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Flow, Attentional Strategy, and Self-Presentation in Runner Participating in 5 and 10 Kilometer Road Races

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COLLEGE OF EDUCATION

FLOW, ATTENTIONAL STRATEGY, AND SELF-PRESENTATION IN RUNNERS
PARTICIPATING IN 5 AND 10 KILOMETER ROAD RACES

By

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I would like to dedicate this manuscript to my mother who has always encouraged me to follow my dreams. Thank you for all the unconditional love, guidance, and support that you have always given me, helping me to succeed and instilling in me the confidence that I am capable of doing anything I put my mind to. Thank you for everything.
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ABSTRACT

The purpose of this investigation is to explore the relationship between flow state, dissociation, and self-presentation in runners. It was hypothesized that dissociation would be negatively related to flow dimensions of total concentration on the task, receiving unambiguous feedback, having a sense of total control. Conversely, it was thought that dissociation would be positively related to the flow dimensions of time transformation, merging of action and awareness, loss of self-consciousness, and autotelic experience.

A questionnaire packet containing an informed consent form, a demographic information handout, a Race Flow Scale (Modified DFS-2; Jackson & Eklund, 2002), the thought recording handout, and the Modified Self-Presentation in Sport Questionnaire (SPSQ; McGowan et al., 2008) was administered to 210 male and female runners. The analyses of this investigation are presented in three subsections: descriptive statistics, correlational analyses, and the results of a multivariate analysis of variance (MANOVA), including *a posteriori* exploratory analyses involving two covariates. Results reveal no significant relationships were established between attentional strategy and the dimensions of flow, or between self-presentational concerns and attentional strategy. However, it was found that individuals who experience self-presentational concerns are less likely to attain the state of flow.

CHAPTER I: INTRODUCTION

The thoughts that athletes experience while engaging in a task can influence their emotional state (Hanin, 2000), their safety during that performance (Masters & Ogles, 1998), or even the outcome of that performance (Connolly & Janelle, 2003). The types of cognitions athletes express during an athletic performance can also affect how much the athlete enjoys the task. The link between enjoyment and cognitions can be drawn, in one way, through *flow*. Jackson and Csikszentmihalyi (1999) stated that to achieve the state of flow, a certain number of factors must be balanced, e.g., the athlete must be experience certain thoughts to achieve a state of flow.

Thoughts of self-consciousness are one type of cognitions that are thought to affect an athlete's ability to achieve the state of flow. Self-presentational concerns are believed to inhibit the achievement of flow (Jackson & Csikszentmihalyi, 1999). Worries about how competent one appears and what one's appearance looks like tend to detract from focus on performance. Although Jackson and Csikszentmihalyi pointed to self-presentational thoughts as some of the types of thoughts that can inhibit flow, the empirical relationship between self-presentational thoughts and the obtainment of the state of flow has never been established.

Attentional focus was found to affect an athlete's ability to achieve the state of flow (Jackson & Csikszentmihalyi, 1999). The attentional focus of runners, in particular, has long been studied (Morgan & Pollock, 1977; Pennebaker & Lightner, 1980; Okwumabua, Meyers, Schleser, & Cooke, 1983). Morgan and Pollock classified cognitive strategies as dissociative or associative. They described a dissociative strategy as one involving the shunning or ignoring of internal cues (or any sensory input). An associative strategy, by contrast, involved focusing on bodily sensory cues. Although this classification system provides a solid conceptual basis for which to consider the types of thoughts athletes experience, the empirical relationship between attentional strategies and the likelihood of achieving the state of flow has not been well established.

The aim of this study is to examine the relationship among attentional strategies, flow state, and self-presentational concerns of runners during a running event. First literature on the concepts of flow, association/dissociation, and self-presentation are

introduced, followed by studies that have examined where the three constructs have theoretically overlapped. Finally, the focus of this paper is turned to the study of how self-presentational concerns affect achieving the state of flow, as well as, upon whether a potential disposition for associating or dissociating is related to the experience of flow.

CHAPTER II: LITERATURE REVIEW

Flow, attentional strategy, and self-presentation in runners participating in 5 and 10 kilometer road races

The study of positive sport experiences is of primary interest to sport psychologists, coaches, and athletes alike. One type of positive sport experience it is possible for an athlete to have can be achieved through *flow* (Csikszentmihalyi, 1990). Flow is defined as an optimal psychological state in which an individual experiences complete and total absorption in an activity, which can lead to a number of positive psychological outcomes, such as enjoyment, fun, and even happiness (Csikszentmihalyi, 1990). It is through flow that people find enjoyment, that is, the satisfaction of working towards a goal and becoming a more complex self. It is through enjoyment that people find happiness. For these reasons, flow in sport is an important topic to seek understanding in.

Flow

According to Csikszentmihalyi (1990, 1996) flow consists of nine dimensions: a balance of challenge and skill, merging of action and awareness, total concentration on the task, loss of self-consciousness, a sense of control, clear goals, unambiguous feedback, time transformation, and autotelic experience.

During flow, individuals experience a balance between challenge and skill. That is, one's skills are equal to the challenge being faced. Csikszentmihalyi and Csikszentmihalyi (1988) suggested that an individual low in skill who is facing an activity high in challenge will feel anxiety. Conversely, if a challenge is low, and the individual possesses high skill in the activity, boredom will result. A situation in which both low challenge and low skills interact, the individual will experience apathy. It is only when both challenge and skill level are high the individual may experience flow. In fact, the balance of challenge and skill is not enough, both must be at personally high levels. This balance can also be seen as delicate. For example, an athlete may be experiencing flow, but lose confidence for a few moments, which re-sets the perception of skill as compared to challenge. This change in perceptual balance may topple the

athlete from flow into anxiety if the challenges of the activity substantially outweigh the athlete's reappraised assessment of available skill.

Another experience athletes report during the state of flow is the merging of action and awareness. The description of this dimension involves "the athlete being aware of his/her actions, but not of the awareness itself" (Weinberg & Gould, 2003). The athlete experiences fluidity in movement that is perceived as effortless and is often reported as feeling automatic.

Athletes in flow also often experience total concentration on the task. For example, a soccer player may be able to completely shut out the audience; a track athlete may be able to stay focused on his/her race and remain unaware of what competitors are doing. This total concentration helps athletes to merge action and awareness, helping make their movements seem effortless (Weinberg & Gould, 2003).

The fourth dimension of flow is the loss of self-consciousness. This dimension touches upon the idea that athletes in flow lose the perception of themselves in the activity. An athlete may completely stop thinking about him or herself and allow for a sense of oneness or unity with the activity or environment to occur.

Athletes in flow often report having a great sense of control over their actions as well as the situation (Jackson & Csikszentmihalyi, 1999). This dimension has often also been labeled "the paradox of control" because the athlete, while they perceive to be in total control, may not be in total control or may be lacking some element of control (Jackson & Csikszentmihalyi, 1999). Athletes perform many challenges that may threaten their health or well being, such as, mountain climbers ascend dangerous routes, skiers make jumps that propel them to perilous heights, and gymnasts routinely perform tricks fraught with considerable risk. Athletes in flow, however, perform these activities without fear of failure and with the feeling of assurance that they have total control (Jackson & Csikszentmihalyi, 1999).

The sixth and seventh dimensions of flow, having clear goals and receiving unambiguous feedback, are often examined together because of the nature of their close cyclic relationship. Athletes in flow are clear about what they want to accomplish and what they need to do to get there. When they start performing, feedback about their actions is provided to them through their actions. Athletes in flow are clear in their goals,

and receive clear and unambiguous feedback about their performances en route to attaining those goals. The clear feedback provides them with opportunities to assess and re-assess their performances so that they can receive information to advance towards their goals (Jackson & Csikszentmihalyi, 1999).

During flow, individuals may also feel the transformation of time. In some way, whether it is the speeding up or the slowing down of time, athletes in flow often report a loss in the sense of the usual passage of time. However, time transformation is the least reported descriptor of the flow state (Jackson & Csikszentmihalyi, 1999). Some individuals do not experience it at all during a state of flow. Csikszentmihalyi (1990) examined surgeons in a state of flow. He found that individuals experiencing time transformation performed more poorly during surgery; an activity where having a sense of the passage time is very important for success. Csikszentmihalyi also cites racers and runners as individuals who failed experiencing transformation of time during flow, due to the need to pay close attention to time in order to perform well during their activities. Clearly, more research examining the transcendence of time of individuals in flow is needed.

Perhaps the most commonly and strongly reported dimension of the flow state is the autotelic experience. Autotelic experience refers to the idea that individuals who experience flow report it as a highly enjoyable experience, one that they would want to repeat. “An autotelic activity is one done for its own sake because it provides its own reward: enjoyment” (Hanin, 2000). This dimension may be a result of a number of the other dimensions coming together. For example, having clear goals in regards to a task and receiving positive feedback pertaining to that task may help to enhance the task’s enjoyment (Csikszentmihalyi, 1990).

As briefly alluded to in early paragraphs, each of these nine dimensions of flow influence one another (Jackson & Csikszentmihalyi, 1999). For example, when action and awareness are experienced as one, the athlete is also freed of thoughts and worries about the self (loss of self-consciousness). A sense of control may come from the athlete’s perceptions of skill relative to the challenge of the task at hand. Total concentration on the activity may account for the transcendence in time experienced during task engagement. These serve as only a few examples of how the different facets

of the flow experience serve as antecedents and, possibly simultaneously, consequences for one another.

Some of the nine dimensions have been more strongly linked to the central concept of flow than others. Jackson (1996) studied flow state as experienced by twenty-eight elite level athletes, and found that the dimensions most salient to the concept of flow were: the merging of action and awareness, total concentration on the task, a sense of total control, and the autotelic experience.

Factors Influencing Flow

If flow becomes a state that one seeks highly to attain, then one should understand *how* flow is attained. However, flow state can be elusive and difficult to reach consistently, and those who attain it, usually wish to experience it again (Hanin, 2000).

In one study, Jackson (1995) asked 28 elite athletes who had experienced flow, how controllable they perceived the flow state to be. She found that, of the accounting for getting the athletes into the state of flow, 82% were thought to be controllable. The athletes also expressed sentiment suggesting that flow itself cannot be controlled, but factors affecting flow can be. In other words, one may not be able to cause flow, but one may be able to set the stage for its occurrence. Emerging from the results, were ten general factors that helped athletes get into flow.

Properly preparing for a competition or training session was one of the most cited factors for facilitating the flow state. The use of mental planning, pre-competitive routines, and during- competition plans, amongst other preparatory strategies, helped athletes to perceive themselves in control of their performances. Setting clear goals and knowing exactly what one is to do to achieve these goals overlaps with the dimensions of flow that deal with clear goals and feeling in total control.

Additionally, confidence and a positive attitude were found to be factors influencing the attainment of flow (Jackson, 1995). It is thought that these factors overlap with the balance of skill and challenge that is needed to achieve flow. That is, if an athlete thinks she can perform well given the challenge (has confidence and a positive attitude approaching the situation), then the flow state may be more likely to occur.

Physical preparation is another factor influencing the occurrence of flow (Jackson, 1995). Hydration, nutrition, rest, and a feeling of having reached peak physical

condition through training can have an effect on athletes' confidence before training or competition. This may, as discussed above, have an effect on the balance of skill and challenge, thus having an effect on achieving flow.

Achieving an optimal arousal level was another factor cited by athletes as influential in achieving flow. Although 'optimal arousal level' probably means something different for each athlete; for some the optimal state is to be relaxed, while for others, it is a heightened state of arousal that is optimal. Achieving one's own personal optimal level of arousal may be facilitative for attaining flow state.

High motivation to perform can also influence the occurrence of flow (Jackson, 1995). Feeling good and looking forward to taking part in the competition is facilitative for achieving flow.

Feeling good prior to competition is a condition necessary for attaining flow, but so is feeling good while competition is taking place. This factor, however, requires that the athlete begins to perform and receives some kind of feedback about his/her performance. If the feedback is unambiguous, positive, and the movements "feel" good, then the situation may result in feeling flow. Focus is also an important factor for athletes trying to achieve flow. This has a direct overlap with total concentration on the task. Focusing can be thought of as one controllable way to facilitate flow.

Outside influences can also have an effect on attaining a state of flow. Outside influences are usually activity-specific. In some conditions, the presence of an outside influence (positive feedback from coach) can facilitate an athlete entering a flow state. Still in other sport situations, certain conditions help an athlete attain a flow state. In Jackson's (1995) study, for example, two rowers described having no wind was very important for helping them attaining a flow state.

The way a team plays and interacts together can also have an influence on attaining a flow state. Interactions among teammates that are positive and center on the same common goal, resulting in collective movements towards the goals of the team, can help facilitate the attainment of the flow state.

The last factor that may have an influence on attaining a flow state is experience. In this sense, the word 'experience' is twofold in meaning. First, it alludes to the fact that athletes that have experienced flow in the past may have an easier time achieving their

own personal state of flow, since they know what it feels like. Second, experience may affect an athlete's ability to achieve flow because as an athlete become older, more experienced competitor, he/she knows under what circumstances flow has previously occurred for him/her in the past, and be able to cope effectively with any challenges that come up preventing him/her from attaining a flow state in the future.

Factors Preventing and Disrupting Flow

Just as it is important to understand the conditions in which an athlete best attains flow, it is similarly important to consider conditions and situations which prevent or disrupt the flow experience. Jackson (1995) outlined nine main occurrences preventing flow. These occur when the athlete (a) lacks optimal physical preparation, (b) lacks optimal environmental or situational circumstance, (c) lacks optimal arousal state, (d) lacks confidence or having a negative attitude, (e) lacks optimal focus, (f) has problems with pre-competitive routine or preparation, (g) has a lack of motivation to perform, (h) experiences sub-optimal team performance or interaction, (i) and/or makes performance errors.

An athlete lacking in physical preparation may find it difficult to attain flow state. This factor, as discussed earlier, indirectly influences the likelihood of the occurrence of flow through the confidence level of the athlete. That is, a sense of being inadequately prepared physically may undermine an athlete's confidence about possessing the skills needed to overcome the challenge of a competition. Once confidence is impaired, the flow state is unlikely to be attained.

Less than optimal environmental or situational circumstances are common in sport. Factors such as weather, audience, or equipment failure, amongst many others in the athletic environment, can prevent and disrupt an athlete's attaining flow. These factors may affect flow by altering the athlete's concentration on a task, or can also influence the control an athlete perceives he/she has over his/her performance during a competition. By affecting both of these dimensions, less than optimal environmental or situational circumstances can prevent or disrupt the flow experience.

Failing to achieve optimal personal arousal levels may prevent flow from occurring. Other factors, including lack of confidence, may affect flow attainment. When

one worries about his/her performance, he/she cannot mentally relax; a condition preventing an optimal state of arousal needed to attain a flow state.

Lacking confidence, having a negative attitude, or experiencing self-doubt is sure barriers and disruptors to flow. If an athlete is critical about him/herself, then not only does he/she lose confidence and offset the balance of skill and challenge, but also loses focus on the task at hand.

Lacking optimal focus is another factor that athletes attributed as being preventative and disruptive to flow. If an athlete is not completely absorbed in the activity; and his/her mind is wandering, or is worrying about his/her competitor, then this can be detrimental to attaining a flow state.

Experiencing problems with pre-competition routine can leave an athlete feeling unprepared to play. The full completion of the pre-competition routine or plan is instrumental in making the athlete feel confident before the competition. If this confidence is broken, or never put in place, than the athlete's ability to achieve and maintain flow may be compromised.

An athlete's lack of motivation to perform may prevent or disrupt flow. If an athlete does not feel a competition is important, or lacks playing motivation, then flow, an enjoyable experience, will most likely not result.

The dynamics of the team can also have an influence on whether or not individual athletes achieve and maintain flow. Jackson (1995) cites negative talk, poor team performance, or feeling uninvolved in the play all as reasons for preventing and disrupting flow.

Making performance errors can also disrupt an athlete in flow. If feedback about performance is unambiguous and positive, then flow may sustain for a long time. If feedback about performance is unambiguous and negative, then the flow state may be disrupted if the athlete cannot overcome the feeling that the setback has left him with.

Jackson (1992, 1995, 1996) and Csikszentmihalyi (1990, 1996) have done much to advance the understanding of the flow state; the conceptual definitions, factors that influence it, and factors that may prevent and/or disrupt it. The current work will seek to further understand the concept of flow in regards to its relation to dissociation and self-presentation.

Attentional Strategies

An athlete's attentional focus while performing a task has been a matter of interest among sport psychologists for some time because of the potential implications for performance, enjoyment, and safety. Morgan and Pollock (1977) coined the terms "association" and "dissociation" to describe attention allocation during effort engagement. When athletes are in a state of association they are attuned to and focused on internal cues. In contrast, when in a state of dissociation, athletes ignore internal cues and any sensory input they might receive from the body (Morgan & Pollack, 1977). Since Morgan and Pollack's (1977) study further investigations specified how each of the types of attentional focus affect performance and under what circumstances each attentional strategy occurs.

Type of Attentional Strategy and Performance

In a number of studies athletes who associated tend to perform better or faster than athletes who dissociated (Morgan & Pollack, 1977; Clingman & Hilliard, 1990; Connolly & Janelle, 2003). However, the experience level of the athlete, especially in runners, may have affected whether these findings hold up under various circumstances. Okwumabua, Meyers, Schleser, and Cooke (1983) examined 31 novice runners over a five week time period who were randomly assigned to either an associative style e.g. focusing on bodily sensations, dissociative style e.g. focusing on other things besides bodily sensations, or relaxation control group. Findings revealed novice runners who employed a dissociative strategy demonstrated a greater reduction in running time in a one and a half mile run than a group of novice runners who employed an associative strategy. Their studies have supported the idea that dissociative strategies may improve aerobic performance of novice athletes (Pennebaker & Lightner, 1980; Weinberg, Smith, Jackson, & Gould, 1984). Elite runners, however, employ associative strategies to secure high-level performance (Morgan & Pollack, 1977; Silva & Appelbaum, 1989).

To further complicate the issue of how the different types of attentional strategies may affect performance, it has been suggested that the type of dissociative strategy used may influence runner's performance times. Padgett and Hill (1989) had 12 college track athletes run one mile in three different attention states: external dissociation, internal dissociation, and while being read a short essay (no imagery state). External dissociation

states involve focusing on outside cues, such as the environment, the scenery, or spectators. Internal dissociation states involve strategies such as mentally working math problems, thinking of poetry, or singing a song in one's head. Results indicated that external dissociation performance times were significantly faster than both the internal dissociation and control groups. In this instance, the researcher's investigative interest pays tribute, at least in part, to the work of Nideffer (1981) and the classification of attentional style into two dimensions. First, the width of attention (either broad or narrow), which is thought of in terms of the amount of information an individual must process at a given time. And second, the direction of attention (either internal or external), which is thought of in terms of where the individual focused his/her attention—either on internal cues such as pain, feeling, thought; or on external cues such as the environment or events taking place around him/her.

Circumstances of the Occurrence of Association/Dissociation

The atmosphere, ambience, and feeling of running under training and competitive circumstances are very different. Masters and Ogles (1998) found that during competition, runners tended to associate, but while on practice runs, tended to dissociate. Pennebaker and Lightner (1980) provided one possible explanation to these findings. They found that dissociation was related to lower perceived exertion and higher levels of enjoyment. When used in training runs, athletes can use the dissociative strategy to increase the enjoyment and decrease the monotony of their training runs. Schomer (1987) asserted that even the most experienced and elite runners do not rely solely on association, but switch strategically between the two attentional types. He describes the idea that switching between dissociation and association allows the runner to navigate and control temporary moments of pain (through dissociation), while still being in total control of running form and pace (through association). By switching in and out of dissociation and association, the runner is able to maximize his/her performance. These findings were confirmed by Silva and Appelbaum (1989) where top level United States Olympic Marathon Trial contestants employed a combination of the associative and dissociative attentional strategies, while lower level finishers employed mostly a dissociative strategy.

The preference of an attentional strategy of an athlete may affect the occurrence of it. Original research done on association and dissociation points to the fact that experience level has an impact on an athlete's preference to use one attentional strategy over the other. Morgan and Pollack (1977) found that elite runners tended to prefer to associate, while non-elite runners tended to dissociate. They attributed these findings to the fact that elite athletes were more easily, and more comfortably, able to associate while running due to their superior physical ability. Non-elite runners tended to choose to dissociate in order to distract themselves from the pain and discomfort that the run may be causing them.

Since Morgan and Pollack's (1977) original study, however, there have been studies raising questions about their observations and explanation about the role of experience in attentional focus preferences. Okuwumbua et al. (1983), for example, found that novices, due to their inexperience with dissociation, are unable to dissociate. According to these findings, novices cannot help but associate – a direct conflict in findings with Morgan and Pollack.

Another finding that diverges from Morgan and Pollack's original findings was conducted by Schomer (1987). Schomer reported that all marathoners, not just elite-level, associate during races. Although runners of all experience levels were found to associate, there were differences found in the specificity of their association. For example, a novice marathoner would tell himself to "relax," while an experienced marathoner would tell himself to "relax your shoulders" or "try and relax your calf muscles." Schomer suggested that the more experienced marathoners were more able to control their bodies, thoughts, and feelings through the specificity of the association they used.

The finding that experience level dictates attentional strategy preference may also be complicated by findings suggesting that the pace of the run can be implicated in attentional strategy use (Morgan, O'Connor, Sparling, & Pate, 1987). Tenenbaum (2001) explains these findings in terms of attention as a function of exercise intensity. His model is grounded in the information processing approach, and stems particularly from Rejeski (1985) and Leventhal and Everhart's (1979) parallel processing approaches to attention. The parallel processing approach suggests that due to limited attentional capacity, only a certain amount of emotional and sensory input can be processed at any one time. From

this perspective, it can be thought that dissociation occupies channel space so that input about fatigue cannot be brought to conscious awareness. Tenenbaum (2001) contends that under low exercise intensity, attention can be voluntarily shifted from association to dissociation. However, under high exercise intensity, voluntary control over the attentional strategy used becomes limited, making the use of dissociation strategies more difficult. This model fits with earlier research that found that during a slow pace run, runners are more able to dissociate. But while at faster paces and under higher exertion, sensory input from the body becomes undeniable. (Morgan, O'Connor, Sparling, & Pate, 1987; Tenenbaum et al., 2005). The model, supported by other findings provides an alternative explanation to the finding that elite-level athletes tend to associate more than non-elite level athletes. Here, the relationship between experience level and attentional strategy used is mediated by effort exertion during the activity.

To further elaborate the findings of Morgan et al. (1987), it seems that association may be related to pain onset and muscle fatigue. Thus, elite athletes associated more because they ran at a higher intensity (Schomer, 1987). Sachs (1984) reported similar findings; association was linked with the onset of pain, but also that the cognitive strategy of runners changed as the run progressed. During the early, runners were associating, during the middle stages they were dissociating, and during the final stages, associating again.

Several other studies (Schomer, 1987; Tammen, 1996) have examined the cognitive strategy employed during different stages of endurance activity as well. Their findings echoed the fact that as intensity increases, pain and muscle fatigue increase, and so does the use of the associative strategy. However, these studies slightly stray from previous studies by stating that dissociation occurs early in the run, while association occurs during the later stages of the run. In this way, there exists a linear relationship between intensity of run and the use of the associative strategy, whereas in previous studies, the use of the associative strategy was found only to occur during the middle stages of the run. Although this is currently the generally accepted explanation, more research into understanding exactly where and when each attentional strategy occurs is needed.

Self-Presentation

Individuals have social, material, and personal outcomes at stake when interacting with other people. Given the potential implications, it makes sense that individuals prefer to create certain desirable impressions on others and, moreover, that people attempt to control or monitor how they are perceived and evaluated by others in these interactions. The process is referred to as self-presentation (Schlenker, 1980; Leary & Kowalski, 1990).

Leary and Kowalski (1990) conceptualized self-presentation, or impression management, as a two component process involving impression motivation and impression construction. Impression motivation refers to the “want” or “desire” to create certain impressions on other people. Impression construction involves choosing an impression to create, and attempting to create it; in a sense, putting a motivation into action.

Impression Motivation

Impression motivation has been studied extensively in the literature and has been found to have a variety of influencers (Bohra & Pandey, 1984; Leary & Kowalski, 1990; Leary, 1995; Schneider, 1969; Schlenker & Weigold, 1992)). More specifically, impression motivation is influenced by goal relevance, the value of the desired outcome,

the discrepancy between the desired image one wishes to create and the current image one perceives he/she has created, and individual factors and differences.

The “want” or “desire” to create a certain impression on another person is strongly influenced by how relevant, or necessary, it is to create that impression in order to achieve one’s goals. That is, if creating a desirable impression on someone holds little weight on goal attainment, there will be little motivation for an individual to pursue creation of a desirable impression on that person. Conversely, if creating a desirable impression on a certain person holds much relevance for goal attainment, motivation to create a favorable impression on the other person will be high. This idea was supported by Bohra and Pandey’s (1984) research where impression motivation increased when individuals had higher dependency on the target for future outcomes that they may value or desire. Although Bohra and Pandey examined this phenomenon in a business setting, the applicability to a sport setting makes intuitive sense (James & Collins, 1997), as the presence of significant others in the sport setting, such as coaches, judges, and spectators can also motivate athletes to self-present. And sometimes the mere possibility for future interactions with the target is sufficient to increase impression motivation (Schneider, 1969).

The agent seeing or learning about the behavior also influences the motivation an individual has to self-present. Schlenker and Weigold (1992) found that the more public the behavior, the more motivated individuals were to present a desirable impression. If it seems that few people will learn about the positive impression that one has created, then an individual will feel that the effort spent creating the impression may not be worth the little reward he/she may receive in creating it.

An individual’s motivation to self-present is also influenced by how much they value the outcome of the self-presentation. As the value of social, material, and personal outcomes of the interaction increase, so does impression motivation (Leary, 1995). The value of the desired outcomes is affected by the availability of resources and the characteristics of the target individual. Leary (1995) compared the scarcity of resources in a social situation to that of the situation of scarcity of resources in an economical sense. He argued that the value of the commodity increases as its scarcity increases. Similarly, in a social situation, if resources are scarce, or become limited, the desire for

the outcome increases. In a sport context, this idea could be examined during tryouts for a team. As available spots for the team are limited, and become scarcer due to competition, an athlete's desire to make the team may increase. In turn, this high value placed on the outcome, may serve as a strong motivation for the athlete to try and create a favorable impression.

The characteristics of the target individual also affect how motivated an individual may be to self-present. Leary (1995) found that individuals were more likely to be motivated to self-present in front of targets they perceived to be powerful, high in status, and/or attractive.

The discrepancy between the impression one wishes to create and the image currently in place also has an impact on impression motivation. More specifically, the larger the discrepancy between the two, the more motivated the individual will be to self-present (Leary & Kowalski, 1990). For example, if an individual wishes to create an impression of courageousness amongst his teammates, but knows he is presently perceived to be cowardly, he may feel strongly motivated to shape his self-presentation to "correct" the earlier impression.

Impression motivation can also be influenced by a number of individual difference factors. According to Leary and Kowalski (1990), individual differences relating to how attuned one is to the perceptions of others, how concerned one is with adhering to social norms, and how fearful of negative evaluation one is, can all effect one's impression motivation. These three descriptors seem to line up with Martin, Leary, and O'Brien (2001)'s self-presentation trait motives. They found that individuals who were high in public self consciousness, self-monitoring, and fear of negative evaluation, were more likely to use self-presentation than individuals who scored low on such measures.

Impression Construction

The second component of Leary and Kowalski's (1990) two-component model is impression construction. Leary and Kowalski (1990) argued that choosing an impression and attempting to make it, can be influenced by a number of factors.

Self beliefs can influence the impressions that one chooses to make. Individuals usually have ideas about who they are. Most individuals try and display the positive

aspects to others, while avoiding creating impressions that are deceitful or untruthful. Furthermore, individuals can be reluctant to attempt creating impressions that they feel are too distant from the way they see themselves in fear of not being able to pull them off (Schlenker, 1980).

Impression choice is not only influenced by how individuals think of themselves, but also by how they would like to be or not be. Schlenker (1985) contends that choice of impression is based on an individual's view of themselves. It seems that the images that people project are slightly biased towards who they want to be or who they are at their best while still remaining within bounds of reason and reality.

Perceptions of the values of other people can also influence the choice of which impression to make. Individuals may present the most positive aspects of themselves to others, but may also tailor their self-presentations if they feel their target values negative attributes (Jellison & Gentry, 1978 as cited in Leary & Kowalski, 1990).

Social roles may also have an influence over the impressions that individuals choose to create. Individuals in different social roles are expected to behave and appear to have certain characteristics in different ways. As a result, individuals try to create impressions that are consistent with the expectations established by the social role they occupy.

The choice of impressions to create can also be influenced by beliefs about the way one is currently perceived and beliefs about the way one could be perceived. Individuals are often reluctant to present themselves in ways that are inconsistent with the ways others already see them, or with information that others may already have about them. This may be influenced by the idea that once other people have information about someone, the likelihood of creating an alternative impression in the future decrease (Schlenker, 1980).

Self Presentation in Sport and Exercise Settings

The current state of research examining self-presentation in sport and exercise settings has looked primarily at motives for participation, exertion effects, and affective responses to competition and exercise. Several studies examined sport-related phenomena, such as home-field advantage, sports uniforms, aggression, and attributions for success or failure (Baumeister & Steinhilber, 1984; Grove, Hanrahan, & McInman,

1991 as cited in Martin Ginis, Lindwall, & Prapavessis, 2007; Wann & Porcher, 1998; Wann, Royalty, & Roberts, 2000) adopting a self-presentational perspective. The self-presentational topics this paper reviews are motives for participation, exertion effects due to self-presentation, and affective responses to competition due to self-presentation.

Athletic individuals receive strong social and material reward and praise for their efforts and abilities. The praise they receive can be a strong motivating factor to give the impression that they engage in regular physical activity when they actually do not (Leary, 1992). Alternatively, this praise can motivate individuals to begin participating in sport and exercise, so that they can accurately claim the identity of an athletic person (Grove & Dodson, 1982 as cited in Martin Ginis et al. 2007). There are many reasons for individuals' motive to claim this athletic identity or self-present as if they are physically active. Presenting that one is athletic or physically fit can hold different social meanings that may even be unrelated to being active. Martin, Sinden, and Fleming (2000) found that exercisers were found not only to be thought of as more physically attractive, stronger, and healthier than their non-exercising counterparts, but also were thought of as differing on a number of personality characteristics. Exercisers were thought to be braver, happier, friendlier, neater, more intelligent, more sociable, and more independent than non-exercisers. Martin et al. (2000) found support for what has been termed the exercise-related halo effect. The halo effect refers to an individual's tendency to assume a globally positive impression about another individual based on a limited number of known positive attributes of that person (Thorndike, 1920). In this case, individuals held exercisers in high regard, and therefore assumed that they possessed a number of attributes that are highly regarded.

Although appearing physically fit, athletic, and capable can be a strong motivating factor for participation, these tasks may seem impossible to some individuals. In fact, for some individuals, gyms, athletic arenas, and sports fields are places where they feel their lack of ability is showcased to the world. In these cases, the desire to avoid making negative impressions on other people is a strong motivating factor for individuals to avoid participating. It seems that self-presentation can serve as both a motivating factor to participate and as a deterrent to participation (Martin, Leary, & O'Brien, 2001).

While self-presentational issues may affect an individual's participation motives, it may also have an effect on what goes on during that participation. Rhea, Landers, Alvers, and Arent (2003) found that the presence of an audience while performing a one repetition maximum weight lift significantly increases the amount of weight one is able to lift. During this study, the individuals had not made any strength gains, but had merely been put in the presence of other people in order to exert more effort. However, in another study examining exertion effects of self presentation, Hardy, Hall, and Prestholdt (1986) found that exercisers reported lower levels of perceived exertion when the exerciser next to them appears to be performing the exercise with ease, as compared to when exercising alone. Hardy et al. (1986) attributed this effect to the idea that exercisers, while in the presence of other exercisers performing comfortably, self-present in order to give the impression that the workout wasn't that hard, or that they can perform a difficult workout without effort.

Self-presentation can also influence the affective response one has to competition. Schlenker and Leary (1982) contend that when individuals want to make certain impressions on others, but doubt or fear that they will be unable to do so, they experience social anxiety. The anxiety experienced in sport settings (i.e., sport competition anxiety) may be classified as a particular type of social anxiety (Leary, 1992), as much of the variance in competitive anxiety is accounted for by self-presentational concerns (Wilson & Eklund, 1998). Sport competition anxiety is defined in terms of experiencing apprehension or anxiety in competitive situations (Martens, 1977). Self-presentational examples of sources of competitive anxiety may include appearing unskilled, incompetent, unfit, or unable to handle pressure (James & Collins, 1997). In a study examining male and female athletes from across eleven sports, two-thirds (67.3%) of all sources of stress/anxiety that athletes experienced during performances related to self-presentational concerns in some way (James & Collins, 1997). In addition to these findings fear of negative social evaluation and self-presentation were reported as sources of stress/anxiety in their own rights.

The Intersection of Flow, Dissociation, and Self Presentation

Since focus is a key component to obtaining flow, any thoughts or events that pull athletes' focus off of the task can become obstacles to obtaining flow. Worries and thoughts about self that distract the athlete from focusing on the task can inhibit or disrupt the state of flow. However, the need to make the distinction between purposeful self-presentation and un-purposeful or unwanted self-presentational worries is warranted. If the intent is to focus on the task, and an athlete's focus is drawn away from the task by ways of intrusive and unwanted worries about self, then these self-presentational concerns are un-purposeful and un-wanted. In this case, the self-presentation stands as an obstacle to the attainment of flow. However, self-presentation can be a purposeful activity that is necessary for some athletes to achieve flow. It would be difficult for athletes involved in performances where aesthetics are judged as integral parts of a successful performance not focus on how their bodies appear. A gymnast who does not think about how her bodyline appears during a routine is less likely to receive the positive feedback that is essential to obtaining flow. Without focusing on self-presentation in this case, the achievement of the state of flow is unlikely. Here, self-presentation is part of the athlete's focus on the task at hand.

In relation to the impact of self-presentation concerns and dissociation, the need to more clearly define the state of dissociation is necessary to further investigate the relationship between self-presentational concerns and dissociation. There have been a number of operational issues in the study of dissociation, all stemming from the idea that "the object of inquiry (i.e. cognitions) is internal to the participant and not directly observable to others, and because participants are engaged in physical activity when cognitions occur" (Masters & Ogles, 1998, p. 256). Due to this fact, researchers have defined and operationalized dissociation in their work many different ways.

For Morgan and Pollock (1977), association meant attending to bodily sensations, while dissociation meant shunning or distracting oneself from them. Masters and Lambert (1989) operationalized association to be attending to bodily sensations and any other factors that are performance-relevant. By these terms, dissociation can be seen as the shunning or distracting of oneself from bodily sensation and any aspects that are

performance-related. Schomer (1986) defined association as attending to any “task-related” cues, while dissociation was defined as attending to “task-unrelated” cues.

The term dissociation is also used in clinical settings to describe a certain different set of experiences. It may be useful to highlight the distinctions between the clinical population’s definition of dissociation and the experience of dissociation that is described in sport. By doing so, steps towards a more solidified conceptual understanding of dissociation in sport can be taken.

According to the Diagnostic and Statistical Manual of Mental Disorders-IV-TR, the essential features of the dissociative disorders (dissociative identity disorder, depersonalization disorder, dissociative amnesia, and dissociative fugue) is “a disruption in the usually integrated functions of consciousness, memory, identity, or perception.” (p. 477). These phenomena often occur along side physical abuse or trauma but may also represent both persistent and short-lived defensive patterns. In contrast, the experience of sport dissociation is a purposeful cognitive strategy employed by athletes, often times to increase enjoyment or break up the monotony of their activities.

Due to the nature of the point of focus during the activity, flow and dissociation have often been thought of and examined separately. That is, during flow, the focus is on the task at hand, and during dissociation, the focus is away from the task at hand. However, a few studies to date have examined a link between the two states. Wanner, Ladouceur, Auclair, and Vitaro (2006), studied the possible relationship between dissociation and flow in recreational, pathological gamblers, and athletes. Their findings indicated a number of commonalities between the experiences of flow and dissociation in these three populations. Specifically, the flow experiences of time transformation, merging of action-awareness, and loss of self-consciousness showed positive links to dissociation. However, Wanner et al. (2006) examined a clinical population – pathological gamblers- and therefore sought to examine the degree to which all three populations (including athletes) experienced the clinical conceptualization of dissociation.

Some research has demonstrated the link between the flow state and attentional strategy in athletic populations. Summers, Sargent, Levey, and Murray (1982) asked non-elite runners about their mental state, including which cognitive strategies were employed

and the presence of the “runner’s high” (p.964) or a highly pleasurable experience during a run. Runners described feeling “extreme pleasure, confidence,” “body moves easily,” and a “detached a dreaming state of mind” (p. 967). The description of the runner’s high shares some similarities with flow, especially regarding pleasure and confidence, while the latter descriptor of a detached mind state seems to be referring to a dissociative attentional strategy.

Connolly (2008) also reported findings of a link between attentional strategy and the flow state. Rowers were examined at three varying workload intensities and were evaluated in terms of perceived exertion, flow, and association/dissociation. Results revealed the endorsement of different dimensions of the flow state as both exertion and attentional strategy changed. Merging of action and awareness, sense of control, and clear goals were felt more intensely during lower levels of perceived exertion and dissociation, while total concentration and challenge-skill balance were more highly endorsed during higher levels of perceived exertion and association.

Summary

Purpose Statement and Hypotheses

The focus of the current study is to examine the role of self presentation in one’s ability or lack of ability to achieve the state of flow among recreational runners. A second purpose of the current study is to examine the relationship between flow and dissociation across the eight dimensions of flow. It is hypothesized that:

- a.) Self-presentation will be negatively and moderately correlated with the flow experience.
- b.) Individuals classified as dissociating during the race will report higher scores on the flow dimensions of time transformation, merging of action and awareness, loss of self-consciousness, and autotelic experience than individuals classified as associating during race.
- c.) Individuals classified as dissociating during the race will report lower scores on the flow dimensions of total concentration on the task, receiving unambiguous feedback, having a sense of total control, challenge-skill balance and having clear goals than individuals classified as associating during race.

d.) Individuals classified as dissociating during the race will report higher scores on self-presentational concerns than individuals classified as associating during the race.

CHAPTER III: METHOD

Participants

Male and female recreational runners ($N = 210$) aged 18 to 82 years ($M = 35.49$, $SD = 12.55$) were recruited to participate in this investigation at road races located in a southeastern region of the United States. The sample consisted of runners participating in either a 5K (80 participants) or 10K (130 participants) road race. At the finish lines of both 5k and 10k road races, participants were asked if they would be willing to complete a few surveys. All participants filled out written consent forms prior to participation in this study.

Instrumentation

Demographic Information (*Appendix B*). *Participants were asked to indicate their age, gender, the time in which they completed either the 5 or 10 kilometer race, and their personal best time at the distance in which they competed in (either 5K or 10K).*

Race Flow Scale (Modified DFS-2; Jackson & Eklund, 2002; *Appendix C*). The 36-item Dispositional Flow Scale-2 inventory was modified to assess individuals' tendency to experience flow state during the course of the race they had just completed. Respondents are asked to rate how often they experienced the given flow characteristic on a scale from 1 = “never” to 5 = “always”. Each item in this inventory is meant to describe one of Csikszentmihalyi's (1990) nine dimensions of flow (i.e. balance of challenges and skills, merging of action and awareness, clear goals, unambiguous feedback, concentration, sense of control, loss of self-consciousness, time transformation, and autotelic experience). Examples of items include, “I am not concerned with how others may be evaluating me” (e.g., loss of self-consciousness subscale), and “I have a sense of control over what I am doing” (e.g., sense of control subscale). The subscales of each of these dimensions have been found to address unique aspects of the flow experience (Jackson & Eklund, 2002). The factorial validity of the original version of the scale was supported by first-order factor loadings ranging from .51 to .83 ($\mu = .73$) and correlations among the factor loadings that range from .16 to .73 (median $r = .48$).

Evidence for scale content validity was demonstrated through the examination of relationships between certain related psychological correlates and the flow state, including perceived ability, anxiety, and intrinsic motivation (Jackson, Kimiecik, Ford, & Marsh, 1998). Reliability estimates for the instrument subscales ranged from .78 to .86, with a mean alpha of .82 (Jackson & Eklund, 2002).

The inventory directions were changed for the purposes of the present investigation to orient participants towards the race that they had just participated in, rather than races in general terms. The desired construct of measurement pertained to flow during the race that participants had just run; therefore the instructions of the inventory reflected this change. The directions of the original version of the DFS-2 read “Please answer the following questions in relation to your experience in your chosen activity. These questions relate to the thoughts and feelings you may experience during the participation in your activity...Think about how often you experience each characteristic during your activity and circle the number that best matches your experience.” The modified version used for the present study read “Please answer the following questions in relation to your experience in the race you have just participated in. These questions relate to the thoughts and feelings you may have experienced during the race...Think about how often you experienced each characteristic during the race and circle the number that best matches your experience.” The directions of the original version of the DFS-2 also ask the participant to answer the questions “When participating in _____ (name activity).” This has been changed to “While running in the race _____,” for the purposes of this study.

Schomer’s Classification of Attention. (Schomer, 1986; Appendix D). Participants were asked to record their race thoughts in “thought logs” once they have finished running the race. Thought logs consisted of a blank sheet of paper with instructions to record specific thoughts they experienced while running. Their recorded thoughts were then classified based on an established classification system created by Schomer (1986). This classification system has been employed in a variety of studies, including tests of laboratory treadmill running (Smith, Gill, Crews, Hopewell, & Morgan, 1995),

swimming (Couture, Jerome, & Tihanyi, 1999), stationary cycling (Breus, & O'Connor, 1998), a handgrip task (Hutchinson & Tenenbaum, 2007), and rowing (Connolly, 2008).

In creating this classification strategy, Schomer (1986) asked runners to verbally report their thoughts into cassette recorders while running. Based on the statements made by the runners, a classification system was established, which divides internal and task-related thoughts into an associative category and external and task-unrelated thoughts into a dissociative category. The classification system also endorses ten sub-classifications of attention and focus: feelings and affect (A), body monitoring (B), command and instruction (C), pace monitoring (P), environmental feedback (E), reflective activity thoughts (R), personal problem solving (S), work, career, and management (W), course information (I), and talk and conversational chatter (T). Categories A, B, C, and P make up the associative attention classification, while R, S, W, E, I, and T make up the dissociative attention classification. After participants' thoughts were classified into one of these ten sub-classifications, ratios of associative thoughts and dissociative thoughts to total number of thoughts were created.

Modified Self-Presentation in Sport Questionnaire. (Modified SPSQ; McGowan, Prapavessis & Welch, 2008; Appendix F). This questionnaire is comprised of 21 items making up four subscales. The original version of the SPSQ (Wilson & Eklund, 1998) comprised of 33 items designed to measure four self-presentational concerns: appearing athletically untalented, physical appearance, fatigue/lacking energy, and performance composure inadequacies. These four self-presentational concerns made up the four subscales. Wilson and Eklund established that the four SPSQ subscales had adequate internal consistencies with alphas ranging from .90 to .93. Additionally, construct validation was supported through the observation of strong and theoretically meaningful relations between the SPSQ dimensions and competitive trait anxiety (Wilson & Eklund, 1998). The Modified SPSQ contains the subscales: Appearing Athletically Untalented (AAU; 6 items), Physical Appearance (PA; 5 items), Fatigue/Lacking Energy (FLE; 4 items), and Mental Composure Inadequacies (MCI; 6 items). Items are scored on a five point Likert-type scale ranging from "never" to "always". The subscales demonstrate acceptable levels of internal consistency (Cronbach's alpha) with AAU, $\alpha = .91$; PA $\alpha =$

.89; FLE $\alpha = .89$; and MCI $\alpha = .84$. Additionally, the factor loadings for the AAU, MCI, PA and FLE subscales ranged from .65 to .87, .60 to .81, .66 to .80 and .66 to .88, respectively (McGowan et al, 2008). For the purposes of this study, the words “in my uniform” were removed from items 8 and 12, as the participants will not be wearing uniforms. Data was collected at road races where choice of clothing is up to the participant.

Procedure

Approval for the current study was obtained from the Human Subjects Committee of the Institutional Review Board. Upon approval, participants were invited to participate in the study. Participants were approached after 5K and 10K road races at a stationed table near the race-awards table and post-race food tables. As they passed by, individuals were asked by the researcher if they would be willing to fill out a few surveys in a sport psychology research study. Upon agreeing, participants were given the questionnaire packet containing an informed consent form, a form to provide demographic information, the Race Flow Scale (DFS-2; Jackson & Eklund, 2002), the thought recording handout, and the Modified Self-Presentation in Sport Questionnaire (SPSQ; McGowan et al., 2008). Completion of the survey packet took between 20 and 30 minutes. Once the questionnaire packages were completed they were collected and the participants were thanked for their participation in the study.

Data Analysis

To test the hypotheses that self-presentation will be negatively and moderately correlated with the flow experience (hypothesis a), a simple Pearson's r correlation between the two constructs was run. To elaborate upon the Pearson's r correlation findings, a canonical correlation between the SPSQ subscales and the Race Flow Scale subscales was also run. This type of analysis allowed for multivariate examination of relationships among the subscales of the SPSQ and the Race Flow Scale. Correlations of .3 or greater between subscales and the associated canonical variate will be considered meaningful.

To assess which dimensions of flow are positively associated, negatively associated, and unrelated to dissociation (hypotheses b and c), and to test the hypothesis

that individuals who dissociate will be lower on self-presentational concerns than individuals who associate (hypothesis d) a multivariate analysis of variance (MANOVA) was conducted. This statistical test will allow for an investigation of the significant relationships found between dissociation/association, the four subscales of the Modified SPSQ, and the nine subscales of the Race Flow Scale. Additional *a posteriori* MANCOVA analyses were also conducted to explore potential confounds contributing to the initial MANOVA results. Eta-squared effect-size estimates were also calculated to evaluate the meaningfulness of the observed effects. The convention for interpretation of this effect size indicator is that eta-squared values of approximately: (a) .01 indicate a small effect, (b) .06 indicate a moderate effect, and (c) .14 indicates a large effect (Cohen, 1988).

CHAPTER IV: RESULTS

The analyses of this investigation are presented in three subsections within this chapter. Descriptive statistics are presented in the first subsection. Correlational analyses are presented subsequently including Pearson r correlation tests and canonical correlation analyses of flow and self-presentation variables. Finally, the results of a multivariate analysis of variance (MANOVA), including *a posteriori* exploratory analyses involving two covariates are presented.

Descriptive Statistics

Table 1 reports descriptive statistics for the four subscales of the Modified SPSQ and the nine flow subscales of the Race Flow Scale. As presented in Table 1, means for the SPSQ subscales range from 1.51 to 1.94, with Mental Composure Inadequacies being descriptively the lowest endorsed subscale, and Fatigue/Lacking Energy being descriptively the highest endorsed subscale. As the Modified SPSQ is scored on a five point Likert-type scale ranging from “*never*” to “*always*” with a score of 3 being the midpoint response alternative, mean scores of less than two are indicative of relatively weak endorsement of race-related SPSQ self-presentational concerns.

The means for the nine Race Flow Scale subscales range from 3.45 to 4.41, with standard deviations ranging from .61 to .96. Descriptively, the most endorsed of the nine subscales of the Race Flow Scale was autotelic experience, while the least endorsed was time transformation. As the Race Flow Scale was scored on a five point Likert-type scale ranging from “*never*” to “*always*” mean scores ranging from 3.45 to 4.41 are indicative of moderate to high endorsement of race-related experience of flow characteristics.

Table 1

Descriptive statistics for the four subscales of the Modified SPSQ and the nine flow subscales of the Race Flow Scale.

| Study Variable | Mean | Std. Deviation |
|----------------|------|-------------------|
|----------------|------|-------------------|

Table 1 Continued

| Study Variable | Mean | Std. Deviation |
|------------------------------|------|----------------|
| SPSQ AppearAthUntalented | 1.72 | .88 |
| SPSQ PhyApperance | 1.63 | .85 |
| SPSQ FatigueLackEnergy | 1.94 | .99 |
| SPSQ MentalCompInadequa | 1.51 | .69 |
| Flow ChallengeSkillBalance | 3.98 | .61 |
| Flow MergeActAwareness | 3.75 | .65 |
| Flow ClearGoals | 4.13 | .64 |
| Flow UnAmbigFeedback | 3.84 | .69 |
| Flow Focus | 3.56 | .76 |
| Flow SenseOfControl | 3.78 | .68 |
| Flow LossOfSelfConsciousness | 3.66 | .96 |
| Flow TimeTransformation | 3.45 | .81 |
| Flow AutotelicExperience | 4.41 | .58 |

Correlational Analyses

Total Score Analysis. Total scores for flow and self-presentation were calculated by adding responses of individual items. The total score for flow and self-presentation was correlated using a simple Pearson's r correlation. The Pearson's r correlation between the total scores for flow and self-presentation was $r(208) = -.317, p < .01$. This finding supports the idea that during the race, a tendency to experience more self-presentational concerns was associated with a tendency to experience less flow.

Subscale Score Analysis. The four subscales of the Modified SPSQ, and the nine subscales of the Race Flow Scale were correlated using a simple Pearson's r correlation in order to examine relationships among each of the subscales.

As illustrated in Table 2, the correlations among self-presentation and flow variables ranged from $-.02$ to $-.34$. Small to moderate but significant ($p < .01$) negative correlations appeared between SPSQ subscales and many of the flow subscales. These were most notable between SPSQ subscales and the flow subscales of challenge-skill

balance and sense of control. Also worth noting are the small and non-significant correlations found between the flow subscales of time transformation and autotelic experience with each of the subscales of the SPSQ.

Table 2

Pearson r correlations between the subscales of the Modified SPSSQ and the Race Flow Scale.

| Study Variable | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|--------------------------------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|-------|-------|
| 1. SPSSQ AthUntalented | .82** | .75** | .79** | -.29** | -.25** | -.19** | -.25** | -.15* | -.30** | -.30** | .11 | -.05 |
| 2 SPSSQ Physical Appearance | 1.00 | .64** | .74** | -.33** | -.32** | -.23** | -.22** | -.20** | -.34** | -.26** | .05 | -.02 |
| 3 SPSSQ Fatigue Lack Energy | 1.00 | 1.00 | .75** | -.22** | -.16* | -.18** | -.19** | -.16* | -.27** | -.24** | .07 | -.07 |
| 4 SPSSQ Mental ComplInadequ | | | 1.00 | -.30** | -.22** | -.23** | -.26** | -.17* | -.29** | -.19** | .11 | -.08 |
| 5 Flow Challenge Skill Balance | | | | 1.00 | .49** | .50** | .46** | .51** | .63** | .28** | .12 | .45** |
| 6 Flow Merge Act Awareness | | | | | 1.00 | .38** | .38** | .43** | .56** | .34** | .17* | .27** |
| 7 Flow Clear Goals | | | | | | 1.00 | .45** | .51** | .47** | .27** | .12 | .50** |
| 8 Flow UnAmbig Feedback | | | | | | | 1.00 | .50** | .50** | .33** | .03 | .25** |
| 9 Flow Focus | | | | | | | | 1.00 | .59** | .35** | .20** | .45** |
| 10 Flow Sense Of Control | | | | | | | | | 1.00 | .37** | .05 | .41** |
| 11 Flow Loss Of Self Conscious | | | | | | | | | | 1.00 | .14* | .23** |
| 12 Flow Time Transformation | | | | | | | | | | | 1.00 | .17* |
| 13 Flow Autotelic Experience | | | | | | | | | | | | 1.00 |

** . Correlation is significant at $p < .01$ (2-tailed).

* . Correlation is significant at $p < .05$ (2-tailed).

Canonical Correlation. Canonical correlation was performed between a set of nine flow variables and a set of four self-presentational variables. The flow set measured challenge-skill balance, merging of action and awareness, setting clear goals, receiving unambiguous feedback, focus, sense of control, loss of self-consciousness, time transformation, and autotelic experience. The self-presentational variables measured the degree to which individuals worry about appearing athletically untalented, their physical appearance, appearing fatigued or lacking in energy, and experiencing mental composure inadequacies.

Table 3

Tests of Canonical Dimensions for SPSQ and Flow Variables.

| Dimension | Canonical Corr. | <i>F</i> | <i>df</i> | <i>p</i> |
|-----------|-----------------|----------|-----------|----------|
| 1 | .47 | 2.20 | 36,739.99 | .001** |
| 2 | .24 | 1.05 | 24,574.86 | .39 |
| 3 | .21 | .97 | 14,398 | .49 |
| 4 | .15 | .78 | 6,200 | .59 |

** Correlation is significant at the .01 level.

Among the four canonical dimensions possible in this analysis, only the first dimension was significant in the dimension reduction tests (see Table 3). The canonical correlation observed for this dimension was .47. Statistical information on the first canonical variate appears in Table 4. Importantly meaningful percentages of variances were observed to be 71.06% variance for SPSQ variables and 27.12% variance for flow variables (43.94% overlapping variance). The redundancy values reflect that an average of 16.01% of the variance of SPSQ variables is reproducible by flow variables. For flow variables, only 6.11% of the variance is reproducible by SPSQ variables. As the redundancy measure is an appropriate measure of the magnitude of relationships between the two variates (Alpert & Peterson, 1972) it can be interpreted that only the redundancy of the SPSQ variables is meaningful here. The correlations between the variables and the canonical variate and standardized canonical variate coefficients are also presented in

Table 4. Tabachnick and Fidell (2007) indicate interpretation of the canonical correlation results should rely upon examination of the correlation loadings rather than the coefficient loadings. The standard rule of thumb for meaningfulness in these loadings is that they should equal or exceed an absolute value of .3 (Tabachnick & Fidell, 2007).

Using the .3 cutoff, all SPSQ variables loaded meaningfully on the canonical variate (see Table 4). Seven of 9 flow variables also loaded meaningfully upon the canonical variate with the most strongly correlated being sense of control (-.71), challenge-skill balance (-.70), merging of action and awareness (-.67) and loss of self consciousness (-.60). More moderate loadings were observed for the unambiguous feedback (-.50), having clear goals (-.47), and focus (-.39). The flow variables of time transformation (.16) and autotelic experience (-.06) did not load meaningfully.

Also worth noting is the pattern of sign directions of the correlations in the two sets of variables. Specifically, the correlation signs of the SPSQ variables are all in the positive direction, while all (with the exception of the trivial time transformation loading) flow variables are in the negative direction. This type of pattern within the results is meaningful because it reflects an inverse relationship between flow and SPSQ variables. That is to say that, according to these analyses, individuals experiencing greater levels of self-presentational concerns during the race were less likely to experience flow during the race.

Table 4
Correlations, Standardized Canonical Coefficients, Percents of Variance, and Redundancies for SPSQ and Flow Variables.

| SPSQ Variables | Variate 1 | |
|-----------------------------------|-------------|-------------|
| | Correlation | Coefficient |
| Appearing Athletically Untalented | .91 | .37 |
| Physical Appearance | .98 | .72 |
| Fatigue/Lacking Energy | .67 | -.07 |
| Mental Composure Inadequacies | .78 | .00 |
| Percent of Variance | 71.06 | |
| Redundancy | 16.01 | |
| Flow Variables | | |

Table 4 Continued

| Flow Variables | Variate 1 | |
|---------------------------------|-------------|-------------|
| | Correlation | Coefficient |
| Challenge-Skill Balance | -0.7 | -0.46 |
| Merging of Action and Awareness | -0.67 | -0.29 |
| Clear Goals | -0.47 | -0.19 |
| Unambiguous Feedback | -0.5 | 0 |
| Focus | -0.39 | 0.13 |
| Sense of Control | -0.71 | -0.28 |
| Loss of Self-Consciousness | -0.6 | -0.39 |
| Time Transformation | 0.16 | 0.25 |
| Autotelic Experience | -0.06 | 0.43 |
| Percent of Variance | 27.12 | |
| Redundancy | 6.11 | |
| Canonical Correlation | 0.47 | |

Multivariate Analysis of Variance (MANOVA) Analyses

A multivariate analysis of variance (MANOVA) was conducted in order to compare observed self-presentational concerns, and flow during the race for participants classified as associaters and dissociaters. A non-significant main effect, Wilks' $\lambda = .924$, $F(13, 196) = 1.24$, $p = .25$, $\eta^2 = .08$, was observed. As such, no support was observed for hypotheses b through d.

Evidence suggests, however, that while running at high intensity, pain and muscle fatigue increase, and associative awareness takes over (e.g., Morgan, O'Connor, Sparling, & Pate, 1987; Schomer, 1987; Tammen, 1996; Tenenbaum, 2001). Two additional *a posteriori* exploratory MANCOVAs were conducted to explore the possibility that the results were confounded by issues such as race pacing and race time relative to personal record. These covariates were created from data provided by the participants on the amount of time it took them to run the race, the distance of the race in which they had run, and the time of their personal best at the distance just run.

The first covariate, *race pace*, was a calculation of the time it took participants to run the race divided by the distance ran ($M = 5.51$ min/km, $SD = 1.35$ min/km). This covariate was employed to control for individual differences in running pace across the 5 and 10 km distances. This covariate was found to be significant in the MANCOVA comparison of associaters and dissociaters on self-presentational concerns, and flow during the race, Wilks' $\lambda = .84$, $F(13, 195) = 2.80$, $p = .001$, $\eta^2 = .16$, but a nonsignificant main effect was observed for the independent variable, attentional strategy, Wilks' $\lambda = .92$, $F(13, 195) = 1.27$, $p = .234$, $\eta^2 = .08$. Univariate follow-up tests were not conducted as a consequence.

The second covariate, *race time relative to personal record* was a ratio created to control for individual differences in time to complete the current race distance relative to personal record time at that distance ($M = 1.15$, $SD = 1.01$). It is the time the participants ran the present race divided by the time it took them to run their fastest previous race at this distance. Scores of less than one indicate that the runner ran a faster time than his/her previous personal best time at the 5 or 10 kilometer distance. Scores of one indicate that the runner ran a time equal to that of their previous personal best time at that distance. Scores of greater than one indicate that the runner ran a slower time than his/her previous personal best time at either the 5 or 10 kilometer distance. This covariate was found to be non-significant in the MANCOVA comparison of associaters and dissociaters on self-presentational concerns, and flow during the race, Wilks' $\lambda = .97$, $F(13, 195) = .560$, $p = .872$, $\eta^2 = .03$ as was the main effect for the independent variable, attentional strategy, Wilks' $\lambda = .93$, $F(13, 195) = 1.28$, $p = .234$, $\eta^2 = .07$. Univariate follow-up tests were therefore also not warranted.

CHAPTER V: DISCUSSION

The types of thoughts that athletes experience during races have implications on various accounts, including emotional state (Hanin, 2000), winning or losing (Connolly & Janelle, 2003), and enjoyment during the race (Csikszentmihalyi, 1990). While there are many different kinds of thoughts runners can experience, thoughts attuning to or away from bodily sensations (associative or dissociative thoughts) and thoughts pertaining to how others are perceiving and evaluating the runner, were of particular interest in the present study because of their theoretical overlap with the concept of flow. Flow is defined as an optimal psychological state in which an individual experiences complete and total absorption in an activity, which can lead to a number of positive psychological outcomes, such as enjoyment, fun, and even happiness (Csikszentmihalyi, 1990). The purpose of the present study was to examine the relationship between attentional strategy, self-presentation, and flow in recreational runners. It was predicted (a) self-presentation would be negatively and moderately correlated with the flow experience, (b) individuals classified as dissociators would report higher scores on certain flow dimensions, (c) individuals classified as associators would report higher scores on certain, other flow dimensions, and (d) individuals classified as dissociating during the race would report higher scores on self-presentational concerns than individuals classified as associating during the race.

In regards to the first hypothesis, many of the subscales of self-presentation scale were negatively and moderately correlated with the subscales of the flow scale. This points to the idea that individuals who experience self-presentational concerns may be less likely to attain the state of flow. This finding supports Csikszentmihalyi (1990)'s contention that in order for an athlete to attain flow, a loss of self-consciousness needs to take place. Although both Csikszentmihalyi and Jackson (Csikszentmihalyi, 1990; Jackson, 1995; Jackson & Csikszentmihalyi, 1999) pointed to self-presentational thoughts as some of the types of thoughts that can inhibit flow, the present study was the first to empirically examine the relationship between self-presentational thoughts and the attainment of the state of flow. Considering that as much as two-thirds of all sources of stress/anxiety that athletes experience during performances may be self-presentational in

nature (James & Collins, 1997), self-presentational imperatives may explain, in part, why flow states can be elusive for athletes.

In regards to the second and third hypotheses, the experience of flow state dimensions were found to be unrelated to race predominance of attentional direction as assessed in Schomer (1987) classification system. Previous literature has drawn connections between the experience of flow and attentional direction in a variety of settings. Wanner, Ladouceur, Auclair, and Vitaro (2006), for example, studied the possible relationship between dissociation and flow in recreational, pathological gamblers, and athletes. Results indicated a number of commonalities between several dimensions of flow and dissociation in these populations. However, Wanner et al. (2006) examined dissociation in terms of a participants' frequency of experiencing blackouts, trance-like states, feeling like a different person, and out of body feelings while partaking in a recreational activity. This difference in the measurement and the conceptualization of dissociation may have accounted for the insignificant findings in the present study when compared to Wanner et al. (2006).

Findings in the present study also differ from Connolly's (2008) study of competitive rowers where a link between attentional strategy and the flow state was reported. Connolly reported that merging of action and awareness, sense of control, and clear goals were felt more intensely during dissociation, while total concentration and challenge-skill balance were more highly endorsed during association. In Connolly's study, however, perceived exertion was accounted for and these perceptions are thought play a mediating the role between attentional strategy and the experience of flow.

Lastly, in regards to the fourth hypothesis, no significant relationship was observed between self-presentational concerns and attentional strategy. According to Morgan and Pollock (1977) athletes in a state of association are attuned to and focused on internal cues. However, when athletes are in a dissociative state, attention is focused on other, external cues. Based on Morgan and Pollock's association/dissociation classification system, it had been expected that concerns about the impressions being formed by others would fall into the category of dissociative thought. Higher levels of self-presentational concerns were not, however, observed for runners classified as dissociating during the races in this study. This was surprising but upon reflection, and

aside from the limitations of Schomers' classification system (discussed later), the underlying rationale for the hypothesis was too simplistic. Specifically, some self-presentational concerns are intimately related to bodily sensation (i.e. associative thinking) while other are unrelated to bodily sensation (i.e., dissociative thinking). As examples, a self-presentational concern such as "I'm breathing hard and so I'll be seen as out of shape" might be associative in nature while a self-presentational thought such as "everyone is passing me, they must think I'm a poor runner" would be more dissociative in nature. There is no theoretical reason to believe that athletes experiencing self-presentational concerns would predominately experience concerns that would be classified as associative or dissociative in nature.

Moreover, these findings might have been influenced by the sport type that was examined in this study. That is, runners may experience self-presentational concerns in a different manner than do other athletes. As discussed earlier, social evaluation, and hence self-presentation, is not central to performance in running. By contrast, in sports where subjective (i.e., social) evaluations of the body in action are central to performance assessment, as is the case in sports like gymnastics and diving, perhaps a positive relationship between association and self-presentational concern might be expected (i.e., higher awareness of the effects of exertion resulting in greater concern about how judges will evaluate those effects). Other possibilities exist as well and all suggest that more nuanced considerations of the potential relationships between attentional strategies and self-presentational concern variables are warranted.

Limitations

Although valuable data were obtained, there are several limitations to the present study. These limitations include ...

1. Participants in this study varied considerably in ability and there was considerable variability in their ages. Specifically, the times recorded for participants ranged from 19 minutes (5K) to 80 minutes (10K). As well, participants ranged in age from 18 years of age to 82 years. Therefore, the level of ability and/or age of the participant may have had an effect on what they thought about during the course of the race. Study of more homogeneous participants may have provided more coherent results.

2. The use of questionnaires to gather self-report data may have diminished the external validity in the study. Specifically, self-report data on what runners think about is particularly susceptible to errors in memory recall. Data regarding what the athletes were thinking during the race were obtained after the race, which may have created errors in the content and accuracy of what was reported. Thus, the relationships observed between the three constructs may not accurately reflect those occurring during the race for these participants or in the overall population of recreational runners. Data collection that was completed during the race would have increased external validity.
3. Aside from the problems with self-report and retrospective recall, each of the measures employed were limited in some way relative to the purposes of this investigation. Specifically,
 - a. The validity of the method of calculating a ratio of dissociative thoughts to associative thoughts based on the Schomer (1987) classification system may be questioned. The ratio system counted thoughts such that even if a runner had only one more dissociative thought recorded than associative thought, he was classified as a “dissociater”. This method for classifying runners based on their thoughts may be considered especially invalid when bearing in mind that runners were asked to record thoughts relative to a period of the race when they were settled in and running comfortably. It is likely that the length of these periods varied across participants and, as well, that thoughts and types of thoughts varied across other periods of the race.
 - b. A modified version of the DFS-2 was used in order to measure participants’ flow experiences. This measure assesses how frequently a participant experiences a certain aspect of the flow experience, and was modified in this study to examine how frequently the flow attributes were experienced during the particular race a participant had just run in. Although a measure of this sort takes into account frequency, it does not measure how strongly or to what degree each flow attribute was experienced by the participant. The cross use of an inventory that measures the strength that a participant experiences each flow attribute, namely the Flow State Scale-2, would have increased the internal validity of the current study.

- c. The validity of the SPSQ may also be questioned. Data was gathered on recreational athletes whose motivations to participate may not coincide with experiencing the types of self-presentational concerns measured. That is, many recreational athletes' motivations to participate do not revolve around winning the races they participate in, thus their concern with appearing like competent runners may not be as high as a professional or non-recreational athletes.

As well, many participants seemed to mark many or all items as "1" (Never experiencing self-presentational concerns) on the questionnaire. When this occurred, it was difficult to know if the participant was not experiencing any self-presentational concerns, was not reporting them, or was disregarding the questionnaire. Also, given that data was often collected on older athletes, items that address self-presentational concerns over appearing too old to participate would have provided a more complete data set on self-presentational concerns.

4. Finally, a descriptive correlational design was employed in this investigation and hence the possibility of confounding variables cannot be ruled out. It is possible that the non-significant relationships found between dissociation and flow is due to a third relationship or variable that was not examined. Similarly, it is possible that the significant relationship found between flow and self-presentational concerns may be able to be explained by a third mediating or moderating variable that was not observed during the present study.

Conclusions and Future Directions

The present study has provided an examination into the relationships between self-presentation, attentional strategy, and flow, specifically in recreational runners. The results of this study are consistent with assertions by Csikszentmihalyi (1990), Jackson (1995), and Jackson and Csikszentmihalyi (1999) that experiencing self-presentational concerns may inhibit the attainment of flow. Other results regarding the relationships between attentional strategy and flow, and attentional strategy and self-presentational concerns were non-significant.

Further research in this area should be focused on implementing research methods that provide the highest validity while recording participants' thoughts. The need to

effectively record athletes' thoughts throughout the course of a race, while they are occurring is critical. In addition, few experimental studies examining athletes' thoughts have been carried out. Experimental studies in this area may be able to further explain the circumstances under which athletes have certain thoughts (i.e.) under a certain amount of perceived exertion; under social pressure; or in an open environment. Finally, the assertion that self-presentational concerns inhibit the attainment of flow merits further investigation. The correlational support obtained in this investigation does not rule out alternative explanations that flow inhibits self-presentational concern, or that some third variable produces the correlational effects between the two variables observed in this investigation.

The current study has provided an adequate foundation for future studies examining the relationship between self-presentational concerns, attentional strategy, and flow. Further research is necessary, however, to increase our knowledge of these relationships. With increased knowledge of the interrelationships between these three constructs, coaches, sport psychologists, and athletes alike can be offered understanding into the types of thoughts that occur during competition. Sport psychologists can implement programs to educate and help athletes achieve the types of thoughts needed to attain the state of flow. In addition, athletes can learn what kind of self-talk works best for them and how to interpret instruction from coaches in order to facilitate performance.

APPENDIX A: INSTITUTIONAL REVIEW BOARD APPROVAL MEMORANDUM

Office of the Vice President For Research
Human Subjects Committee
Tallahassee, Florida 32306-2742
(850) 644-8673 · FAX (850) 644-4392

APPROVAL MEMORANDUM

Date: 12/8/2008

To: Amanda Edwards

Address: 412 West Jefferson St Apt. 324
Dept.: EDUCATIONAL PSYCHOLOGY AND LEARNING SYSTEMS

From: Thomas L. Jacobson, Chair

Re: Use of Human Subjects in Research
FLOW, ATTENTIONAL STRATEGY, AND SELF-PRESENTATION IN RUNNERS
PARTICIPATING IN 5 AND 10 KILOMETER ROAD RACES

The application that you submitted to this office in regard to the use of human subjects in the proposal referenced above have been reviewed by the Secretary, the Chair, and two members of the Human Subjects Committee. Your project is determined to be Expedited per 45 CFR § 46.110(7) and has been approved by an expedited review process.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals, which may be required.

If you submitted a proposed consent form with your application, the approved stamped consent form is attached to this approval notice. Only the stamped version of the consent form may be used in recruiting research subjects.

If the project has not been completed by 12/7/2009 you must request a renewal of approval for continuation of the project. As a courtesy, a renewal notice will be sent to you prior to your expiration date; however, it is your responsibility as the Principal Investigator to timely request renewal of your approval from the Committee.

You are advised that any change in protocol for this project must be reviewed and approved by the Committee prior to implementation of the proposed change in the protocol. A protocol change/amendment form is required to be submitted for approval by the Committee. In addition, federal regulations require that the Principal Investigator promptly report, in writing any unanticipated problems or adverse events involving risks

to research subjects or others.

By copy of this memorandum, the Chair of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Human Research Protection. The Assurance Number is IRB00000446.

Cc: Robert Eklund, Advisor
HSC No. 2008.2041

APPENDIX B: INFORMED CONSENT

Dear Participant:

I am a graduate student under the direction of Professor Dr. Robert C. Eklund in the Department of Educational Psychology and Learning Systems at Florida State University. I invite you to participate in a research study to examine the cognitive and attentional state of runners during races.

Your participation will involve filling out several questionnaires. These questionnaires are measures of the types of race related thoughts runners have, the types of worries sometimes experienced during competition, and the tendencies of athletes to experience a state of optimal functioning called flow. Completion of these surveys will take approximately 20 to 30 minutes.

Your participation in this study is voluntary. If you choose not to participate or to withdraw from the study at any time, there will be no penalty.

The data obtained from this research study will be kept confidential to the extent allowed by law. The results of this study may be published, but only group results will be reported and individuals will not be identified in any way.

There are no foreseeable risks associated with participation in this study. Your participation, however, has the potential to provide researchers with a better understanding of the relationship between flow, dissociation, and self-presentation during the course of participation in 5K and 10K race events.

If you have any questions concerning this research study or your participation in the study, please call me, Amanda Edwards, at (850) 264-2011, or Dr. Robert C. Eklund, at (850) 645-2909 or at Eklund@coe.fsu.edu.

Sincerely,
Amanda Edwards

I, _____ have read the information in this assent form and I agree to participate in this study. I understand that there are no risks to participate in the study and that I may withdraw my participation from this study at any time.

Printed Name: _____

Signature _____ (Date) _____

If you have any questions about your rights as a subject/participant in this research, or if you feel you have been placed at risk, you can contact the Chair of the Human Subjects

Committee, Institutional Review Board, through the Vice President for the Office of Research at (850) 644-8633.

APPENDIX C: DEMOGRAPHIC INFORMATION

Please fill out the following information about yourself.

Age: _____

Gender: _____

Competed in the _____ 5k or _____ 10K

Time in today's race: _____ hours _____ minutes

Personal best at the distance you ran today: _____ hours _____ minutes

APPENDIX D: RACE FLOW SCALE

Please answer the following questions in relation to your experience in the race you have just participated in. These questions relate to the thoughts and feelings you may have experienced during the race. You may have experienced these characteristics some of the time, all of the time, or none of the time. There are no right or wrong answers. Think about how often you experienced each characteristic during the race and circle the number that best matches your experience.

RATING SCALE

| | | | | |
|-------|--------|-----------|------------|--------|
| Never | Rarely | Sometimes | Frequently | Always |
| 1 | 2 | 3 | 4 | 5 |

While running the race _____:

1. I am challenged, but I believe my skills will allow me to meet the challenge.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

2. I make the correct movements without thinking about trying to do so.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

3. I know clearly what I want to do.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

4. It is really clear to me how my performance is going.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

5. My attention is focused entirely on what I am doing.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

6. I have a sense of control over what I am doing.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

7. I am not concerned with what others may be thinking of me.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

8. Time seems to alter (either slows down or speeds up).

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

9. I really enjoy the experience.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

10. My abilities match the high challenge of the situation.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

11. Things just seem to happen automatically.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

12. I have a strong sense of what I want to do.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

13. I am aware of how well I am performing.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

14. It is no effort to keep my mind on what is happening.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

15. I feel like I can control what is happening.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

16. I am not concerned with how others may be evaluating me.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

17. The way time passes seems to be different from normal.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

18. I love the feeling of the performance and want to capture it again.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

19. I feel I am competent enough to meet the high demands of the situation.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

20. I perform automatically, without thinking too much.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

21. I know what I want to achieve.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

22. I have a good idea while I am performing about how well I am doing.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

23. I have total concentration.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

24. I have a feeling of total control.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

25. I am not concerned with how I am presenting myself.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

26. It feels like time goes by quickly.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

27. The experience leaves me feeling great.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

28. The challenge and my skills are at an equally high level.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

29. I do things spontaneously and automatically without having to think.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

30. My goals are clearly defined.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

31. I can tell by the way I am performing how well I am doing.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

32. I am completely focused on the task at hand.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

33. I feel in total control of my body.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

34. I am not worried about what others may be thinking of me.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

35. I lose my normal awareness of time.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

36. The experience is extremely rewarding.

| | | | | |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|

APPENDIX E: SCHOMER'S THOUGHT CLASSIFICATION SYSTEM

Items 1, 2, 3, and 4 make up task-related (associative) mental strategy. Items 5, 6, 7, 8, 9, and 10 make up task-unrelated (dissociative) mental strategy.

1. Feelings and Affects

Thoughts concentrating on general bodily sensations, like feelings of vitality or fatigue, without mention of specific body parts. Example: "I feel bushed"

2. Body Monitoring

Thoughts of a here and now nature containing specific mention of anatomy, body parts, or body physiology like breathing rhythm or painful calf muscles. Example: "Shoulders are stiff."

3. Command and Instruction

Thoughts reflecting emphatic self-regulatory instructions to specific body parts or instructions to whole body functioning related to the activity. Example: "Relax your shoulders."

4. Pace Monitoring

Verbalized feedback on current performance with respect to time, distance, speed or other available form of pacing. Example: "About a minute to go."

5. Environmental Feedback

Thoughts of a here and now nature on the weather condition, temperature, light conditions, smell, and noise level. Example: "Bit of cloud over there, not too hot."

6. Reflective Activity Thoughts

Thoughts on past and future issues related to running, like past experiences or training sessions, and future race preparation and planning. Example: “I remember I struggled up this hill.”

7. Personal Problem Solving

Thoughts revolving around issues of an intrapersonal and interpersonal nature, including reflective introspection, belief system evaluation and modification. Example: “How am I going to get to my friend’s house after practice?”

8. Work, Career, and Management

Thoughts spent on job, work, school, and career opportunities including thoughts centering on the execution, planning, and construction of work. Example: “What homework do I need to complete tonight?”

9. Course Information

Thoughts of a descriptive nature about scenery and general whereabouts that are of no consequence to pace. Example: “Those trees are beautiful.”

10. Talk and Conversational Chatter

Direct speech when in communication with other runners and thoughts expressing follow up chatter to initial exchanges, as well as unintelligible extraneous chit-chat. Example:

“Hi (name) good to see you again.”

APPENDIX F: THOUGHT RECORDING

At some point during the race, when you were running comfortably and felt settled

in, what were you thinking about?

Please only report thoughts that you specifically remember thinking. If you have any doubt that you did not have the thoughts, please do not record them here.

Record specific thoughts here:

Approximately how long did this period of the race last for you?

_____ miles

_____ minute

APPENDIX G: SELF-PRESENTATION IN SPORT QUESTIONNAIRE (MODIFIED)

Instructions: During the competition, I worry that other people may perceive me as _____ (circle the number that best represents your answer)

| | Response Items | Descriptors | | | | | | |
|-----|---|-------------|---|---|---|---|---|--------|
| 1. | Appearing exhausted | Never | 1 | 2 | 3 | 4 | 5 | Always |
| 2. | Appearing flabby | Never | 1 | 2 | 3 | 4 | 5 | Always |
| 3. | Appearing untalented | Never | 1 | 2 | 3 | 4 | 5 | Always |
| 4. | Appearing fatigued | Never | 1 | 2 | 3 | 4 | 5 | Always |
| 5. | Appearing physically untoned | Never | 1 | 2 | 3 | 4 | 5 | Always |
| 6. | Appearing athletically incompetent | Never | 1 | 2 | 3 | 4 | 5 | Always |
| 7. | Appearing tired | Never | 1 | 2 | 3 | 4 | 5 | Always |
| 8. | Appearing ugly or unpleasant | Never | 1 | 2 | 3 | 4 | 5 | Always |
| 9. | Appearing physically unattractive | Never | 1 | 2 | 3 | 4 | 5 | Always |
| 10. | Appearing under skilled | Never | 1 | 2 | 3 | 4 | 5 | Always |
| 11. | Appearing to lose composure | Never | 1 | 2 | 3 | 4 | 5 | Always |
| 12. | Appearing too small or too big | Never | 1 | 2 | 3 | 4 | 5 | Always |
| 13. | Appearing not to perform or execute perfectly | Never | 1 | 2 | 3 | 4 | 5 | Always |
| 14. | Appearing distressed | Never | 1 | 2 | 3 | 4 | 5 | Always |
| 15. | Appearing to lack ability | Never | 1 | 2 | 3 | 4 | 5 | Always |
| 16. | Appearing to lack energy | Never | 1 | 2 | 3 | 4 | 5 | Always |
| 17. | Appearing unqualified | Never | 1 | 2 | 3 | 4 | 5 | Always |
| 18. | Appearing unfocused | Never | 1 | 2 | 3 | 4 | 5 | Always |
| 19. | Appearing under activated | Never | 1 | 2 | 3 | 4 | 5 | Always |
| 20. | Appearing nervous under pressure | Never | 1 | 2 | 3 | 4 | 5 | Always |
| 21. | Appearing to lack necessary focus | Never | 1 | 2 | 3 | 4 | 5 | Always |

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BIOGRAPHICAL SKETCH

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