The Effect of Self-Efficacy on Coping Behaviours, Performance, and Emotions in Youth Swimmers

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Valerie Hadd

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Name of Author (please print)  

Valerie Haan

Date (dd/mm/yyyy)  

15/09/2004

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This study investigated how self-efficacy and coping influences performance and performance related emotions in high performance youth swimmers. Lazarus’ (1991, 1999) Cognitive Relational-Motivational Theory holds that how people cope with stress is a process that can subsequently influence both performance and emotions. Problem-focused (i.e. efforts to change a situation), emotion-focused (i.e. emotional control), and avoidance (i.e. withdrawal) coping are three coping functions frequently investigated in sport (Crocker & Graham, 1995; Gaudreau & Blondin, 2002). Self-efficacy, the belief that one can generate the necessary actions to achieve a desired outcome (Bandura, 1997), is another significant predictor of performance (Bandura, 1997). Self-efficacy can be viewed as a potential factor influencing the appraisal of a stressful situation and can play a significant role in the selection of coping options. To date, there has only been one exploratory study looking at the influence of self-efficacy on coping behaviors in sport (Haney & Long, 1995). The purpose of the current study was to examine a model that linked self-efficacy beliefs to coping, performance, and emotions in youth swimmers recruited at provincial championships in British Columbia, Ontario and Quebec. One hundred seventy-seven participants (aged 14-18 years) volunteered to complete questionnaires prior to and following their race. The pre-race questionnaires included a stress thermometer and self-efficacy scale specific to swimming. The post-race instruments included the Coping Functions Questionnaire (Kowalski & Crocker, 2001) and the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). It was expected that self-efficacy would be positively correlated to problem-focused coping and that a positive link would be found between problem-focused coping
and performance. Furthermore, it was hypothesized that self-efficacy would positively correlate with performance and that a positive goal/time discrepancy would be associated to positive emotions. Results did not support the expected model. Correlational analysis found a positive relationship between self-efficacy and performance discrepancy ($r = .24, p<.05$) and between performance discrepancy and positive affect ($r = .37, p<.05$).

Subsequent Regression analysis found that performance discrepancy ($\beta = .321, p<.05$) and emotion-focused coping ($\beta = .243, p<.05$) were significant predictor of positive affect ($r^2 = .22, p<.05$). Nevertheless, the relationships between self-efficacy and problem-focused coping failed to reach significance. In addition, coping did not correlate with performance. No age or gender differences were found. One of the challenges of linking self-efficacy, coping, and swimming performance was the difficulty of creating the necessary psychological conditions to validate the different hypotheses. While self-efficacy is a good predictor of performance when goals are fixed, coping occurs only when individual goals are at stake. Future research should look at various ways to assess the relationship between coping and self-efficacy.
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"Excellence is to do a common thing in an uncommon way."

Booker T. Washington
CHAPTER 1

1.1 INTRODUCTION

Athletes need to be highly motivated to overcome obstacles, spend numerous hours training, and make sacrifices that will benefit them in the future. These challenges can create stress in the lives of youth athletes (Crocker, Kowalski, Hoar, & McDonough, 2004). All the negative aspects associated to being a high performance elite athlete seem to vanish when success is achieved. For years, researchers and sport psychologists have been studying different cognitive factors that could potentially predict or influence performance. It is now widely recognized that cognitive factors play an influential role in athletic development and functioning (Bandura, 1997). A critical cognitive factor is self-confidence.

Self-confidence is the psychological factor that most consistently distinguishes highly successful from less successful athletes (Hardy & Jones, 1990; Vealey, 1999). Self-efficacy, a more specific form of self-confidence, has consistently been shown to influence performance. What is unclear, however, is how self-efficacy influences the cognitive and behavioural efforts used to manage stressful athletic situations (see figure 1). This research project will investigate how self-efficacy and coping behaviours impact on athletic performance and emotional states in competitive youth swimmers.
Figure 1 Possible Link Between Self-Efficacy and Coping
1.2 REVIEW OF LITERATURE

1.2.1 Self-Confidence

Self-confidence has been characterized in a number of approaches ranging from general to specific (Hardy, Jones, & Gould, 1996). These approaches include sport confidence (Vealey, 1986), perceived competence (Harter, 1985, 1999), movement confidence (Griffin & Keogh, 1981), perceived control (Skinner, 1996), and self-efficacy (Bandura, 1986, 1997). General conceptualizations, such as Vealey’s notion of trait sport confidence, focus on the athletes’ global beliefs about their ability to be successful in sport. Domain-specific views, like perceived competence, deal more with perception of ability in a domain such as athletics or even more specifically within a sport or event an element of athletic ability such as strength or conditioning (Horn, 2004). Specific conceptualization of self-confidence includes situational beliefs of confidence, often termed self-efficacy.

1.2.2 Self-Efficacy

Self-efficacy refers to beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments (Bandura, 1997, p.3). Self-efficacy is not the skills a person possess but the beliefs that the individual will be able to produce a specific outcome. Thus two people with the same skills or the same person under different levels of stress could perform differently due to differences in the belief that they can successfully execute an action that will lead to specific outcomes. Bandura’s (1986a) Social Cognitive Theory is the primary framework that explains how self-efficacy influences motivation. This theory stipulates that human agency (i.e. intentional acts) involves triadic reciprocal causation between personal factors, behaviors, and environment (Bandura, 1986a). These three components will influence
the assessment of self-efficacy within a specific activity domain. Cognitions and affective states (i.e. internal personal factors), combined with environmental constraints, will influence the perception of a situation and will, in turn, influence an individual’s degree of certainty to carry out the requirements of a specific task.

1.2.2.1 Sources of Self-Efficacy

Bandura argues that four sources of information influence the perception of self-efficacy: performance accomplishments, vicarious experiences, verbal persuasion and physiological/affective states (see Figure 2). Performance accomplishments, the most influential source of efficacy information, refer to previous performances that influence the beliefs in one’s capability to repeat the same actions in similar settings. Several studies (Bandura & Jourden, 1991; Earley & Lituchy, 1991; Theodorakis, 1995) found a positive relationship between previous performances and self-efficacy expectations. Bandura and Jourden (1991) also determined that past performances affected perceived self-efficacy, goals and self-satisfaction. The same findings were later replicated with swimmers (Theodorakis, 1995).

Vicarious experiences are defined as one’s observations and/or comparisons with the execution or the performance of others possessing similar skills (Bandura, 1997, p.79) whereas verbal persuasion involves convincing comments made to the athletes to convince that they have the skills required to succeed in their sport. Weinberg, Gould, and Jackson (1979) highlighted the potentially powerful influence of vicarious experiences on the second trial of a muscular endurance task. They showed that with modeling, self-efficacy either increased or remained constant. Modeling refers to the observation of an expert performing the task at hand, followed
by the reproduction of the movement by the athlete. Several years later, other researchers (George, Feltz, & Chase, 1992; Lirgg & Feltz, 1991) determined that watching others perform successfully could increase self-efficacy, while seeing others perform unsuccessfully could lower expectations. These relations were stronger if one was similar to the model observed. Moreover, verbal persuasion was shown to enhance performance and the belief in one’s abilities to meet the requirements of a task (Weinberg et al., 1979). Thus, persuasive statements by a trusted person (i.e. parents, friends, coach, etc.), who is considered knowledgeable in the domain, will increase self-efficacy.

Physiological and affective states, the last source influencing self-efficacy, are physical and emotional cues associated with different performances. Feltz (1988) demonstrated that heart rate was a good physiological predictor of self-efficacy on the first trial of a modified back dive task. Lower variation of the heart rate was associated with higher perceived efficacy amongst the divers. When the cues perceived by the athlete are associated with poor performance, perceived incompetence, and perceived failure, the self-efficacy beliefs will be lowered. However, self-efficacy expectations will be enhanced if the physiological cues are seen as facilitative.
Figure 2 Relationship between sources of efficacy information, efficacy beliefs, and consequences (Bandura, 1997)
1.2.2.2 Influences of Self-Efficacy on Behaviours and Thoughts

Behaviourally, Bandura (1997) designated three components regulated by self-efficacy: choice, effort, and persistence. Individuals are most likely to choose activities they believe they are going to be successful at or that require skills already mastered in the past. For example, a swimmer could decide to join a water polo team because some of his/her current skills can be transferable to the sport. Furthermore, high levels of effort and persistence will be seen in efficacious individuals in order to reach the expected outcomes. Cognitively, Bandura (1997) determined that goals, worries and attributions are thoughts that are influenced by one’s self-efficacy. Efficacious athletes will attribute their failure to either a lack of effort or controllable factors whereas success will be attributed to proper skills. Less efficacious individuals will attribute failure to more stable factors such as lack of skills and success to luck or to some other unstable domain. The relation between self-efficacy, goals and performance will be discussed in detail in the following section.

Self-efficacy beliefs are important contributors to performance accomplishments, whatever the underlying physical skills might be (Bandura, 1992) and are known to vary depending on the athlete’s learning progression. When an athlete becomes more efficient at executing mandatory tasks, their level of self-efficacy should increase. Once the skill is completely mastered and efficacy expectations are determined based on self-beliefs, the individual will not need to reappraise his/her capabilities when facing challenging situations. However, this will happen only if the person sees the parallel between the different situations. For example, a swimmer competing in a provincial championship for the fifth time in his/her career won’t necessary need to reappraise the situation (environment) or their abilities (personal factors). His/her self-
efficacy judgment will be based on previous performances (i.e. leading up to provincials and in past provincial championships) and should be quite accurate. Nevertheless, if the task at hand is perceived as more demanding, a different appraisal will be necessary to determine the new self-efficacy level for the specific situation.

1.2.2.3 Self-Efficacy and Performance

Self-efficacy beliefs have been found to predict performance in several domains such as career performance (Dawes, Horan, & Hackett, 2000), health behaviours (Condiotte & Lichtenstein, 1981) and physical performances (Boyce & Bingham, 1995; Martin and Gill, 1991; Moritz, Feltz & Farhbach, 2000). Although most studies found that self-efficacy was a strong predictor of performance, other studies failed to reach the same conclusion (McAuley, 1985a; McCullagh, 1987). These results could have been obtained due to the omission of other factors (Feltz, 1992) such as goal setting, motivational climate, coping strategies, and social support that could likely influence performance outcomes. Thus, self-efficacy greatly affects performance in sport but its combination with other psychological variables might exert a more significant influence on the final outcome.

Self-efficacy can influence performance through its positive effects on personal goals and performance strategies (Locke, Frederick, Lee, & Bobko, 1984; Mone, Baker, & Jeffries, 1995). When efficacy beliefs are increased, athletes strive for higher goals and are, generally, more successful (Kane, Marks, Zaccaro, and Blair, 1996). According to Kane and colleagues (1996), the indirect effect of self-efficacy on the goal-performance relationship becomes significant only during moderately to highly stressful encounters. Moreover, athletes are strongly motivated by
challenging goals when they believe in their ability to accomplish them. Hence, future research needs to look at the influence of self-efficacy on goals and performance under highly stressful conditions in different sports.

Highly self-efficacious athletes will perceive events as being less stressful. Thus, the diverse appraisals made by athletes will directly influence their behaviours, thoughts, and emotions. Studies have shown that the level of efficacy was inversely related to pregame or precompetition anxiety (Raglin & Hanin, 2000; Treasure, Monson, & Lox, 1996). These findings corroborate Bandura’s (1997) argument that a higher sense of efficacy in the activity domain is accompanied by low precompetition stress and high athletic performance. In sport, McAuley (1985) showed that the precompetitive anxiety does not predict performance directly but is mediated by the role of self-efficacy beliefs. Thus, a low level of efficacy will create more stress for the participant and will, therefore, influence the way they execute the required task. Furthermore, cognitive evaluation and attention toward potential threats will be influenced by these beliefs (coping appraisal). Some situations might be perceived as threatening for less efficacious people whereas more confident athletes might look at them from a challenging point of view. Nevertheless, elite athletes drive themselves to success through extremely demanding self-standard. They habitually tie their self-evaluation to standards of athletic excellence and this behaviour will likely raise their level of stress (Bandura, 1997). Thus, extremely demanding and challenging goals might lead to an increase of perceived stress even in highly efficacious athletes as their performance might often fall short in crucial situations.
1.2.2.4 Self-Efficacy and Age

Age could be another factor that influences efficacy beliefs. Haney and Long (1995) found that older athletes (i.e. 19 to 28 years old) were more efficacious than younger ones. One possible explanation justifying this finding could be that as the athletes become more mature, they develop the cognitive ability to accurately establish reasonable goals. This could be due to an increased awareness of their abilities to carry on a required task. However, an alternative explanation is that less efficacious athletes could have dropped out of sport at an early age due to the lack effort, persistence and positive thoughts associated with lower levels of self-efficacy.

1.2.2.5 Measuring Self-Efficacy

Perceived self-efficacy is highly specific to the situations and therefore, its assessment needs to be contextualized. Thus, global measures of self-efficacy are not recommended. Bandura (1986a, 1997) advocates using self-efficacy measures that are specific to particular domains of functioning but that also assess the magnitude of the activity (i.e. different parts of a swim race). Self-efficacy beliefs can be determined based on level (magnitude), strength (degree of certainty) or generality (transferability to other activity domains) of the beliefs. Bandura (1986b) argues that a microanalytic approach permits an analysis of the degree of congruence between self-efficacy and action at the level of individual task. The congruence between the two concepts measured (i.e. self-efficacy related to a swimmer’s goal time versus actual final time) will directly influence the relation between self-efficacy and performance. Higher correlations were found when self-efficacy and performance were concordant in assessment methods (Moritz, Feltz, Fahrbach, & Mack, 2000). Self-efficacy beliefs are known to vary based on environmental
demands and internal variables. Thus, self-efficacy should be assessed as close as possible to the start of a competition to prevent any error due to the temporal proximity.

In the Social Cognitive Theory, Bandura (1986a) argues that perceived efficacy to control eventual threatening events will determine the arousal level of an individual. Therefore, efficacy beliefs affect vigilance toward potential threats and how these threats are perceived and cognitively processed (Bandura, 1997). Thus, self-efficacy will have a direct effect on the way an individual copes with stress, as threat perception (i.e. appraisal) is a relational matter concerning the match between coping options and potential hurtful aspects of the environment (Bandura, 1997). The ability to cope with stressful events during sport competition is crucial and an integral part of successful performance (Hardy, Jones, & Gould, 1996). The next section will fully explain how coping is linked to performance, self-efficacy, and emotion.

1.2.3 Cognitive-Motivational-Relational Theory

Lazarus (1991, 1999) has developed a stress, coping, and emotion theory that has been applied in the field of sport and exercise psychology (Crocker et al., 2004). Lazarus’ Cognitive-Motivational-Relational (CMR) Theory has identified that antecedent variables, mediating processes, and outcomes contribute to an individual’s emotional state. In the CMR theory, a person interacts dynamically with the environment. Antecedent variables are different factors influencing this interaction. Environmental variables include demands, resources and constraints linked to a specific situation as well as the situation’s proximity, uncertainty and duration. Internal personal variables, on the other hand, refer to a person’s motives and beliefs about self and the world. Thus, Lazarus’s theory holds that motivation and emotions cannot be understood
solely from the standpoint of the person or the environment as separate units (Lazarus, 1991). Two mediating processes, appraisal and coping, are critical to stress and emotion.

1.2.4 Coping

Coping is defined as constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of a person (Lazarus and Folkman, 1984, p.141). Thus, according to some researchers (Crocker, Kowalski, and Graham, 1998; Lazarus and Folkman, 1984), coping is a deliberate process involving thoughts and actions. Although Lazarus differentiates between appraisal and coping, they are interrelated (see Figure 3). Appraisal implies that people constantly evaluate their relationship with the environment with respect to implications for their well being (Lazarus, 1999). In primary appraisal, a person tries to determine whether the situation as it unfolds is relevant to his/her values, goal commitments, beliefs, and situational intentions. Questions such as “Do I have a goal at stake?”, or “Are any of my core values engaged or threatened?” need to be answered. If no goal commitment is solicited or nothing is at stake, the individual will not need to engage in any coping actions.

Secondary appraisal is a cognitive-evaluation process that focuses on what can be done about the stressful person-environment relationship. An individual will assess the coping options available to modify the present encounter. “Do I need to act?”, “When should I act?”, “Which option is the best?” or “What are the costs and benefits?” are questions concerning a person’s different alternatives to handle the situation. It is important to note that both appraisals can occur simultaneously because they are made of distinct elements. While an assessment of the situation
is made in the first appraisal, different resources and/or options are highlighted in the second appraisal. Thus, it would be erroneous to assume that the secondary appraisal always follow the primary appraisal.
Figure 3 Coping Framework (adapted from Lazarus, 1991)
1.2.4.1 Coping Style versus Process

The appraisal process will determine an individual’s coping actions. A controversy exists in the literature regarding coping as a style or process. Coping style refers to an individual’s preference or tendency to use a certain type, or category of coping strategies in response to acute stress (Anshel & Anderson, 2002). It is hypothesized that individuals will use similar coping strategies over time despite the specificity of the situations. When referring to this concept, Anshel divides coping into avoidance and approach coping. Avoidance refers to the act of turning away from the stressor, physically or psychologically whereas approach is the process of taking active steps in an attempt to deal directly with the stressor, thereby the effects of stress on performance will be diminished. The concept of coping stability across the same situation over time (Crocker and Isaak, 1997) and across distinctive phases of a given situation (Gaudreau, Lapierre, & Blondin, 2001) has yielded mixed results. Crocker and Isaak (1997) found similarities between coping strategies used by youth swimmers during training sessions but yet, failed to find coping patterns across three different competitions. Bouffard and Crocker (1992) also found differences in coping patterns when they monitored the coping strategies used by physically disabled subjects across three different physical tasks. These two studies have yet, failed to determine whether the results are due to a person’s preferred coping style or to the variability of coping strategies used by athletes during different phases of an encounter.

Drawing on those findings, Gaudreau and colleagues (2001) recognized the possibility that the use of coping strategies might vary according to the competitive phases and looked at coping during three phases of a golf competition: pre-, during- and post competition. These authors found that the use of some strategies varied during the different phases of the tournament whereas some did not. Although some athletes may have a preferred coping style to deal with
sport-related stress (Gould, Finch, & Jackson, 1993), none of the sport studies have yet provided
direct evidence of such stability (Crocker et al., 1998).

According to various authors (Crocker & Graham, 1995; Gaudreau & Blondin, 2002; Lazarus &
Folkman, 1984) coping should be conceptualized as a process. This implies that different
strategies will be used in response to the appraisal of the person-environment relationship.
Problem-focused, emotion-focused and avoidance coping strategies are the three broader
categories considered by Lazarus in his model (see Figure 4). Problem-focused coping refers to
cognitive and behavioral efforts used to change the problem or challenge causing the distress.
Emotion-focused coping involves strategies that help control emotional arousal and distress that
are caused by the stressor (Crocker et al., 1998). Avoidance coping consists of mentally and/or
physically withdrawing from the stressful situation and is used by athletes as the third coping
function.

1.2.4.2 Coping Functions

People will most likely rely on problem- and emotion-focused coping functions in managing the
demands of stressful encounters (Crocker & Graham, 1995; Folkman & Lazarus, 1985). Several
studies show that the use of problem-focused coping strategies is associated with better
performance in the sport domain (Crocker & Graham, 1995; Gaudreau & Blondin, 2002; Haney
& Long, 1995). Contrary to what one may believe, avoidance coping can be either maladaptive
or appropriate to a specific situation and, although not used as much as the two other coping
strategies, is frequently selected as a way to handle stress by some people, especially adolescents
Examples of avoidance coping strategies may include ignoring, discounting, psychological distancing, and/or engaging in an unrelated task.

People tend to use more problem-focused coping strategies when they perceive the situations as being more controllable and/or when they feel confident in their abilities to solve problems (Aldwin, 1994). Problem-solving, planning, information seeking, suppression of competing behavior, and increasing efforts are potential problem-focused coping strategies. On the other hand, emotion-focused strategies are more likely when conditions are unchangeable or when one needs to reduce high levels of emotional distress that prevent the effective use of problem focused strategies. Such strategies could include mental and behavioral withdrawal, denial, relaxation, self-blame, avoidance, acceptance, looking for social support, and wishful thinking.

1.2.4.3 Misconception of Coping

Coping should not be confused with outcomes. When an athlete fails to accomplish a desired goal it would be incorrect to conclude that the person did not rely on any coping strategies during their performance. This individual might have used maladaptive strategies that did not facilitate the realization of their objectives or utilized selective strategies that were inappropriate for the situation. Performance could have also been impaired by a number of factors such as deficient technical skills, bad preparation, and bad coaching. Under these conditions, the best of coping strategies might not have had enough power to counteract other deficient areas affecting performance. Thus, the use of proper coping strategies can also result in failure when they are outweighed by other elements. On the other hand, the use of any coping strategy (problem-,
emotion-focused, or avoidance) may not be successful depending upon the particular type and level of stressor (Crocker et al., 1998).

1.2.4.4 Influences of Coping

If sport performers do not have the appropriate coping skills to deal effectively with stressful situations, they are likely to experience poor performance, negative affect, or may eventually drop out of sport (Madden, 1995). Coping research in sport has focused on relationships between coping strategies and anxiety levels (Eubank & Collins, 2000; Giacobbi & Weinberg, 2000; Hammermeister & Burton, 2001; Ntoumanis & Biddle, 2000), coping strategies used by different level of athletes (Gould et al., 1993; Madden, Kirkby, & McDonald, 1989), gender differences (Crocker & Graham, 1995), the coping functions-emotion relationship (Crocker and Graham, 1995; Gaudreau, Blondin, & Lapierre, 2002; Ntoumanis & Biddle, 1998), and coping over time (Gaudreau et al., 2000). The following sections will look at the different relationships between coping and other cognitive and/or physiological factors.

1.2.4.4.1 Coping and Anxiety

Within various sport situations, athletes are continually experiencing a lot of stress and need to find adaptive ways to cope. The different levels of anxiety experienced by athletes will influence the way they appraise a situation and ultimately, the actions they engage in. A study by Carver, Scheier, and Weintraub (1989) showed that trait anxiety was positively related to denial, behavioral disengagement, and focus on venting of emotions. These methods of dealing with stress are regrouped under the broader category of emotion-focused coping strategies. The same findings were later replicated by different authors (Giacobbi & Weinberg, 2000; Hammermeister
Carver and Scheier's model (1986, 1988) proposes that the interpretation of anxiety symptoms can be related to the employment of different coping strategies. They hypothesized that anxiety will be perceived as being facilitative when an individual believes in his/her abilities to cope efficiently with a situation. Hence, the appraisal of anxiety direction should influence the coping strategies preferred by athletes when dealing with stress. Recently, the influence of anxiety direction on coping has been looked at closely. Ntoumanis and Biddle (2000) demonstrated that a positive view of anxiety relates to increased effort and suppression of competing activities (i.e. problem-focused coping strategies) whereas behavioral disengagement and venting of emotions were strategies (i.e. emotion-focused coping strategies) used when the anxiety was perceived as being debilitating to one's performance. Hence, when an individual's goals are threatened (i.e. stressful situation), critical information necessary to enhance one's performance might be overlooked and an athlete might appraise his/her current psychological state as being negative. According to Lox (1992), any perceived threat experienced by an athlete may negatively influence state anxiety, self-confidence, self-efficacy beliefs, and ultimately affect one's performance. Thus athletes need to be aware of different coping options available to them to overcome stressful encounters. Although anxiety direction and intensity will not be assessed in the present study, it is essential to understand the underlying principles that will cause the stress level of different individuals to increase in particular situations. Furthermore, trait and state anxiety can be two personal factors likely to influence the appraisal process of a situation and eventually, the coping strategies used by athletes.
1.2.4.4.2 Coping Strategies

Gould and colleagues (1993) looked at the different coping options available to athletes by conducting individual interviews with National Champion Figure Skaters. Participants were asked to elaborate on the different strategies used to deal with stress. The results clearly illustrated the tendency of high elite athletes to use a diversity of strategies when faced with threatening or challenging situations. Coping seemed to be an ongoing process in which the skaters constantly appraised and reappraised the situations and initiated, often simultaneously, a wide variety of coping strategies (Gould et al., 1993). The athletes used both problem- and emotion-focused coping strategies although some of their actions did not produce the expected outcomes. Poczwardowski and Conroy (2002) tried to explain such coping variability by saying that an athlete’s responses to stress may exist as a function of the activity, situation, or individual variables such as gender, personality, developmental stage, and skill level used.

1.2.4.4.3 Coping and Gender

In Western society, gender stereotypes influence the decision-making process of certain individuals. Based on these stereotypes, it is typically more acceptable for women to ask for help whereas men need to find solutions on their own. The reliance on social support to overcome obstacles by men may be appraised as a sign of weakness by their peers or other members of the community. Although the socialization hypothesis (gender stereotyping) is plausible when explaining gender differences in coping, Lazarus (1991) came up with an alternate hypothesis based on structural differences. He advocates that the divergence in coping strategies might be due to different appraisals of the transactions between a person and the environment because males and females have different social roles to fulfill. Crocker and
Graham (1995) found that female athletes between the ages of 15 and 30 used more seeking social support as compared to their male counterparts. Another difference highlighted by these authors was that females relied more on increasing their effort when dealing with stress. These were the only two major differences concerning coping strategies between genders. Moreover, Roberts and Campen (2001) found similar results concerning social support with runners. Female runners reported sharing their feelings with other people as an effective strategy to cope with stress and thus, favoured the use of emotion-focused coping strategies. Although the previous two studies found significant results concerning gender differences in coping, which are consistent with the general psychology literature, other studies failed to reach such significance (Anshel & Delany, 2002; Anshel, Porter, & Quek, 1998). One explanation for the divergent findings could be that high-level female athletes possess the same psychological characteristics (i.e. self-efficacy beliefs, coping options, perceived control, etc.) as their male counterparts (Anshel & Kaissidis, 1997).

### 1.2.4.4.4 Coping and Emotions

Other researchers have investigated how coping function is related to post-performance emotional states (Crocker & Graham, 1995; Gaudreau & Blondin, in press; Gaudreau et al., 2002; Ntoumanis & Biddle, 1998) as well as with goal attainments (Amiot, Gaudreau, & Blanchard, in press; Gaudreau & Blondin, 2002). Findings from these studies suggest that, in general, problem-focused coping strategies are associated with positive affect whereas emotion-focused coping strategies correlate positively with negative affect. Furthermore, perceived effectiveness of the adopted coping strategies seems to be a minor but yet significant factor in predicting positive and negative affects (Ntoumanis & Biddle, 1998). When athletes perceive
their coping strategies to be effective, they tend to experience positive affect. Moreover, Amiot et al. (in press) showed that task-oriented coping strategies (or problem-focused) correlated positively with goal attainment. Conversely, the correlation was negative between goal attainment and disengagement-oriented strategies (emotion-focused and avoidance) showing that withdrawing from a situation or managing one’s emotions were not successful ways to reach a desired outcome. Athletes trying actively to modify the stressor seem to accomplish the desired outcomes more frequently than the ones who did not attempt any action to reduce stress.

1.2.4.5 Coping and Self-Efficacy

Bandura has argued that self-efficacy should be related to problem-focused coping. Haney and Long (1995) looked at how coping strategies correlated with self-efficacy in sports. They grouped problem- and emotion-focused coping strategies together under a broader category called engagement coping. Their findings did not reach significance and therefore, they failed to find a relationship between engagement coping and self-efficacy. The decision to group people using problem- and/or emotion-focused most likely influenced their findings. Moreover, some research found significant positive correlation between coping strategies and the concepts of optimism and self-confidence (Gaudreau & Blondin, in press; Grove & Heard, 1997).

1.2.4.6 Coping Measurement

Although most studies of coping in sports have contributed to a better understanding of coping, Crocker et al. (1998) recognized the necessity to develop better measurement tools before any significantly knowledge growth can be made. A modified version of the COPE (i.e. MCOPE) developed by Crocker and his colleagues (Bouffard & Crocker, 1992; Crocker & Isaak, 1997;
Crocker & Graham, 1995) has been tested and used in several studies to assess situation-based coping. This questionnaire has shown acceptable validity and reliability and is used to determine the different coping strategies used by athletes. This inventory contains 12 conceptually distinct scales: active coping, seeking social support for emotional reasons, planning, seeking social support for instrumental reasons, denial, humour, behavioral disengagement, venting of emotion, suppression of competing activities, self-blame, wishful thinking, and increased effort. One of the common criticisms of most coping inventories, including the MCOPE, is the use of retrospective design asking people to recall a specific event that had happened in the past.

Even if the MCOPE has been validated and used in several coping studies, Kowalski and Crocker (2001) acknowledged the need for another option when researchers are interested in questions related to coping functions as opposed to actual coping strategies. Thus, they created the Coping Function Questionnaire for adolescents in sport (CFQ). This 18-item scale assesses problem-focused, emotion-focused and avoidance coping functions. Although the CFQ has a retrospective design asking people how much they used each coping function to handle a stressful situation, it has shown acceptable reliability for all scales (internal values above .80) and demonstrated strong factorial validity. Furthermore, the questionnaire seems to be acceptable for both genders and its convergent validity was obtained by comparing its scales to others coping instrument’s scales (COPE and MCOPE) (Kowalski and Crocker, 2001).
1.3 STATEMENT OF THE PURPOSE AND HYPOTHESES

1.3.1 Research Question

Perceived control and coping potential are the major components of secondary appraisal. Perceived control influences self-efficacy beliefs, how events are appraised and also influences coping process (Hammermeister & Burton, 2001; Lazarus, 1991). According to Bandura (1997), perceived control can be defined as the appraisal of the extent to which the situation itself may be brought under the control of an individual. Higher perceived control will lead to a higher sense of self-efficacy, as the chances of being successful will be increased. Lack of control, on the other hand, will lower self-efficacy beliefs, as the athletes might not feel like their efforts are the sole determinant of performance. People who are led to believe that they possess superior coping ability handle aversive problems by themselves, whereas those who believe themselves to be less skilled yield control to others to cope with the aversive environment (Bandura, 1997). Furthermore, people who believe that their outcomes are determined by their own behaviours tend to be more active than the ones who attribute their end result to luck. Social Cognitive Theory (1986) stipulates that efficacy beliefs affect vigilance toward potential threats and how they are perceived and cognitively processed. Therefore, Bandura (1997) suggests that individuals with high sense of efficacy should use more problem-focused coping strategies.

Therefore, based on Bandura and Lazarus’ ideas, the concept of self-efficacy should have a direct impact on coping (i.e. high levels of self-efficacy should be associated with the use of problem-focused strategies) and consequently, influence performance. The use of problem-
focused coping seems to be associated with better performance (Crocker & Graham, 1995; Lazarus, 1991).

Furthermore, self-efficacy is known to influence the performance goals set by an athlete (Locke & Latham, 1990). Thus, higher levels of self-efficacy will lead to setting more demanding goals. Those goals will then, determine the effort and persistence an athlete will exert. Bandura (1997) argues that self-efficacy should be measured relative to the goals. Therefore, the self-efficacy measure should be related to goals, as performance is often determined by whether or not goals were attained.

Finally, performance, related to goals, should impact one's emotions. It is anticipated that affect depend on the relationship between actual performance and expected performance (Lazarus, 1999; Locke & Latham, 1990). Emotions will depend on both the goal's importance and the goal's attainment. Gaudreau and colleagues (2002) found that a positive goal/performance discrepancy (i.e. surpassing one's goals) led to more positive emotions.

Thus, the present research will attempt to integrate self-efficacy, coping, performance, and performance related affect in a high performance youth sport setting.

1.3.2 Purpose

This study will try to integrate Lazarus' Cognitive-Motivational Relational Theory (1991) and Bandura's Social Cognitive Theory (1986a) to understand the performance and emotions of
youth elite swimmers between the age of 14 and 18. Thus, the purpose of this study is four fold (see figure 4).

1.3.3 Statistical Control

According to Poczwardowski and Conroy (2002), variability in coping responses may exist as a function of the activity, situation, or individual variables such as gender, personality, developmental stage, and skill level. Hence, gender, age and years of experience will be examined to determine if they are related to the outcome variables. If they are, they will be statistically controlled.

1.3.4 Hypotheses

1.3.4.1 Primary Hypothesis

The proposed model (figure 4) will provide a good fit to the data. The model holds that (a) both self-efficacy and problem-focused coping will predict performance, (b) self-efficacy will have both direct and indirect effects on performance, and (c) that self-efficacy and coping impacts on performance-related emotions are mediated through performance.

1.3.4.2 Secondary Hypotheses

Secondary hypotheses include:

a. Self-efficacy will be positively correlated to problem-focused coping.

b. Self-efficacy will be positively correlated to performance.

c. Problem-focused coping will be associated to better performance.

d. A positive Goal/Time discrepancy will be correlated to more positive emotions.
Figure 4 Model integrating proposed interrelationships among self-efficacy, coping, performance, and emotions.
CHAPTER 2

2.1 METHODS

2.1.1 Participants

2.1.1.1 Determining Sample Size

To have adequate power (80% with \( \alpha \) set at 0.05) given a moderate effect size using a multiple regression statistical analysis, it was necessary to have approximately fifteen to twenty participants per predictor variable in the model (Stevens, 1996). Therefore a minimum of 105 participants (i.e. 7 factors) was necessary in this study to achieve statistical power.

2.1.1.2 Description of Participants

The sample included 158 swimmers: eighty-three males (46.9%) and 94 females (53.1%). Participants were between the age of 14 and 18 and were from four different provinces (Alberta, British Columbia, Ontario, and Quebec). The sample was divided as follow: 33.9% of the total sample were 14 years old, 26% were 15, 20.9% were 16, 11.9% were 17, and only 6.8% were 18 years of age. The participants were recruited at four different swim meets (i.e. 3 provincial championships and an invitational meet held in Vancouver). Seventeen swimmers from the total sample participated in the British Columbia Age Groups Championships, 57 were at the Quebec Age Groups Championships, 71 participants were recruited at the Ontario Age Groups Provincial Championships, and 13 swimmers volunteered at the invitational swim meet held in Vancouver.

Years of experience ranged from three to thirteen with the majority of the swimmers having between 5 and 9 years of experience (74.8%).
2.1.2 Measures

2.1.2.1 Stress

A diagram of a stress thermometer was used to assess the perceived level of stress of each participant (see Appendix A). On a scale from 0 to 100 (0 being the lowest and 100 the highest), each individual had to mark their level of stress prior to their event. As used in Kowalski and Crocker's study (2001), the participants were asked: “Indicate the amount of stress you are experiencing, at the moment, by marking an “X” on the scale within the thermometer.”

2.1.2.2 Self-Efficacy

Self-efficacy was measured based on Bandura's (1997) recommendations. The strength of self-efficacy was assessed using a swimming-specific questionnaire developed for this study (see Appendix B). Prior to answering questions concerning their self-efficacy beliefs, swimmers were asked to write down their time goal for a specific race as well as the importance of attaining or surpassing it. Participants were then given a list of 5 affirmations asking them how confident they were to reach their predetermined time and 5 subsequent affirmations concerning their final ranking. For each of these levels of performance, they had to indicate their certainty (0-100%) of attaining each outcome, by marking an “X” on the scale. Final self-efficacy beliefs scores were obtained by taking the mean of all five statements relative to the time goal and dividing it by 5. The same procedure was done with the scores concerning the ranking expectations. Similar tools have been used in other studies (Bond, Biddle, & Ntoumanis, 2001; Lane, Jones, & Stevens, 2002) and have showed adequate reliability. Higher efficacy strength scores indicated higher self-efficacy beliefs.
2.1.2.3 Coping Functions

The Coping Function Questionnaire (CFQ) for adolescent in sport (Kowalski & Crocker, 2001) was used to evaluate coping functions (See Appendix C). This 18-item questionnaire assesses problem-focused (6 items), emotion-focused (7 items), and avoidance coping (5 items) function. This tool has acceptable reliability (α>.80 for all scales) and shows gender invariance in its factorial structure. The athletes were asked how much they used each coping function to handle a specific situation and their responses were scored on a 5-point Likert scale. The final score was obtained by taking the mean of all items comprising each scale, with higher scores reflecting greater coping. Therefore, different scores would be associated to each of the three coping function scales.

2.1.2.4 Affects

Positive and negative affects were measured using the Positive and Negative Affects Schedule (PANAS; Watson, Clark, & Tellegen, 1988). This 2-scale checklist (see Appendix D) measures 10 positives affects (enthusiastic, interested, determined, excited, inspired, alert, active, strong, proud, and attentive) and 10 negative affects (scared, afraid, upset, distressed, jittery, nervous, ashamed, guilty, irritable, and hostile). Participants were asked to what extent the different feelings and emotions included in the list described the way they feel after performing the race. Possible responses varied on a 5-point Likert scale. Both scales have shown acceptable reliability with alpha levels of .88 and .79 for the positive and negative scales respectively (Crocker, 1997). Crocker (1997) provided factor validation evidence for the use of PANAS in sporting contexts with youth populations. Higher scores on both scales indicated a
predominance of either positive or negative emotions. Each score was then used as a distinct variable in the analysis.

2.1.2.5 Percentage Goal/Performance Discrepancy

The percentage goal/performance discrepancy score was used to assess individual performance. The athletes were asked their personal goals (time) for their upcoming race. Performance was assessed by recording the official time for each participant. The percentage goal/performance discrepancy was obtained by calculating the difference score between expected (goals) and actual performance and then, dividing this value by the expected performance (goals) that was set by the swimmers pre-event. Negative values indicated that swimmers surpassed their goal whereas positive values were associated with failure to achieve a desired standard. Athletes attaining but not surpassing their goals were attributed the value of “0”. The same measure was used in a recent coping study (Gaudreau et al., 2002) and is known to be one of the best ways to assess performance in sport. Although Gaudreau and colleagues did not use percentage values, it was decided that in this study, this procedure would describe more accurately the results and help better discriminate between excellent and poor performance.

2.1.3 Procedure

The first phase consisted of contacting the different provincial swimming associations (i.e. Swim BC, Swim Ontario, Natation Québec) to obtain the information necessary (i.e. email addresses and phone numbers) to initiate contact with coaches. Because of sample requirements, an introductory letter as well as consent and assent forms were sent to the coaches of all potential participants. A follow-up telephone contact was also made. Following a short presentation to
their coach concerning the purpose of the study, each swimmer was given the opportunity to enter the current study. Participants were told that they would be able to withdraw at any time during the research without negative consequences and confidentiality was assured. The primary investigator traveled to different locations in Canada (i.e. Quebec and Ontario) due to the large number of subjects required for this study. The majority of the data was collected outside British Columbia. Nevertheless, the procedures used to initiate contact with the different participants remained the same. Each coach was instructed to send all consent and assent forms back to their respective swim associations upon completion. Extra consent and assent forms were available during the meet for athletes who forgot to return the forms to their coach.

Passive consent forms were obtained halfway through data collection. This procedure greatly facilitated data collection as most swimmers did not return their forms back to their coaches and the majority of the parents did not attend the different swim meets. The UBC ethics committee approved the use of passive consent forms. Nevertheless, the rest of the procedures remained the same. An introductory letter as well as passive consent forms (i.e. participants and parents) were emailed to all coaches explaining the purpose of the study. Parents only had to return their form if they did not want their child to enter the study. One week following the reception of the email, phone calls were made to answer all potential questions from coaches. Coaches were told to keep the forms with them and bring them to the designated swim meet. Extra forms were available throughout the swim meet.

On the day of the meet, prior to their warm up (20 to 30 minutes before warm up depending on the swimmers’ availability), participants met with the researcher at a designated area. Athletes
were asked to fill out the stress thermometer, the self-efficacy questionnaires and to write down their personal goals concerning their next race. Athletes were asked to base their answers on how they felt "at the moment". The researcher was present to answer all questions related to the study. Within one hour following their event, the swimmers had to come back at the same location to answer the Coping Function Questionnaire (CFQ) and the PANAS. At this point, athletes were instructed to answer the CFQ based on what they did to manage stress prior to and during their race. The PANAS assessed post-race emotions. This time period (one hour following the end of the race) was necessary for swimmers to do a swim down and to meet with their coach to get some feedback on their race. The questionnaires booklet took approximately 20 to 25 minutes to complete. Final times were recorded by the researcher at the end of each day.

2.1.4 Data Analysis

In the interest of simplicity on all charts and tables, the following codes will be used for the measured variables in this study:

- Stress: STRESS
- Self-Efficacy Strength: SE
- Problem-Focused Coping: PFC
- Emotion-Focused Coping: EFC
- Avoidance Coping: AVC
- Positive Affect: PA
- Negative Affect: NA
- Performance Discrepancy: PD

Prior to conducting all analyses, the data was screened for missing data and outliers. Participants who did not completed the second part of the study (i.e. Coping Function Questionnaire and Positive Affect and Negative Affect Schedule) as well as those who had missing data were not
Self-Efficacy, Coping, Performance, and Emotions in Youth Swimmers

included in the study. Furthermore, subjects who reported a level of stress lower than 35 on the stress thermometer were also excluded from the study. This procedure was used to ensure that subjects had to cope with stress in order to achieve a better outcome. Thus, the final sample included 111 swimmers: forty-eight males and sixty-three females. The mean age was 15.4 with a standard deviation of 1.3. Fifteen swimmers were from British Columbia, 35 were from Quebec, 60 were from Ontario, and one participant was from Alberta. The experience ranged from 3 to 13 years with a mean of 7.2 and a standard deviation of 2.0.

Descriptive statistics, means, standard deviations, and histograms were computed for all variables. Scale reliabilities were examined using Cronbach alpha.

First, ANOVA’s were performed to look at the influence of age and gender on all variables. Then, various analyses were used to test the four main hypotheses. First, bivariate correlations for all variables were computed using Pearson Product Moment Correlation. Thus, these analyses allowed a preliminary examination of the proposed model (Figure 4). Further, secondary hypotheses could be examined through simple correlation. Since coping was unrelated to performance, the proposed model was not examined in detail. Next, two multiple regressions were conducted to determine the best predictors for positive affect. The first regression looked at the influence of different variables of the model on PA. Because PFC and EFC were strongly correlated, they were both used in the second regression to determine if they were stronger predictors of PA. Thus, PA was the dependent variable in both regressions. In the first regression, PD was entered on the first step, followed by PFC on the second step, and SE on the third step. Secondly, because EFC seemed to be highly used by participants, the influence of this
variable on PA was examined. PD was entered on the first step followed by PFC and EFC on the second step, and SE on the third step.

The level of significance for all tests was set at $p < .05$ prior to analysis. One-tailed Pearson correlations were used to analyze all hypotheses. The data was analyzed using SPSS version 12.0.
Figure 5 Model based on hypotheses.
CHAPTER 3

3.1 RESULTS

3.1.1 Scale Reliabilities

Reliability of the scales employed in this study was examined using Cronbach’s alpha. Reliabilities for all scales (see Table 1) were acceptable and similar to data from previous research with the exception of the SE scale. The scale was specially designed for this study and due to its structure, it was not appropriate to use Cronbach alpha to determine reliability.

3.1.2 Descriptive Statistics and Correlations

The means, standard deviations, and skewness are all shown in Table 1. None of the variables were skewed. As expected, the mean and standard deviation for the self-efficacy scale were both high (x = 81.95, SD = 11.33). The problem-focused, emotion-focused, and avoidance coping descriptive statistics were all within the range of the values found by Kowalski and Crocker (2001). In this study, participants seemed to use more emotion-focused coping during their race. Values for the positive and negative affects were different than the ones found by Crocker (1997). He found means of 3.9 (SD = between .93 and 1.15) as compared to 3.0 in the current study for the PA scale. The NA scale showed a mean of 1.90 (SD = between .57 and 1.10) in Crocker’s study (1997) as compared to 2.29 in the present research.
Table 1: Means and Standard Deviations for Self-Efficacy, Coping, Performance, and Emotions

<table>
<thead>
<tr>
<th></th>
<th>Mean (x)</th>
<th>Standard Deviation (SD)</th>
<th>Skewness</th>
<th>Range</th>
<th>Scale Range</th>
<th>Alpha Coefficient (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE</td>
<td>81.95</td>
<td>11.33</td>
<td>-.82</td>
<td>40-100</td>
<td>0-100</td>
<td>NA</td>
</tr>
<tr>
<td>PFC</td>
<td>2.68</td>
<td>.85</td>
<td>-.01</td>
<td>1.00-4.33</td>
<td>1.00-5.00</td>
<td>.83</td>
</tr>
<tr>
<td>EFC</td>
<td>3.37</td>
<td>.80</td>
<td>-.50</td>
<td>1.14-5.00</td>
<td>1.00-5.00</td>
<td>.81</td>
</tr>
<tr>
<td>AVC</td>
<td>2.04</td>
<td>.94</td>
<td>.80</td>
<td>1.00-4.40</td>
<td>1.00-5.00</td>
<td>.89</td>
</tr>
<tr>
<td>PA</td>
<td>3.00</td>
<td>.91</td>
<td>-.15</td>
<td>1.10-4.70</td>
<td>1.00-5.00</td>
<td>.89</td>
</tr>
<tr>
<td>NA</td>
<td>2.29</td>
<td>.70</td>
<td>.64</td>
<td>1.10-4.00</td>
<td>1.00-5.00</td>
<td>.71</td>
</tr>
<tr>
<td>PD</td>
<td>-2.60</td>
<td>2.20</td>
<td>-.11</td>
<td>-11.32-5.42</td>
<td>- ,+</td>
<td>NA</td>
</tr>
</tbody>
</table>
In all cases, the correlations were examined using Pearson correlations. Since the direction of the correlations was expected prior to conducting the data analysis, it was decided that one-tailed Pearson correlations were appropriate. All correlations are shown in Table 2.

Several ANOVA's based on gender and age were computed for all variables (SE, PFC, EFC, AVC, PA, NA, and PD). All analyses failed to reach significance.
Table 2: Pearson correlations between Self-Efficacy Strength (SE), Problem-Focused (PFC), Emotion-Focused (EFC), and Avoidance Coping (AVC), Positive (PA) and Negative Affect (NA), and Performance Discrepancy (PD)

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. SE (Self-Efficacy)</td>
<td>___</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. PFC (Problem-Focused)</td>
<td>.00</td>
<td>___</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. EFC (Emotion-Focused)</td>
<td>.05</td>
<td>.52*</td>
<td>___</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. AVC (Avoidance)</td>
<td>-.02</td>
<td>.51*</td>
<td>.21*</td>
<td>___</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. PA (Positive Affect)</td>
<td>.19*</td>
<td>.26*</td>
<td>.38*</td>
<td>.00</td>
<td>___</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. NA (Negative Affect)</td>
<td>-.14</td>
<td>.02</td>
<td>.04</td>
<td>.27*</td>
<td>-.32*</td>
<td>___</td>
<td></td>
</tr>
<tr>
<td>7. PD</td>
<td>.24*</td>
<td>.10</td>
<td>.16</td>
<td>-.17</td>
<td>.37*</td>
<td>-.18*</td>
<td>___</td>
</tr>
</tbody>
</table>

* p < .05 (one-tailed)
3.1.3 Testing the Hypotheses

This section will describe the relationships found within the expected model (see Figure 6) including SE, PFC, PGPD, and PA as well as correlations with other variables.

3.1.3.1 Self-Efficacy/Performance Relationship

As expected there was a significant positive relationship between self-efficacy and performance ($r = .24, p < .05$). This finding indicates that higher levels of self-efficacy were associated with exceeding performance goal times. Although the correlation is significant, self-efficacy explains only 5% of the total variance accounted for when looking at performance.

3.1.3.2 Self-Efficacy/Problem-Focused Coping Relationship

Contrary to the second hypothesis, self-efficacy was not positively correlated with problem-focused coping ($r = .00, p > .1$). This is contrary to Bandura’s theory, which stipulates that, under stress, efficacious people should rely more on problem-focused coping compared to people with lower self-efficacy beliefs.

3.1.3.3 Problem-Focused Coping/Performance Relationship

Contrary to expectations there was no significant relationship between problem-focused coping and performance discrepancy ($r = .10, p > .01$).

3.1.3.4 Performance/Positive Affects Relationship

The final hypothesis looked at the influence of performance on positive emotions. This hypothesis stipulated that a positive performance discrepancy would lead to more positive
emotions experienced by the participants. The results showed that a positive PD led to more positive emotions (r = .37, p<.05), thus providing support for this hypothesis.

3.1.3.5 Other Significant Relationships

Four other meaningful relationships were found to be statistically significant. First, PFC was positively correlated with PA (r = .38, p<.05). Surprisingly, emotion-focused coping was also positively associated to PA (r = .38, p<.05). Thus, the use of both problem-focused or emotion-focused coping was associated with more positive emotions for the swimmers.

Self-efficacy was also found to be positively associated with PA (r = .19, p<.05). Although the results showed a weak correlation, it is in line with Martin’s (2002) findings showing that different types of self-efficacy were positively correlated with positive affects (r ranged between .39 and .56).

Finally, AVC was positively correlated with negative affect (r = .27, p<.05). Therefore, trying to get away from the situation seems to be associated with negative experience.
* Significant at p < .05, one-tailed.

Figure 6 Correlations for the four hypotheses and other variables
3.1.4 Multiple Regressions

One of the goals of this research was to determine if the proposed model (Figure 5) fit the data. Clearly the simple correlations analysis indicates the model does not fit. However, critical variables in the model can be more closely examined. One such variable is positive affect. Many of the predictor variables were significantly related to positive affect. Therefore, two multiple regressions were conducted to determine which variables predicted positive affect in the swimmers.

3.1.4.1 Problem-focused as a Predictor of Positive Affect

Based on these findings and on the primary hypotheses, a hierarchical regression was conducted. PD was entered on the first step, followed by PFC on the second step, and SE on the third step. The analysis indicated that both PD and PFC made significant contributions to the prediction of positive affect (see Table 3). SE did not make a significant contribution.

3.1.4.2 Problem- and Emotion-focused as Predictors of Positive Affect

Given that both PFC and EFC were related to PA, a second hierarchical regression was conducted to determine the best predictors of PA. PD was also entered on the first step followed by EFC and PFC on the second step. Finally, SE was entered on the third step (see Table 3). The analysis indicated that PD and coping made significant contributions to the prediction of positive affect (see Table 3). Once again, SE did not make a significant contribution to the equation. The analysis indicated that only PD and emotion-focused coping were significant individual predictors of PA.
Table 3: Predictors of Positive Affects

Hierarchical Regression Analysis Predicting Positive Affect

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable</th>
<th>$\beta$</th>
<th>$R^2\Delta$</th>
<th>$R^2$</th>
</tr>
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<tr>
<td>1</td>
<td>PGPD</td>
<td>.370*</td>
<td>.137*</td>
<td>.137*</td>
</tr>
<tr>
<td>2</td>
<td>PGPD</td>
<td>.352*</td>
<td>.037*</td>
<td>.174*</td>
</tr>
<tr>
<td></td>
<td>PFC</td>
<td>.193*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Significant at $p < .05$; intercept for steps 1 and 2 were 3.428 and 2.851 respectively

Hierarchical Regression Analysis Predicting Positive Affect

<table>
<thead>
<tr>
<th>Step</th>
<th>Variable</th>
<th>$\beta$</th>
<th>$R^2\Delta$</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PGPD</td>
<td>.366*</td>
<td>.134*</td>
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</tr>
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<td>2</td>
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<td>.086*</td>
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<td></td>
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<tr>
<td></td>
<td>PFC</td>
<td>.089</td>
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</table>

*Significant at $p < .05$; intercept for steps 1 and 2 were 3.433 and 2.240 respectively
CHAPTER 4

4.1 DISCUSSION

This study looked at the interrelationships among self-efficacy beliefs, coping behaviors, performance, and emotions in youth swimmers. Bandura (1997) suggests that highly self-efficacious people should rely more on problem-focused coping when dealing with stressors. This relationship has been found in various domains such as health and substance abuse but was yet to be validated in the sport domain. Therefore, the current study is unique in that it tried to link Bandura’s Social Cognitive Theory (1986) to Lazarus (1991) coping framework in sport.

This study found that young swimmers of four different provinces were highly confident in reaching their defined race goals, used different coping functions when dealing with stress, and experienced different emotions depending on the outcome of their races. Four main hypotheses were tested. These hypotheses will be discussed in light of the results obtained in the current study and prior related research in various domains. Positive and significant relationships were found between self-efficacy and performance as well as between performance and positive affect. On the other hand, the correlation between self-efficacy and problem-focused coping, in addition to the relationship between problem-focused coping and performance failed to reach significance.

4.1.1 Self-Efficacy and Performance

Highly self-efficacious swimmers, in this study, seemed to perform better as compared to less efficacious swimmers. Due to the specificity of the questionnaire, it was challenging to compare the results with other self-efficacy scales. However, previous studies found that elite athletes
reported high levels of self-efficacy in golf (Bend, Biddle, & Ntoumanis, 2001) and tennis (Lane, Jones, & Stevens, 2002). Although numerous studies found significant correlations between self-efficacy beliefs and performance (see Moritz, Feltz, & Farhbach, 2000 for a meta-analysis), the present correlation was relatively weak. This could be due to the way self-efficacy was assessed in the current study. Self-efficacy was measured based on personal goals set by the swimmers. The questionnaire used to assess self-efficacy was created specially for the current study and when athletes were asked how confident they were to reach their self-assigned goal, over half of the sample was less than 60% certain they could attain it. This is somehow surprising, as we would expect someone to be quite confident to reach a self-designated goal. Locke and Latham (1990) argue that challenging goals should be used to motivate athletes to strive harder. The findings suggest that a better awareness and understanding of the goal setting theory (i.e. goals need to be specific, difficult but reachable to enhance performance) could be helpful when trying to increase one's self-efficacy beliefs as most swimmers seemed to set goals that were out of their reach.

As mentioned above, participants had to record their personal goal for their upcoming race. Thus, the difficulty of the swimmers' goal might have influenced their level of efficacy and therefore, the correlation with performance. While some athletes prefer to set extremely demanding goals, others might choose to set easier goals. Thus, if two equally skilled swimmers set different goal, the one that is aiming to swim two seconds faster in a 100m freestyle is likely to be more confident in his/her ability to reach the goal compared to the swimmer aiming to swim five seconds faster in the same event. Goals difficulty might be used by someone to increase motivation but could be perceived as extra pressure by others. The Achievement Goal
Theory (Duda & Hall, 2001) stipulates that the interaction between achievements goals, perceived ability, and achievement behaviours will influence a person’s motivation. Outcome-oriented and task oriented goals are the two elements included under the achievement goals category. An outcome goal orientation focuses on comparing the athlete with others whereas the task goal orientation is concerned with the improvement of the performance relative to past performances. Therefore, the approach towards goals and the perceived ability will influence the performance, effort, persistence, and task choice of an athlete. Task-oriented swimmers will tend to select moderately difficult or realistic tasks as they do not fear failure. People that are outcome oriented have low perceived competence and demonstrate a low or maladaptive achievement behaviour pattern (Duda & Hall, 2001). They will either set goals that are out of reach or that will be to easy to attain and will tend to perform poorly in evaluative situations. Therefore, in the current study, some swimmers might have been more ego-oriented (i.e. outcome-oriented) and others might have been more task-oriented and this could have had a direct influence on their self-efficacy beliefs (i.e. based on perceived ability) and performance.

The method used to assess self-efficacy also affected the way performance was measured. Performance was measured compared to the swimmer’s goal. Thus, easier goals were more likely to lead to better performance by the participants. A standardized self-efficacy questionnaire asking participants to rate their confidence level according to a predetermined standard (i.e. national standard or specific time) could be another way to assess self-efficacy. This method was used by Bend, Biddle, and Ntoumanis (2001) with golfers and could provide a better assessment of the self-efficacy/performance relationship. However, since coping is theoretically linked to the person’s individual goals, self-efficacy linked to national standards
might provide a misleading link to coping. The present study also attempted to correlate the participants’ self-efficacy level for rank to overall rank in heats. However, due to the impossibility of keeping records of each swimmer’s ranking in heats, further analyses could not be performed.

Finally, swimming is one sport where some of the contestants will perform their events at two different occasions in the same day. Although the events remain exactly the same, it is known by the swimming community that most swimmers will perform better in the finals as more is at stake for them. Thus, some athletes set specific goals according to what they think they could do in a finals setting. Eccles’ expectancy-value model (1983) mentions that expectancies for success and subjective task value will both influence achievement behaviours. Positive relationships between all three variables were found in different studies (Eccles & Harold, 1991; Kimiecik, Horn, & Shurin, 1996). Therefore, because the expectations were higher during finals, examining the outcomes would have been more significant to look at. By assessing self-efficacy and performance in heats, it might have influenced the relationship between the two variables as the majority of the swimmers (91%) felt short of reaching their goals. A stronger correlation between self-efficacy and performance would be expected in finals, as Kane and colleagues (1996) showed that self-efficacy was strongly and directly correlated to overtime performance in wrestling (i.e. more stressful situation).

4.1.2 Self-Efficacy/Problem-Focused Coping Relationship

The results clearly showed that self-efficacy did not correlate with problem-focused coping. This is in contradiction with Bandura’s theory, which stipulates that under pressure, efficacious
people will rely more on problem-focused coping compared to people with lower self-efficacy beliefs. Furthermore, this finding does not replicate the positive relationship between self-efficacy and problem-focused coping found in other areas such as health (Endler, Kovoski, & Mcrodimitis, 2001) and drug and alcohol abuse (Majer, Jason, Ferrari, Olson, & North, 2003).

There are various reasons for the absence of a significant relationship between self-efficacy and problem-focused coping. This relationship might have been influenced by the way self-efficacy was measured. Bandura (1997) argues that to increase the likelihood of finding a significant relationship, self-efficacy has to be measured based on the variable of comparison. Thus, if linked to coping, participants should be asked how confident they are to be able to cope with a certain situation. In this study, however, the self-efficacy questionnaire was not specifically created to examine the self-efficacy/coping relationship.

Furthermore, fixed task demands could be used to assess self-efficacy. Asking the swimmers how confident they are to reach a national or provincial standard would be a good way to discriminate them based on their self-efficacy beliefs. Nevertheless, this new way of assessing self-efficacy would conflict with Lazarus' coping theory (1991, 1999). He argues that goals need to be self-determined in order for someone to cope. Thus, fixed tasks or standards might not be seen as really stressful by some swimmers if they diverge from the goals they set for themselves.

On the other hand, these findings replicate results found by Haney and Long (1995) who did not find any significant relationship between self-efficacy and engagement coping (i.e. combination
of both problem-focused and emotion-focused coping) in sports. However, the two authors used a revised two-factor 46-item version of the Ways of Coping Checklist (WCC; Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986) to assess coping. Their results might have been influenced by the fact that they used a non-specific sport coping questionnaire. Although the current study used a fairly new coping scale (CFQ; Kowalski and Crocker, 2001), it was specifically designed to monitor coping in adolescents in sporting situations.

Lazarus argues that coping occurs when stress is present. One could argue that although the stress level of all participants included in the analysis was above 35 on the stress thermometer, they may not have been aware of the need to cope during their race if they felt they were getting closer to reaching their goal. It is plausible that higher stress levels are required before the self-efficacy and coping relation can be examined. An alternative method to examine such relationship would be to use induced failure. When a performance goal is threatened, actions will be taken in order to avoid failure and thus, stronger relationships with specific variables might emerge.

Finally, several studies that found significant relationships between self-efficacy and problem-focused coping in other areas asked the participants to fill out all questionnaires post event. Because the outcome was already known, their procedures could have influenced one’s self-efficacy beliefs and subsequently, the correlation between self-efficacy and coping. The current study tried to control the influence of the outcome on reported pre-event self-efficacy beliefs. By doing so, the self-efficacy/problem-focused coping relationship might have been greatly influenced.
4.1.3 Problem-Focused/Performance Relationship

In line with Gould and colleagues (1993) and Crocker and Graham (1995) who looked at coping strategies, athletes in this study reported using a combination of coping functions. However, the results did not show any significant relationship between problem-focused coping and performance. This is somewhat surprising as other studies found positive relationships between these two variables (Crocker & Graham, 1995; Gaudreau et al., 2002; Gaudreau & Blondin, in press).

One factor to consider is age. The age range in this study was quite different from other studies. Crocker and Graham (1995) looked at participants between the age of 15 and 30 whereas Gaudreau and colleagues (2002, in press) used participants between 14 and 22 years of age. The age of the individual has been observed to contribute to individual differences in adolescents coping (Aldwin, 1994). Moreover, coping increases in sophistication across adolescent age period (Fields & Prinz, 1997). Based on the adult literature, it is hypothesized that if people believe that something can be done to affect the stressor directly, they will use problem-focused strategies predominantly. By contrast, youths will perceive that the stressor can only be endured for the time being and thus, will more likely use an emotion-focused approach (Zeidner & Endler, 1996, p.453). These authors mention that maturity, in term of coping actions, will be reached around the age of 20 and will remain the same through adulthood. Hoar (2003) found that adolescent athletes reported a limited number of coping strategies when asked what they did to handle stress. This could explain the reliance on more emotion-focused coping by the swimmers in this study.
Problem-focused coping is more complex as the individuals try to control what is causing the stress. Thus, they need to be able to look at the broader picture (i.e. themselves in relation to the environment) in order to decide what would best suit their goals. Therefore, a person's developmental stage can influence the coping strategy he/she decides to use. Erickson's psychological theory (1963) focuses on personality development, which likely has an influence on coping styles. This theory also recognizes the impact of social and contextual influences on the development. According to Erickson's theory, adolescents between the age of 12 and 18 are in the identity versus identity confusion stage. This stage is characterized by trying to establish an identity, a sense of self as an individual and focuses on the development of peer relationships. This results in an overall personality, which, when things go well, houses an essentially positive self-concept and facilitates movement to the next stage. People that show a sense of identity confusion tend to set short-term goals, but have trouble establishing long-range plans, are apt to have trouble making decisions, fearing that they will be wrong. As well, they tend to be cognitively inflexible (Hamacheck, 1988). Thus, some of the participants in this study might have been trying to master the sense of identity paradigm but failed to do so. This could have influenced the way they handled stress. By relying more on one coping function (i.e. emotion-focused coping) they did not need to make any significant decisions (i.e. which coping functions would be more adequate to use in a particular situation) and the cognitive process was greatly facilitated. Furthermore, adolescents at this stage tend to believe that what happens to them is largely out of their hands, a matter of fate. This way of thinking could also influence their attitudes and actions toward a stressful situation, as they might not have seen the necessity of modifying the encounter.
According to Lazarus (1999), it is extremely hard to distinguish between problem-focused and emotion-focused coping because most individuals use them both interchangeably. He argues that it is tempting to conclude that problem-focused coping leads to better results but that the appraisal of the situation will determine which coping actions should be employed. This is where the type of sports could exert an influence on coping behaviors. The majority of the studies in sports (Crocker & Graham, 1995; Gaudreau and colleagues, 2002, in press) required the participants to perform a task longer in duration compared to most swim races. In swimming, most events are over in less than three minutes. Thus, as mentioned by Aldwin (1994), participants might not have the time to completely analyze the situation (i.e. problem solving) and controlling one’s emotions might, once again, appear to be more advantageous.

In sports, the majority of studies that looked at the relationship between problem-focused coping and performance have done so with team sports (Crocker & Graham, 1995; Gaudreau & Blondin, 2002). Although these authors also included some individual sports in their research (i.e. golf, wrestling, track and field, figure skating, swimming, badminton, gymnastic, and downhill skiing), the percentage of athletes participating in these individual sports was much lower than team sports. This factor might influence the direction and significance of the problem-focused/performance relationship. When one is surrounded by teammates, it might appear to be easier to try to modify the stressor itself as opposed as trying to control everyone’s emotions. Thus, in the current study, swimmers might have felt it was easier for them to control their own emotions.
Previous coping studies linked coping strategies to performance. They found that only some of the strategies used by athletes were associated with performance. However, the current study looked only at coping functions. Thus, the questionnaire used to assess coping (CFQ) might not have been appropriate in trying to link coping to performance. This finding highlights the possibility that performance might not be influenced by what athletes decide to do to handle stress (i.e. coping functions) but by the specific actions they take to control stress (i.e. coping strategies). Therefore, knowing that an athlete relies more on problem-focused coping might not be as important as knowing the specific actions he/she takes to handle stress and control emotions. This is in line with Crocker and Graham’s (1995) findings.

4.1.4 Performance/Positive Affect Relationship

The current study replicates the work of several previous researchers (Amiot et al., 2003; Crocker & Graham, 1995; Gaudreau et al., 2002) by showing that better performances lead to more positive emotions. The results showed that positive performance discrepancies were associated with higher scores of positive affects.

Although the hypothesis was validated, the positive affect scores reported by the participants were lower than the ones reported by Gaudreau and colleagues (2002) when looking at golfers. They reported a mean of 3.22 for the positive affect scale following a golf tournament. The value in this study also differs from the 3.46 found by Crocker and Graham (1995) in their study looking at coping strategies used by competitive athletes. The discrepancy could be due to the way performance was assessed by swimmers. Goal times might be one way to assess performance but some athletes might be more concerned with their final ranking. Thus, for some
individuals, reaching their goal time might not be as important as reaching a specific rank. The developmental theory stipulates that younger individuals will tend to be more ego-oriented and thus, will tend to compare themselves to their competitors. Because more than half of the sample was under the age of 16, rank could have been a more important factor in determining the final emotions of the participants. Erickson’s (1963) theory also acknowledges the necessity of having some negative emotions in one’s developmental process. He mentions that one could easily overlook the possible value to be found in the negative ego qualities associated with each stage. Thus, a certain amount of negative emotions following a race could motivate the swimmers to strive harder in their quest of reaching their goals.

Finally, the time relapse might be another factor influencing the performance/emotion relationship. Participants were asked to come back to fill out their questionnaires within one hour following their race. While some of them came back as soon as their race was over, others talked to their coaches and did other activities (i.e. talk to parents or friends, swim down, etc.) before filling out the last questions. The influence of peers or coaches’ feedback on one’s performance could have influenced the way a person answered the questions. If negative feedback was provided to the participants, it might have affected his/her state of mind and this could have resulted in different answers reported on the PANAS.

4.1.5 Predictors of Positive Affect

Although determining some factors that predicted positive affect was not part of the four main hypotheses, the findings highlighted by this study are interesting. In addition to performance discrepancy, both problem-focused and emotion-focused coping emerged as predictors of
positive affect. This is quite surprising as Crocker and Graham (1995), as well as Gaudreau and Colleagues (2002) found a negative relationship between emotion-focused coping and positive affects. As mentioned previously, the age of the participants, and the sport they competed in might have had an influence on the coping function they decided to use.

4.1.6 Expected Model

The data did not fit the expected model (see Figure 5). The results showed that coping did not seem to be a significant factor in predicting performance. Moreover, this study failed to show that self-efficacy could be a crucial element of Lazarus’ secondary appraisal (1999) and be associated with the use of more problem-focused coping. Although the model was expected to be valid based on different relationships found in other areas, it is now crucial to question whether or not the psychological functions underlying performance in sports are similar to the ones in other areas such as health, mental disorders, and substance abuse. Most stressful situations in these areas are longer in duration and thus, individuals might benefit of more time to cope successfully. Hence, a different model based on the duration of the event could be necessary. Kane and colleagues (1996) found two different causal structures governing performance based on the meaning of wrestling matches. Therefore, different models including self-efficacy, coping, performance, and emotions could be more appropriate depending on factors such as meaning, duration of the events and type of sports. Nevertheless, a variation of the hypothesized model emerged from the findings of the current study (see Figure 6) and future potential researches will be discussed in the following sections.
One of the challenges of linking self-efficacy, coping, and swimming performance is the difficulty in creating the necessary psychological conditions. Self-efficacy is a good predictor of performance when the performance parameter is fixed. For example, if all swimmers were evaluating their confidence to achieve a specific national level time in a specific race length (i.e. 2:05 in a 200 freestyle) then a between subject analysis of self-efficacy would be a good predictor of final race performances. In swimming, however, participants can set specific individual time goals. Those goals can be far lower than national standards. Therefore, it might not be surprising that self-efficacy was a weak predictor of self-defined swimming goals. It would seem that providing a fixed target time for specific events would have been a superior method. However, according to Lazarus, coping occurs when individual goals are at stake. So why was coping and performance not related? Due to the nature of swimming, athletes might not have been aware if they were achieving or failing to achieve performance goals until after the race was over. Therefore, the majority of coping may have been directed to managing pre-race nervousness. It could be that in swimming, the main sources of stress are dealing with factors related to training demands, pre-race psychological/emotional preparation, and post-race evaluation of performance.
4.2 LIMITATIONS

This study had a number of limitations such as the demographics of the target population, the language barriers, the individuals' meaning of the race, memory recalls, and the procedures.

The results of this study are appropriate for a population of swimmers between 14 and 18 years of age living in four different provinces (i.e. Alberta, British Columbia, Ontario, and Quebec). Thus, it would be incorrect to try to generalize these findings to a different age group or to the same age group living outside Canada. All participants were volunteers and although most of them filled out all four questionnaires, 22 participants did not fill out the last two questionnaires (i.e. CFQ and PANAS) following their race. This missing information could have influenced some of the findings. Time performance was gathered even for participants who did not complete the second part of the study and it appeared that the majority of these athletes were far away from their goal. Thus, the results highlighted that bad performances could have been the major factor influencing whether or not athletes did not come back for the second part of the study. Therefore, the data from the drop out participants could have yielded different results. Furthermore, because this study was based on volunteers, it is possible that results would have differed for non-volunteers participants.

Language could also be a limitation for the data gathered in Quebec. Although all participants were required to possess a basic English reading ability level, it is possible that some of them failed to meet this requirement and still managed to answer all questions. Therefore, their answers may not have been quite representative of reality. To minimize the impact of this factor,
specific explanations were given to the participants when they did not understand the meaning of certain words.

The importance of the race for each individual could also be a potential limitation to this study. The design of swim meets allows the fastest eight or sixteen swimmers to compete again during finals. Although most swimmers have to offer a good performance to qualify for the finals, some people can afford not to swim as fast as they can and still manage to make it to the next step. When this is the case, coaches often ask their athletes to focus on different aspects of the race (i.e. splits, technique, race strategies, etc.) and thus, falling short from reaching their time goal might not be seen as failure by the athletes. Hence, in this study, some athletes fell short from attaining their time goals but might have reached other goals. This factor is most likely to have influenced the relationship between different factors. It the future, it would be interesting to look at the same model under more stressful situations (i.e. finals at a swim meet).

Finally, memory recalls are one of the major limitations associated with coping assessment. In this study, athletes were asked to come back after their race to fill out the remaining two questionnaires (i.e. CFQ and PANAS). Although most of the participants came back within one hour following the completion of their race, some of them did not come back and only reported their data the next day. This might have influenced the way athletes remembered specific details of their race and thus, directly affect the data reported.
4.3 FUTURE DIRECTIONS

The coaches’ attitude towards the current study was the major barrier encountered during data collection. Most coaches did not respond to phone calls or emails sent by the main researcher. Coming up with ways to improve the coaches’ views of the practical utility of research in their area might be helpful to get a better insight into psychological mechanisms underlying performance and to increase the response rate of the participants. A more individual and personalized approach with coaches might be a better way to gain the coaches’ interest to various projects and would, eventually, facilitate data collection.

According to Lazarus (1991, 1999), stress is essential in order for a person to cope with a situation. While the current study used moderately to highly stressed swimmers (i.e. scores above 35 on the stress thermometer), it would be interesting to assess the influence of higher levels of stress (i.e. above 50 on the stress thermometer) on self-efficacy, coping behaviors, performance and emotions. Appraising a situation as more threatening or challenging might trigger different psychological mechanisms and a different model might emerge from the findings. Only using performances recorded in finals might be a way to evaluate the importance of stress in the model. Originally, this study was meant to look at data gathered during finals but more collaboration from all coaches will be necessary in order to get access to the swimmers during their second swim.

Developing a self-efficacy questionnaire looking at the efficacy beliefs to cope with a certain situation could be a way to replicate the strong self-efficacy/coping relationship found in other areas. Bandura (1997) had mentioned that in order to strengthen the relationship found, self-
Self-Efficacy, Coping, Performance, and Emotions in Youth Swimmers

Self-efficacy should be measured based on the variable of comparison. Participants could be asked how confident they are to be able to handle different stressful situation while performing their event. Thus, two self-efficacy questionnaires could be necessary to develop a more accurate model.

Furthermore, gathering data from different sports (i.e. individual versus collective) might be an interesting way to look at the influence of the type of sports on various psychological variables. The duration of the event, the complexity of the task, and the environment might all be factors influencing a person’s response to stress and were not controlled for in the current study.

Looking at coping strategies instead of coping functions might highlight more significant results as the questionnaire used to assess coping in the current study (CFQ; Kowalaski & Crocker, 2001) might not have been sensitive enough to detect certain relationships. The CFQ requires that athletes make an inference about why they used a particular strategy. Adolescent swimmers may lack the cognitive awareness to make this inference. Thus, a questionnaire assessing coping at lower level (i.e. coping strategies), such as the MCOPE, might detect relationships that did not emerge as significant when using the CFQ.

The findings highlighted in this study were quite interesting in respect to the relationship between emotion-focused coping and positive affects. The current literature seems to label the use of emotion-focused coping strategies as a maladaptive way to handle stress as other studies showed that it was negatively correlated with positive affects. Nevertheless, these findings were significant only when looking at post-race emotions. Future research could look at the impact of
emotions on different aspects of the model (i.e. emotions pre-race versus post-race). It would be interesting to see if certain pre-race emotions would be associated with the use of specific emotion-focused coping strategies.

Finally, qualitative methods could be a good way to look at the stress and coping process and its relationship to self-efficacy. Asking the participants different questions about their performance might highlight relationships between different psychological variables that were not found in the current study and would be a good way to gain a better insight at the current model. Our understanding of the stress process in swimmers is very limited. Qualitative methods could help identify the critical sources of stress and the conditions that lead to the use of various coping strategies.

4.4 CONCLUSION

The current study looked at the influence of self-efficacy on coping behaviours, performance, and emotions in youth swimmers from four difference provinces. The results highlighted significant relationships between self-efficacy and performance as well as between performance and positive affect. Furthermore, contrary to the hypotheses, problem-focused coping did not correlate with self-efficacy or performance. All four relationships were previously validated in areas outside sports. It is now crucial to question whether or not the psychological mechanisms underlying performance in sports are similar to the ones used in other fields.
REFERENCES


Self-Efficacy, Coping, Performance, and Emotions in Youth Swimmers


APPENDICES
APPENDIX A

Stress Thermometer
Self-Efficacy, Coping, Performance, and Emotions in Youth Swimmers

**Stress Thermometer**

Upcoming race: _____________ (ex: 200m free, 100m back, etc.)

Please indicate the amount of stress that you are experiencing *at the moment* (before your upcoming race) by marking an ‘X’ on the scale within the thermometer:

![Stress Thermometer Diagram]
APPENDIX B

Self-Efficacy Questionnaire
Self-Efficacy Questionnaire

Age: _______  Gender: _______

Team: _______________________  Year(s) in the sport: _______

Instructions: This form looks at the thoughts and beliefs that you have about the race you are about to swim. Please complete as you feel right now, focusing on your coming race. In the table, you will find 5 times and 5 ranks that you might get for a race. For each of these 10 items, please indicate how certain you are of being under (i.e. faster/better) this particular time or rank by marking an “X” on the scale within the thermometer. Your certainty score can go from 0 (not confident at all) to 100 (very confident).

But before looking at your thoughts and beliefs, please indicate your goals (i.e. time and rank) for your upcoming race.

Race: _______ (ex: 200 freestyle; 100 backstroke)

Goal for the race:  Time: __________
How important is this goal for you? ________ (From 1 to 10)

Goal for the race:  Rank: __________
How important is this goal for you? ________ (From 1 to 10)

Note:
You will find the percentages converted in time on the time chart attached to this page. Find the row corresponding to your goal time and enter the times in the self-efficacy table. See the example below.

Example:
Laura’s goal for the 100m freestyle is 1:05.
If you look at the time chart, she has to indicate how confident she is to:
1) Goal time:  reach goal time (i.e. 1:05)
2) Goal time + 1%:  swim faster than 1:05.65
3) Goal time + 2.5%:  swim faster than 1:06.6
4) Goal time + 5%:  swim faster than 1:08.2
5) Goal time + >5%:  swim faster than 1:09.9
### How confident are you to be faster/under the following times/ranks for your upcoming race? (mark an “X” within the thermometer)

<table>
<thead>
<tr>
<th>Self-Efficacy</th>
<th>Certainty</th>
</tr>
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<tr>
<td><strong>Time:</strong></td>
<td></td>
</tr>
<tr>
<td>1) Reach goal time</td>
<td>50</td>
</tr>
<tr>
<td>2) Faster than goal + 1%*</td>
<td>50</td>
</tr>
<tr>
<td>3) Faster than goal + 2.5%</td>
<td>50</td>
</tr>
<tr>
<td>4) Faster than goal + 5%</td>
<td>50</td>
</tr>
<tr>
<td>5) Slower than goal + 5%</td>
<td>50</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td></td>
</tr>
<tr>
<td>Rank:</td>
<td></td>
</tr>
<tr>
<td>1) 1</td>
<td>50</td>
</tr>
<tr>
<td>2) 2-3</td>
<td>50</td>
</tr>
<tr>
<td>3) 4-5</td>
<td>50</td>
</tr>
<tr>
<td>4) 6-7</td>
<td>50</td>
</tr>
<tr>
<td>5) 8</td>
<td>50</td>
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<td><strong>Total:</strong></td>
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*Goal time + a certain percentage.*
APPENDIX C

Coping Function Questionnaire
Coping Function Questionnaire

We are interested in how you tried to handle your race. We are NOT concerned with what you did before your race happened or what you did after it was over. **We want to know what you did to try to handle the stressful situation when you were actually faced with it.**

**Take a minute to think about the types of things you did to try to handle the situation and then continue.**

We would like you to indicate, by filling in the appropriate circle on the next page, to what extent you used each of the following to deal with the stress.

Remember:
A. There are no right and wrong answers - this is not a test.
B. Please answer all the questions as honestly and accurately as you can - this is very important.
How much did you use the following to deal with the stressful situation you described on the previous page?

1. I tried to find a way to change the situation.
   - Not at all
   - A little
   - Somewhat
   - Quite a bit
   - Very much

2. I stayed in the situation and tried to control my emotions to better deal with the situation.
   - Not at all
   - A little
   - Somewhat
   - Quite a bit
   - Very much

3. I worked harder to try to change the situation.
   - Not at all
   - A little
   - Somewhat
   - Quite a bit
   - Very much

4. I tried to change how I thought about the situation so it didn't seem so stressful.
   - Not at all
   - A little
   - Somewhat
   - Quite a bit
   - Very much

5. I tried to get out of the situation as soon as I could to reduce the stress.
   - Not at all
   - A little
   - Somewhat
   - Quite a bit
   - Very much

6. I used strategies to change the situation in order to deal with the stress.
   - Not at all
   - A little
   - Somewhat
   - Quite a bit
   - Very much
7. I tried to view the situation in a way that made it seem less stressful.

<table>
<thead>
<tr>
<th>Not at all</th>
<th>A little</th>
<th>Somewhat</th>
<th>Quite a bit</th>
<th>Very much</th>
</tr>
</thead>
</table>

8. I tried to leave or avoid the situation to get away from the problem or reduce the stress.

<table>
<thead>
<tr>
<th>Not at all</th>
<th>A little</th>
<th>Somewhat</th>
<th>Quite a bit</th>
<th>Very much</th>
</tr>
</thead>
</table>

9. I did my best to change the situation.

<table>
<thead>
<tr>
<th>Not at all</th>
<th>A little</th>
<th>Somewhat</th>
<th>Quite a bit</th>
<th>Very much</th>
</tr>
</thead>
</table>

10. I tried to use different strategies that would help me control my emotions.

<table>
<thead>
<tr>
<th>Not at all</th>
<th>A little</th>
<th>Somewhat</th>
<th>Quite a bit</th>
<th>Very much</th>
</tr>
</thead>
</table>

11. I looked for ways to solve the problem or change the situation.

<table>
<thead>
<tr>
<th>Not at all</th>
<th>A little</th>
<th>Somewhat</th>
<th>Quite a bit</th>
<th>Very much</th>
</tr>
</thead>
</table>

12. I tried to get out of the situation to get away from the stress.

<table>
<thead>
<tr>
<th>Not at all</th>
<th>A little</th>
<th>Somewhat</th>
<th>Quite a bit</th>
<th>Very much</th>
</tr>
</thead>
</table>

13. I stayed in the situation and tried to change it.

<table>
<thead>
<tr>
<th>Not at all</th>
<th>A little</th>
<th>Somewhat</th>
<th>Quite a bit</th>
<th>Very much</th>
</tr>
</thead>
</table>
### 14.

I worked through my emotions in order to feel better.

<table>
<thead>
<tr>
<th>Not at all</th>
<th>A little</th>
<th>Somewhat</th>
<th>Quite a bit</th>
<th>Very much</th>
</tr>
</thead>
</table>

### 15.

I tried to get away from the situation to reduce the stress.

<table>
<thead>
<tr>
<th>Not at all</th>
<th>A little</th>
<th>Somewhat</th>
<th>Quite a bit</th>
<th>Very much</th>
</tr>
</thead>
</table>

### 16.

I tried to find ways to control my emotions.

<table>
<thead>
<tr>
<th>Not at all</th>
<th>A little</th>
<th>Somewhat</th>
<th>Quite a bit</th>
<th>Very much</th>
</tr>
</thead>
</table>

### 17.

I tried to relax so that I could keep my emotions under control.

<table>
<thead>
<tr>
<th>Not at all</th>
<th>A little</th>
<th>Somewhat</th>
<th>Quite a bit</th>
<th>Very much</th>
</tr>
</thead>
</table>

### 18.

In order to reduce the stress

I tried to get myself out of the situation.

<table>
<thead>
<tr>
<th>Not at all</th>
<th>A little</th>
<th>Somewhat</th>
<th>Quite a bit</th>
<th>Very much</th>
</tr>
</thead>
</table>
APPENDIX D

Positive and Negative Affects

Schedule
Positive and Negative Affects Schedule

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you felt this way during and right after your race. Use the following scale to record your answers.

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

\[ 1 = \text{not at all} \quad 2 = \text{a little} \quad 3 = \text{moderately} \quad 4 = \text{quite a bit} \quad 5 = \text{extremely} \]

1. Interested 1 2 3 4 5
2. Irritable 1 2 3 4 5
3. Distressed 1 2 3 4 5
4. Alert 1 2 3 4 5
5. Excited 1 2 3 4 5
6. Ashamed 1 2 3 4 5
7. Upset 1 2 3 4 5
8. Inspired 1 2 3 4 5
9. Strong 1 2 3 4 5
10. Nervous 1 2 3 4 5
11. Guilty 1 2 3 4 5
12. Determined 1 2 3 4 5
13. Scared 1 2 3 4 5
14. Attentive 1 2 3 4 5
15. Hostile 1 2 3 4 5
16. Jittery 1 2 3 4 5
17. Enthusiastic 1 2 3 4 5
18. Active 1 2 3 4 5
19. Proud 1 2 3 4 5
20. Afraid 1 2 3 4 5
APPENDIX E

Consent Forms
- You consent / Do not consent to your son/daughter's participation in this study (Please circle one)

Print Name (participant):__________________________

Print Name (parent/guardian):__________________________

Signature (parent/guardian):__________________________ Date:__________________________

Signature (Co-investigator):__________________________ Date:__________________________

*You may return this back page to the coach and keep the other pages for your records.
You assent/ do not assent to participate in this study (please circle one)

Print Name (participant) : __________________________

Signature (participant) : __________________________ Date : ________________

Signature (Co-investigator): __________________________ Date: ________________

*You may return this back page to your coach and keep the other pages for your records.
APPENDIX F

Passive Consent Forms
Please complete this section if you DO NOT give permission for your son/daughter to participate in this research.

- You consent / Do not consent to your son/daughter’s participation in this study (Please circle one)

Print Name (participant):_____________________

Print Name (parent/guardian):___________________

Signature (parent/guardian):___________________ Date:___________________

Signature (Co-investigator):___________________ Date:___________________

*You may return this back page to the coach and keep the other pages for your records.
You assent/ do not assent to participate in this study (please circle one)

Print Name (participant): __________________________

Signature (participant): __________________________ Date: ______________

Signature (Co-investigator): ______________________ Date: ______________

*You may return this back page to your coach and keep the other pages for your records.