of the increased societal value placed on athletic success, the pressure to perform is heightened (Cox, 2007). Moreover, as media coverage and financial investment in sport increases, so does the popularity and seriousness of performance outcomes, resulting in a heightened interest among athletes and coaches to learn and apply psychological skills (Cox, 2007; Weinberg & Gould, 2007). Consequently, the pressure to perform places increased stress on all participants (i.e., athletes, officials, and coaches) involved. Performance stress has been found to influence athletic performance among elite and non-elite athletes (e.g., Jones, Hanton, & Swain, 1994). With the pressures in sport, officials are held to higher standards and experience demands to perform flawlessly (Mascarenhas, Collins, Mortimer, & Morris, 2005; Plessner & Betsch, 2001). In the presence of parents, friends, fans, teammates, and coaches, athletes often experience positive reinforcement for success through the form of cheering, positive comments and gestures (e.g., high five). Conversely, the success of officials often goes unnoticed, unappreciated and they rarely experience positive reinforcement throughout competition (Weinberg & Richardson, 1990). Moreover, any type of mishap, fault or failure on the part of the official becomes highly scrutinized by athletes, coaches, and fans (Weinberg & Richardson, 1990) and acts as a potential source of stress for the official (Anshel & Weinberg, 1995).

Psychology of Officiating

Stress. There are a multitude of demands placed on an official when refereeing a game (e.g., the physical demands of keeping up with the play; making consistent judgments). Most of the research on sport officials has focused on examining the unique

pressures and sources of stress they face during competition (Anshel & Weinberg, 1995; Rainey, 1995, 1999; Rainey & Hardy, 1997). Stress is defined as occurring when the perceived demands of the role are inconsistent with the individual's perceived ability to cope with those demands (Hardy, Jones, & Gould, 1996; Taylor, Daniel, Leith, & Burke, 1990). When comparing the sources of stress experienced by athletes (Cohn, 1991; Gould, Horn, & Spreeman, 1983), American and Australian basketball officials reported experiencing similar sources of stress (Anshel & Weinberg, 1995). Similar to athletes (Cohn, 1991; Gould et al., 1983; Scanlan, Stein, & Ravizza, 1991), sport officials experience both physical and psychological stress related to sport performance (Anshel & Weinberg, 1995). Sport officials face unique sources of stress which include verbal abuse from athletes and spectators (Goldsmith & Williams, 1992; Taylor & Daniel, 1987). An early study conducted by Burke, Joyner, Pim, and Czech (2000) reported that disruptive behaviour by coaches, such as verbal abuse, evoked the most stress for officials during competition. More specifically, high school and college basketball officials reported experiencing significantly less cognitive anxiety after a game when compared to before the game (Burke et al., 2000). Furthermore, research identified that the main sources of stress among basketball officials included interpersonal conflict, fear of physical harm, time pressure, and performance concerns (Rainey, 1999). Some of these sources of stress are similar to the top five stressors experienced by American and Australian basketball referees, which included making the wrong call, verbal abuse by coaches, threats of physical abuse, being out of position when making a call, and experiencing injury (Anshel & Weinberg, 1995). An additional difficulty for officials is that players often do not perceive themselves as violating the rules, which conversely

may evoke feelings of anger or disagreement by an athlete (Snyder & Purdy, 1987). As well, controversial situations may arise when an official misses a call which could result in further psychological stress for the official.

Stress, which has the potential to negatively impact one's psychological and physical health, can also impede an official's ability to perform his role. An individual's cognitive and psychophysiological processes can be affected when experiencing acute stress (Rawstorne, Anshel, & Caputi, 2000). More specifically, one's concentration, attentional focus, effort, energy expenditure, performance efficiency, and optimal arousal can be affected by stress (Rawstorne et al., 2000). In a study with soccer officials, Taylor and Daniel (1987) found that stress resulted in an internal focus, which negatively impacted officials' performance. Given that research suggests that officials constantly deal with stress (Anshel & Weinberg, 1995), psychological skills would be an effective tool to manage and control stress thereby guarding against the negative impact stress can have on performance.

Burnout. Health psychology research has found that an individual's quality of life can be negatively affected by stress (Denson, Spanovic, & Miller, 2009). A direct connection between an individual's ability to cope with acute stress and one's performance and personal satisfaction in sport competition has also been reported (Anshel, 1990). Furthermore, ineffectively coping with the demands of a competition may lead to maladaptive behaviours (e.g., substance abuse) and eventually burnout (Rainey, 1999). Burnout is characterized by depersonalization, reduced feelings of accomplishment, isolation, and feeling of emotional and physical exhaustion (Weinberg & Richardson, 1990). Research examining sport officials has found that burnout predicts

intention to terminate (Taylor et al., 1990). Given that officials are susceptible to human error, calling a “perfect game” is nearly impossible. Furthermore, despite the accuracy of any given call, the official may be subject to undeserved criticism. This is captured by the following quotation from a soccer referee: “Almost every time you blow the whistle, you upset half the players and at least half the crowd” (“Learning English”, 2006, para. 9). Thus, the ability to cope with the stress of criticism or recovery from a mistake (e.g., a missed or an incorrect call) is critical to the official’s immediate performance in the present game, as well as the longevity of one’s officiating career.

Key Psychological Skills Relevant to Performance

Performance skills are defined as the mental or psychological skills necessary to execute the required sport specific skills (Vealey, 2007). These psychological skills, identified as significantly relevant to athletic performance, include self-talk, emotional control, automaticity, goal setting, imagery, activation, and relaxation (Hardy, Roberts, Thomas, & Murphy, 2010; Thomas, Murphy, & Hardy, 1999). Initial research focused on examining the underlying psychological attributes of the most successful elite performers, their mental characteristics and psychological profiles (Gould, Dieffenbach & Moffett, 2002; Orlick & Partington, 1988; Taylor, Gould, & Rolo, 2008). Conversely, other researchers examined whether there were notable differences between the cognitive skills used by athletes who were more successful as opposed to less successful (Gould, Weiss, & Weinberg, 1981; Mahoney & Avenier, 1977; Mahoney, Gabriel, & Perkins, 1987; Smith, Schultz, Smoll, & Ptacek, 1995; Thomas et al., 1999). Researchers have consistently found that the most successful athletes exhibited superior concentration, high degrees of self-confidence, were more task-oriented, experience lower levels of anxiety

and utilized positive thoughts and positive imagery to achieve success (Gould, Eklund, & Jackson, 1992; Weinberg & Gould, 2007). Understanding the psychological skills utilized by the most successful athletes provides insight into which mental skills are most relevant in achieving optimal athletic performance, and in turn informs researchers on the useful psychological skills that may contribute to an official's performance. Although Weinberg and Richardson (1990) identified the six most important assets of good officials, which included consistency, fairness, mental toughness, quick and accurate decision making and calmness, this remains anecdotal and has not been empirically investigated.

Many athletes and coaches have recognized that emotional arousal plays an essential role in reaching optimal performance (Weinberg & Gould, 2007). Any individual seeking to perform optimally must first understand what level of emotional arousal results in their best performance (Weinberg & Richardson, 1990). The inverted-U hypothesis has been used to describe the relationship between arousal and performance, which postulates that increases in arousal (e.g., being energized) results in performance benefits, but only to a certain level (i.e., optimal level; Martins, 1987). Arousal beyond the optimal level (e.g., level of stress resulting in distractions) results in a decline in performance. Given the curvilinear relationship between arousal and performance, it is thought that optimal performance occurs at moderate levels (e.g., low levels of arousal characterized by lethargy, boredom; high levels of arousal characterized by nervousness, tension, or anger). However, research has since found that the optimal level of arousal may vary according to the individual (Jokela & Hanin, 1999). More recently, sport psychology has shifted to endorse the individual zones of optimal

functioning (IZOF) model, which was developed based on the observation of elite athletes in naturalistic settings (Hanin, 1997). By examining elite athletes' state anxiety and performance, Hanin put forth the idea that the moderate level of arousal is not always associated with enhanced performance. Rather, each athlete has an individual optimal level of arousal (i.e., low, medium, high) and intensity zone of anxiety which results in enhanced performance (Jokela & Hanin, 1999). Although individual and task specific, reaching a state of optimal emotions for performance requires the performer to generate enough energy (e.g., activation) to begin and maintain the effort to most effectively complete the task, without exceeding their zone of optimal functioning. Thus, through repeated experience an individual learns how to attain their ideal state of self-regulation in order to execute the task most effectively (Singer, 2002). Similarly, officials must maintain their optimal state of arousal by controlling their own emotional reaction which may be evoked in response to continuous taunting, criticism or negative emotional reactions of athletes, coaches, parents and fans.

Emotional control. The effects of emotions on performance are thought to be categorized in three separate areas including physiological, cognitive, and motivational (Lazarus, 2000; Vallerand & Blanchard, 2000). Physiological arousal accompanied by emotions may include increased muscular tension, affecting motor control and coordination, and thus, negatively impacting the performer's ability (e.g., shooting a basketball, using proper game mechanics; Noteboom, Barnholt, & Enoka, 2001; Oxendine, 1970). Moreover, the cognitive consequences emotions have on performance are thought to affect attention and decision making (Uphill, McCarthy, & Jones, 2009). Research by Easterbrook (1959) suggested that emotions influence attention by

narrowing the performer's attention, which may act to improve performance (e.g., the performer does not focus attention on irrelevant cues), or negatively impact performance (e.g., the performer misses task relevant cues). For the most part, anxiety and emotions have been found to result in task-irrelevant processing (Moran, 1996), which is illustrated by a basketball player who is angry and focuses his attention on a debatable decision made by the official potentially interfering with their ability to focus on sinking a foul shot (Uphill et al., 2009). According to Scharz (2000), emotions impact working memory and thus any task which requires processing information and decision making will be impacted by arousal. More specifically, Scharz believes that arousal (e.g., anxiety) has the potential to impair the performer's ability to access, retrieve, and evaluate relevant information in the sporting context.

Basketball is described as a continuous game which can prove emotional for all participants involved (Lazarov, 2006). Hanin (2000) found that athletes experience both positive and negative emotions before, during, and after competition. Furthermore, elite athletes have a superior ability to effectively cope with negative feeling states (Bull, Shambrook, James, & Brooks, 2005; Gould et al., 2002). Similarly, Richardson (2005) noted the importance emotional intelligence and emotional control plays in officiating. More specifically, he wrote, "officials, who cannot control their emotions, will find themselves fighting inner battles" (Richardson, 2005, p. 43), suggesting that officials unable to regulate their emotions will struggle with performing their role effectively. Weinberg and Richardson (1990) linked being an effective official with being energized by positive feelings and emotions. Given the intense emotion involved during competition, an official must maintain self-control and not allow their own emotion to

negatively impact their thoughts, as this could potentially impede their decision making during the competition (Richardson, 2005). The process of energy management (i.e., maintaining optimal psychological and physical energy levels) is crucial to performance, which requires the performer to effectively manage feeling states such as arousal, anxiety, anger, excitement, and fear (Vealey, 2007). Although not a scientific finding, Richardson alluded to the idea that officials' success is affected by their ability to control their emotional arousal. He suggested relaxation techniques (e.g., visualization, breathing control) as methods of clearing one's mind and possessing energy without tension. According to Weinberg and Richardson, mental relaxation skills are just as important as physical relaxation before, during and after competition.

Relaxation. Physical and psychological relaxation techniques have commonly been used to reduce stress before, during or after competition as a means to cope with the effects of arousal on performance (Thomas, Mellalieu, & Hanton, 2009). For example, applied relaxation techniques are utilized as a means of obtaining physical relaxation, such as progressive mediation relaxation (Jones, 1993) and biofeedback training (Pargman, 2006). Additionally, psychological relaxation targets an individual's cognitive stress in relation to performance and includes techniques such as thought stopping, positive thought control, and calming imagery (Thomas et al., 1999; Zinsser, Bunker, & Williams, 2006). For an individual to reach their optimal level of functioning, the use of relaxation may be necessary if arousal levels exceed the individual's optimal level for enhanced performance. Applied research examining the effectiveness of psychological skills interventions, consistently reports increases in performance from pre to post intervention (Thelwell, Greenlees, & Weston, 2006). Researchers argue that relaxation

gives the performer a greater perception of control of physical and psychological demands throughout performance and also maximizes the performer's cognitive resources available to perform the task demands (Landers & Boucher, 1998; Thelwel et al., 2006). Moreover, it is thought that relaxation benefits attentional focus during performance, or following incorrect decision making, by allowing a performer to maintain their optimal level of functioning following errors (Hanin, 2000). Similar to athletes, officials must remain physically and psychologically calm during stressful game situations, or following an error, as emotional control is critical to performance (Weinberg & Richardson, 1990). Relaxation is related to poise, such that the official's ability to remain poised during a stressful game situation is directly associated with the psychological skill of remaining relaxed (Weinberg & Richardson, 1990).

Activation. Although research has examined the detrimental impact arousal can have on performance, it is also important to consider the idea of optimal levels of activation and its influence on performance. Activation is defined as the required level of cognitive and physical activity necessary for an individual to perform optimally given the task demands faced in sport (Hardy et al., 1996, Woodman & Hardy, 2001). Activation has been described by athletes as getting "pumped up or psyched up" for a performance (Mellalieu, Hanton, & Shearer, 2008). Researchers have examined the psychological skills athletes use most often to obtain optimal activation states for performance (Thomas et al., 2009). The findings indicate that imagery and verbal persuasion are utilized most often (Thomas et al., 2009). In an attempt to broaden the understanding of precompetitive activation state, Mellalieu et al. qualitatively explored rugby players' cognitions, feelings, and behaviours prior to an international competition and found they

experienced a wide range of emotions. More specifically, the interviews revealed that the athletes utilized cognitive and motivational based imagery and self-talk as a means of manipulating activation states (e.g., intensifying the affective experience, feeling energized, aggressive, confident, and anticipating the competition; Mellalieu et al., 2008). Based on these findings, it is also essential to consider that regulating one's arousal may require increasing intensity of arousal as opposed to reduction (e.g., relaxation). Similarly, officials who lack interest in the game, are lethargic or bored, will also have difficulty performing their role effectively (Weinberg & Richardson, 1990). Thus, in order for officials to be prompt and definitive in their decision making, it is necessary to be sufficiently energized by positive emotions (e.g., alertness, energy, enthusiasm, and vigor; Weinberg & Richardson, 1990).

Negative thinking. In contrast to the documented benefits associated with positive thinking (e.g., increased self-confidence; Finn, 1985), negative thinking has been linked with ineffective coping during performance, resulting in decrements to athletic performance (Hull, Holt, & Polman, 2005). It is a fair assumption that during a sporting event unfavourable situations can unfold, be it for a coach, athlete, or official (e.g., an official makes a foul call on your team's best player). Beyond the objective characteristics of the situation, the psychological effects of the situation on each participant are dependent on one's subjective interpretation (Lazarus, 1966). That is, the performer has the ability to evaluate the situation and attend to either the positive or negative of a given stressful situation. Research has reported that in the general population, individuals who choose to attend to the negative aspects of stressful situations (i.e., negative thinking) report higher psychological difficulty and lower well-being

(Goodhart, 1995). Thoughts have real implications, whether momentary or longer lasting, as they influence the overall perceptions of oneself (e.g., self-esteem) and how an individual views the world (Goodhart, 1995). Moreover, research has posited that negative thoughts can impact performance through a misdirection of attention, can result in feelings of inadequacy, which may interfere with the automaticity of skills (Singer, 2002). With respect to elite athletes, research has found that the personality characteristics of the most successful athletes (i.e., national and Olympic runners, rowers and wrestlers) possessed a more positive mental state (Morgan, 1980). Officials are subjected to various environmental demands (e.g., experiencing ridicule, criticism and verbal abuse over a missed call; Kaissidia-Rodafinos et al., 1997), which if not dealt with effectively could result in negative thoughts. Therefore, in an effort to perform optimally, it is important that officials develop the psychological skills to appropriately deal with negative thoughts, such as self-talk and imagery use (Finn, 2008; Hardy, Gammage, & Hall, 2001).

Self-talk. The content of athletes' self-talk and the impact of both positive and negative self-talk on athletic performance has been of interest to researchers (Dagrou, Gauvin, & Halliwell, 1991, 1992; Hardy et al., 2001; Van Raalte, Brewer, Rivera, & Petitpas, 1994; Van Raalte et al., 1995). Theodorakis, Weinberg, Natsis, Douma, and Kazakas (2000) defined self-talk as "what people say to themselves either out loud or as a small voice inside their head" (p. 254). More recently researchers have posited that self-talk is a multidimensional, dynamic construct, which can serve an instructional or motivational function (Hardy, 2006). Specifically, talk which is directed at improving performance is thought to be instructional in nature (e.g., the use of cue words to draw an

athlete's attention to key aspects of performing a particular skill and instructional self-talk can function on a specific or general level; Hardy et al., 2001), whereas motivational self-talk can serve various functions related to motivation. An example of specific instructional self-talk, which may assist in the execution of a specific skill for an official is, "strong crisp whistle, straight arm and tight fist on the foul call." Conversely, a statement such as, "I need to get into position every time down the floor to referee the defense," is an example of general instructional self-talk, which is aimed at the official's overall performance (Hardy, Hall, & Hardy, 2005). Furthermore, the use of motivational self-talk has been reportedly used by athletes to remain focused, maintain self-confidence, remain mentally ready and cope in difficult situations (Hardy et al., 2001). In addition, positive self-talk and imagery have been reported to be the most influential in increasing athletic self-confidence, when the self-talk and images contain success and competency (Martin, Moritz, & Hall, 1999; Zinsser et al., 2006). Thus, a statement such as, "one more quarter to referee, you got this" or "stay focused for this last play down it could determine the end result of the game" are examples of motivational self-talk, which could motivate and improve the concentration of an official, similar to what has been shown with athletes. Conversely, research examining athletes' performances reported that those who use a high percentage of negative self-talk often experience decreased motivation, concentration, confidence, and anxiety (Weinberg & Gould, 2007; Van Raalte et al., 1994).

Of two hundred and twelve Division 1 basketball officials who were surveyed, three quarters (75%) of female officials and almost half (42%) of male officials reported using positive self-talk immediately after a confrontation with a coach, missing, or

making the wrong call (Brennan, 2001). Furthermore, during stressful game situations, both male and female referees ranked positive self-talk as the single most important/effective coping method (Brennan, 2001). Referees reported using positive self-talk in various situations (e.g., after missing a call, early in the game, after talking to a coach, when a coach pushes the boundaries with inappropriate language, in the locker room, during a time-out, when tension is the highest late in the second half, and on the drive home after the game). Based on these findings Brennan concluded that successful officials use both positive and negative self-talk depending on what the situation dictates.

Imagery. Imagery has been described as an experience that simulates or mimics real experience (White & Hardy, 1998). That is, an awake and conscious individual can simulate seeing, feeling, smelling, tasting or hearing a real experience in the mind in the absence of physical stimuli (White & Hardy, 1998). Similar to self-talk, imagery is said to function at a specific and general level, which serves to mediate behaviour through both cognitive and motivation functions (Paivio, 1985). For example, images can mimic the rehearsal or execution of a specific skill (e.g., an official imaging himself successfully executing the mechanics of a foul call), or skills (e.g., an official imaging the proper strategy for floor positioning after reporting a technical foul). Imagery has a multitude of performance enhancing benefits (Munroe-Chandler & Hall, 2011). For example, imagery is effective in reducing anxiety (Page, Sime, & Nordell, 1999; Vadocz, Hall, & Moritz, 1997), improving motivation (Martin & Hall, 1995), improving self-efficacy (Munroe-Chandler, Hall, & Fishburne, 2008; Strachan & Munroe-Chandler, 2006), improving concentration (White & Hardy, 1998), and assisting in controlling arousal levels (Giacobbi, Hausenblas, Fallon, & Hall, 2003; Vadocz et al., 1997). Despite these

findings, there remains a gap in the literature investigating whether imagery which has proven to be effective with athletes is useful for officials.

Although there is a lack of empirical investigation examining officials' use of imagery, Weinberg and Richardson (1990) reported that "imagery is one of the most powerful mental techniques [an official] can use" (p. 21), and noted that it is important for officials to imagine themselves being successful (e.g., mentally rehearsing correct officiating mechanics). It is also noted by Weinberg and Richardson that the use of imagery before the game could benefit the official through improved concentration and improving one's ability to block out distractions (e.g., fans booing after a call). Among female Division 1 basketball officials, visualization (i.e., imagery) was ranked as the second most effective coping strategy, whereas male officials ranked it the least effective method (Brennan, 2001). Contrary to those results, Brennan also found that regardless of gender, the majority of officials reported that they use visualization to assist in mentally preparing for game situations, as well as to effectively cope during pressure situations. Aside from Brennan's investigation, few studies have examined sport officials' use of imagery before, during, and after competition. Moreover, no studies have examined whether imagery has the same performance enhancing benefits with this population as has been found with athletes. Given the similarities between performing as an official and as an athlete, it is plausible that imagery would provide similar benefits to basketball officials.

Automaticity. Perfecting the science of officiating involves becoming automatic with floor mechanics and hand signals, which according to Deshaies (2003) can be achieved by any official who is willing to put in the time and effort. Automaticity is

defined by one's ability to perform without thinking about it, performing on "automatic pilot" or performing instinctively with minimal conscious effort (Thomas et al., 1999). Becoming automatic at the task-relevant skills first requires the individual (e.g., official) to gain expertise through deliberate repeated practice (Ericsson, Krampe, & Tesch-Römer, 1993; Singer, 2000). For example, in order for an official to perform the required hand signals and floor mechanics automatically, they first must gain sufficient experience through game situations. However, although a performer may have the expertise to perform skills automatically, research has shown that external distractions (e.g., verbal argument for a coach after a call) or internal distractions (e.g., irrelevant thoughts or feelings) may interfere with performing skills automatically (Finn, 2008). In addition, officials must master the mechanics of varying sets of rules, which are currently played. For example, FIBA rules are international rules which are played by the majority of levels across the world (e.g., provincial competitions, national competitions, CIS competitions, Worlds, Olympics), with the exception of the United States and the province of Ontario, Canada. More specifically, at the high school level in the United States and within the province of Ontario, teams play by American Rules (i.e., National Federation High School Rules). Unlike the rest of Canada and the world, at the college level within Ontario and in the United States, American National Collegiate Athletic Association (i.e., NCAA) rules are played. Consequently, an official in the province of Ontario must master four different sets of rules, which creates additional difficulty in becoming automatic with mechanics. Research suggests that as anxiety levels increase, so does the self-consciousness of the performer, often resulting in conscious attention being placed on skills which are already automatic (Finn, 2008). This additional

psychological stress is reflected in a comment made by a 37 year veteran Ontario official who stated, “Within a week I could be officiating four different sets of rules depending on the game. It is hard going from refereeing a high school game with two-man federation mechanics to a three-man FIBA game played at the CIS level; mechanics are different, my area of coverage changes, it is a lot to think about” (K. Greenwood, personal communication, January 20, 2011).

Goal setting. Goal setting theory has been extensively examined across a multitude of settings (e.g., industrial organizational, sport, laboratory) and has been cited as one of the most valid and practical theories for understanding human motivation (Lee & Earley, 1992; Locke & Latham, 2002). Goal setting is based on the idea set forth by Ryan (1970), an industrial psychologist, who suggested that consciously establishing goals influences human behaviour. Locke, Shaw, Saari, and Latham (1981) defined a goal as “what an individual is trying to accomplish; it is the object or aim of action (p. 126).” An individual’s plan of action to obtain or accomplish a particular outcome (i.e., a goal) serves three direct functions, which include directing behaviour, energizing an individual (e.g., increasing effort), and altering persistence (e.g., prolong effort). Goals also indirectly guide behaviour by leading to arousal, discovery and forcing the individual to use task-relevant knowledge and skills in pursuit of the goal (Wood & Locke, 1990). Over the past 25 years, literature examining goal setting has consistently found that regardless of task, specific and difficult goals have been shown to increase performance (Locke & Latham, 2002). Research with Olympic athletes found that predetermined goals and planned competition routines are linked with optimal performance among successful athletes (Orlick & Partington, 1988). This is not

surprising, given that goal setting is reportedly the most often psychological intervention utilized to enhance athletic performance (Gould, Tammen, Murphy, & May, 1989, Munroe-Chandler & Hall, 2011). Similarly, goal setting has been reported to be an important coping method for basketball officials, reflected in Brennan's (2001) findings that goal setting was ranked as the third most effective coping method for female Division 1 NCAA basketball referees and fourth most effective coping method for male referees. When asked how goal setting is useful as a coping technique during pressure game situations, one referee stated that focusing on your goals reminds you that you must be strong and handle the tough calls and problems that arise, and by overcoming these situational setbacks you are able to achieve your goal (Brennan, 2001). Older, more experienced male referees reported that they recommended goal setting to younger, less experienced referees as a useful coping method (Brennan, 2001). These preliminary findings with Division 1 NCAA referees suggest that officials also use goal setting in pursuit of optimal performance, similar to what has been found on athletes. Although there was variation among the reason referees reported using goal setting, the majority of referees in Brennan's study reported utilizing the psychological strategy of goal setting.

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APPENDICES

APPENDIX A

Demographics

Age: _____

Gender: Male, Female, Other

What is your current level of education?

What province do you currently officiate in?

How long have you been officiating basketball?

Are you currently certified with your local officials board? YES or NO

Are you a former or current member of your provinces' University panel?

Please indicate your current level of certification. DROP DOWN Level 1 – 5 (Unsure option)

Are you a member of Canadian Association of Basketball Officials (CABO)?

Are you a carded FIBA official? YES or NO

What is the highest level you have officiated?

Using the following percentages, what levels do you officiate most often?

Are you a former athlete? YES or NO

What is the highest level you competed as an athlete?

As an athlete did you use psychological skills? YES or NO

Did your formal training as an official introduce how to use psychological skills while officiating? YES or NO

If yes, which of the following psychological skills were introduced? Open Box

- | | 1 | 2 | 3 | 4 | 5 |
|-----|--|---|---|---|--------|
| | Never | | | | Always |
| 8. | My emotions get out of control under the pressure of officiating games. | | | | |
| | 1 | 2 | 3 | 4 | 5 |
| | Never | | | | Always |
| 9. | I perform at officiating games without consciously thinking about it. | | | | |
| | 1 | 2 | 3 | 4 | 5 |
| | Never | | | | Always |
| 10. | While officiating games I perform on 'automatic pilot.' | | | | |
| | 1 | 2 | 3 | 4 | 5 |
| | Never | | | | Always |
| 11. | While officiating games, I don't think about performing much – I just let it happen. | | | | |
| | 1 | 2 | 3 | 4 | 5 |
| | Never | | | | Always |
| 12. | While officiating games, I perform instinctively with little conscious effort. | | | | |
| | 1 | 2 | 3 | 4 | 5 |
| | Never | | | | Always |
| 13. | While officiating games, I set specific goals for myself. | | | | |
| | 1 | 2 | 3 | 4 | 5 |
| | Never | | | | Always |
| 14. | I evaluate whether I achieve my officiating goals. | | | | |
| | 1 | 2 | 3 | 4 | 5 |
| | Never | | | | Always |
| 15. | I set very specific goals for officiating. | | | | |
| | 1 | 2 | 3 | 4 | 5 |
| | Never | | | | Always |
| 16. | I set personal performance goals. | | | | |

1	2	3	4	5
Never				Always

17. I visualize my officiating performance going exactly the way I want it to go.

1	2	3	4	5
Never				Always

18. At the game, I rehearse the feel of my performance in my imagination.

1	2	3	4	5
Never				Always

19. I imagine my officiating routine before I do it at a game.

1	2	3	4	5
Never				Always

20. I rehearse my performance in my mind and at the game.

1	2	3	4	5
Never				Always

21. I can raise my energy levels at the game when necessary.

1	2	3	4	5
Never				Always

22. I psych myself up at the game to get ready to perform.

1	2	3	4	5
Never				Always

23. I do what needs to be done to get psyched up for a game.

1	2	3	4	5
Never				Always

24. I can increase my energy to just the right level for a game.

1	2	3	4	5
Never				Always

25. When the pressure is on at a game, I know how to relax.

- | | | | | | |
|--|-------|---|---|---|--------|
| | 1 | 2 | 3 | 4 | 5 |
| | Never | | | | Always |
26. I am able to relax if I get too nervous at a game.
- | | | | | | |
|--|-------|---|---|---|--------|
| | 1 | 2 | 3 | 4 | 5 |
| | Never | | | | Always |
27. When I need to, I can relax myself at a game to get ready to perform.
- | | | | | | |
|--|-------|---|---|---|--------|
| | 1 | 2 | 3 | 4 | 5 |
| | Never | | | | Always |
28. I find it difficult to relax when I am too tense at a game.
- | | | | | | |
|--|-------|---|---|---|--------|
| | 1 | 2 | 3 | 4 | 5 |
| | Never | | | | Always |
29. My self-talk during the game is negative.
- | | | | | | |
|--|-------|---|---|---|--------|
| | 1 | 2 | 3 | 4 | 5 |
| | Never | | | | Always |
30. During a game, I have thoughts of failure.
- | | | | | | |
|--|-------|---|---|---|--------|
| | 1 | 2 | 3 | 4 | 5 |
| | Never | | | | Always |
31. I keep my thoughts positive during a game.
- | | | | | | |
|--|-------|---|---|---|--------|
| | 1 | 2 | 3 | 4 | 5 |
| | Never | | | | Always |
32. I imagine screwing up during a game.
- | | | | | | |
|--|-------|---|---|---|--------|
| | 1 | 2 | 3 | 4 | 5 |
| | Never | | | | Always |

APPENDIX B

Recruitment E-Mail

My name is Lindsay Walsh and I am currently completing my Master's degree in Sport Psychology at the University of Windsor, in Ontario. I am conducting an online study examining the psychological skills used by **Canadian Basketball Officials**. If you are currently officiating basketball at any level in Canada you are eligible to participate.

The following study has received Research Ethics Board (REB) clearance from the University of Windsor. The questionnaire will take approximately **20 minutes** of your time. Upon completion of the questionnaire you will be given the opportunity to enter your name into a draw for a chance to win one of two \$50 gift certificates to Honig's Whistle Stop (i.e., provider of officials' apparel & equipment). The e-mail you enter for the draw will not be tied to the data that you provide on the survey. The survey data will be anonymous.

If you wish to participate, please click the following URL:

<http://web4.uwindsor.ca/basketballstudy>

UWINID: basketball

password: skills

Please contact me if you have any questions. I can be reached by e-mail at

walsh12@uwindsor.ca or by phone at 519-253-3000 (Ext.4998).

Thank you very much for your time.

Thank you in advance for your participation.

Sincerely,

Lindsay "Lou" Walsh

B.A. Honours in Psychology, B.E.d., M.H.K. Candidate

APPENDIX C

Welcome Page

Welcome to the study being conducted by Lindsay “Lou” Walsh (B.A., B.E.d., M.H.K student) and Dr. Krista Chandler (Ph.D.), from the faculty of Human Kinetics at the University of Windsor.

The purpose of the study is to examine **basketball officials’** use of psychological skills while refereeing.

If you volunteer to participate in this study, you will be asked to complete an online version of the Test of Psychological Skills questionnaire (TOPS).

Participation will take approximately **15-20 minutes** of your time to complete.

Why does your participation matter?

The proposed research will contribute to the sport psychology field through broadening researchers’ understanding of the frequency with which basketball officials utilize various psychological skills.

What do you get out of participation?

- Participation may offer you insight into the multitude of uses of psychological skills.
- Upon completion of the project the results will be made available to you, which will further educate you on the benefits of psychological skills before, during and after officiating.

- You will have the choice of entering into a draw for a chance to win one of two \$50 dollar gift certificates to Honig's Whistle Stop (e.g., provider of officials' apparel & equipment).

"Click to participate"

Your participation in this research study is much appreciated. Thank you!

Lindsay Walsh

Department of Human Kinetics

University of Windsor

APPENDIX D

Letter of Information for Consent to Participate in Research



Letter of Information

LETTER OF INFORMATION FOR CONSENT TO PARTICIPATE IN RESEARCH

An Examination of Psychological Skills Used by Basketball Officials

You are asked to participate in a research study conducted by Lindsay Walsh (B.A., B.E.d., M.H.K student) and Dr. Krista Chandler (Ph.D), from the faculty of Human Kinetics at the University of Windsor. The results of this study will contribute to the completion of Lindsay Walsh's Masters Degree in Sport Psychology.

If you have any questions or concerns about the research, please feel to contact the primary investigator, Lindsay Walsh (walsh12@uwindsor.ca or (519) 253-3000 ext. 4998) or the primary investigator's supervisor, Dr. Chandler (chandler@uwindsor.ca. or 519 -253-3000 ext. 2446).

PURPOSE OF THE STUDY

The purpose of the study is to examine Canadian basketball officials' use of psychological skills.

PROCEDURES

If you volunteer to participate in this study, you will be asked to complete an online version of the Test of Psychological Strategies (TOPS). The questionnaire will take approximately 15-20 minutes of your time to complete.

POTENTIAL RISKS AND DISCOMFORTS

There are no known or anticipated risks from you answering questions with respect to the degree to which you utilize psychological skills while officiating a basketball game.

POTENTIAL BENEFITS TO SUBJECTS AND/OR TO SOCIETY

The proposed research will contribute to the sport psychology field through broadening researchers' understanding of the frequency with which basketball officials utilize psychological skills.

Participation in the study may offer officials insight into the multitude psychological skills which could be utilized while officiating a basketball game. In addition, upon completion of the project the results will be made available to officials.

COMPENSATION FOR PARTICIPATION

Participants who complete the study have the option of being entered into a draw for a chance to win a \$50 dollar gift certificate to Honig's Whistle Stop (i.e., provider of officials' apparel & equipment).

CONFIDENTIALITY

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission. All completed questionnaires will be kept in strict confidence. The information collected from the study will be used for the purpose of the present research and the communication of the results. Potentially the information may also be utilized in subsequent studies conducted by the researchers. All completed questionnaires will be kept secure on a password protected computer in the locked office of the primary investigator. The file containing the questionnaire results will be destroyed after five years.

PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw from the study at any time by closing the web browser. You have the right to withdraw your questionnaire from the study up until the point of submission (clicking the "submit" button). Once you have submitted your survey, however, it is no longer possible to withdraw your data. You may also refuse to answer any questions you do not want to answer and still remain in the study. The investigator may withdraw you from this research if circumstances arise which warrant doing so.

FEEDBACK OF THE RESULTS OF THIS STUDY TO THE SUBJECTS

Study results will be posted on the Research Ethics Board website and be accessible to all participants.

Web address: www.uwindsor.ca/reb

Date when results are available: September 1, 2011

SUBSEQUENT USE OF DATA

This data may be utilized in subsequent studies.

RIGHTS OF RESEARCH SUBJECTS

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw from the study at any time by closing the web browser. You have the right to withdraw your questionnaire from the study up until the point of submission (clicking the "submit" button). Once you have submitted your survey, however, it is no longer possible to withdraw your data. You may also refuse to answer any questions you do not want to answer and still remain in the study. The investigator may withdraw you from this research if circumstances arise which warrant doing so.

If you have questions regarding your rights as a research subject, contact: Research Ethics Coordinator, University of Windsor, Windsor, Ontario, N9B 3P4; Telephone: 519-253-3000, ext. 3948; e-mail: ethics@uwindsor.ca

SIGNATURE OF INVESTIGATOR

These are the terms under which I will conduct research.

Signature of Investigator - Lindsay Walsh April 15, 2011

I understand the information provided for the study **An Examination of Basketball Officials Use of Psychological Skills** as described herein. My questions have been answered to my satisfaction, and I agree to participate in this study. Please print a copy of this consent form for your records.

PRINT THIS DOCUMENT FOR YOUR RECORDS

“I agree to participate (click here to continue to the survey).”

“I do not wish to participate (click here to exit the survey).”

VITA AUCTORIS

NAME: Lindsay Walsh

PLACE OF BIRTH: New Glasgow, Nova Scotia

YEAR OF BIRTH: 1981

EDUCATION: University of Windsor, Windsor, Ontario
2009-2011, Master of Human Kinetics

University of New Brunswick, Fredericton, New Brunswick
2005-2007, Bachelor of Education

University of New Brunswick, Fredericton, New Brunswick
2002-2005, B.A. Honours Specialization in Psychology

Cobequid Education Centre, Truro, Nova Scotia
1997-2000