The Effect of Telic/Paratelic Dominance and Task Condition on Motor Performance, Affect, Telic/Paratelic State, and Self-Efficacy

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THE EFFECT OF TELIC/PARATELIC DOMINANCE AND TASK CONDITION ON MOTOR PERFORMANCE, AFFECT, TELIC/PARATELIC STATE, AND SELF-EFFICACY

By

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To my Father, and Mother.

And to my Wife, and Daughter.
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ABSTRACT

Reversal theory conceptualizes that telic-dominant individuals tend to be more serious-minded and anxiety-avoidant than paratelic-dominant individuals who tend to be more playful and excitement-seeking. Previous reversal theory research has shown that telic/paratelic metamotivation plays an important role in the way individuals experience their sport involvement. This study was undertaken given the fact that no known effort has been made to comprehensively examine the influence of motor task conditions (favorable vs. unfavorable) on motor performance and related affective states for individuals who differ in their metamotivational dominance.

The main purpose of this research was to experimentally examine whether motor performance, affect, self-efficacy, and telic/paratelic state vary as a function of task condition (favorable vs. unfavorable) and telic/paratelic dominance. It was hypothesized that paratelic-dominant individuals would show better motor performance, more pleasant feelings, and higher efficacy perceptions under unfavorable task conditions (i.e., losing) compared to telic-dominant individuals. On the other hand, telic-dominant individuals would show better motor performance, and more pleasant feelings under more favorable task conditions (i.e., winning) compared to paratelic-dominant individuals. Furthermore, it was predicted that telic-dominant individuals would reverse to a paratelic state of mind while performing under favorable condition, whereas paratelic-dominant individuals would tend to maintain a paratelic state of mind for a longer period of time until they reverse to the telic state under unfavorable conditions.

Participants ($n = 40$) were divided into three dominance groups (telic, nondominant, and paratelic) based on their paratelic dominance scale (PDS) total scores. Two main tasks were employed in the current study. The first task required participants to throw darts from short (1.37m) and long (3.37m) distances from the dartboard. The second task required participants to compete against each other under positive (win), variable (win/lose), and negative (lose)
feedback conditions. The dependent variables included dart-throwing accuracy, pleasantness, arousal, self-efficacy, and telic/paratelic state.

Repeated measures analyses of variance (ANOVAs) were utilized to test the study’s hypotheses. Although the hypothesized condition-by-dominance interaction effects did not achieved statistical significance, the main effects of the dart-throwing condition on the dependent variables were evidenced. Results for dart performance, pleasantness, and efficacy perception in the competitive task revealed that the effects of receiving variable and negative feedback were relatively more negative for telic-dominant participants than for their paratelic counterparts. Under variable and negative feedback, paratelic-dominant participants demonstrated better dart accuracy performance, more pleasant feelings, and higher efficacy perceptions compared to the telic-dominant participants.

The results further showed that several reversals from telic-to-paratelic state and from paratelic-to-telic state occurred between and within conditions. Participants were more serious-minded under the long throwing distance and negative feedback conditions (more unfavorable conditions), whereas they tended to be more playful-minded under the short throwing distance and the positive feedback conditions (more favorable conditions), with significant differences between conditions. Furthermore, the results showed that the pleasant feelings and efficacy perceptions experienced in the short throwing distance and the positive feedback conditions were more pronounced than in the long throwing distance and negative feedback conditions. These differences between conditions were found to be significant.

Furthermore, overall results of this study revealed that participants were more paratelic-minded and reported the highest pleasant scores in the short throwing distance and positive feedback conditions. Their efficacy perceptions were also the highest in these conditions. This suggests that the perception of self-efficacy is important in elevating feelings of pleasantness, as well as inducing the paratelic state while performing. These results might therefore clarify previously reported findings. Moreover, results showed that although paratelic-dominant participants performed better and felt more self-efficacious under the short throwing condition; they felt less pleasant compared to their telic counterparts. In accordance with reversal theory, this suggests that paratelic-minded participants might have interpreted their high efficacy as an indication of task competence and, thus, such a non-challenging task is less likely to be appealing to them.
Overall, the study’s findings provide some evidence that supports previously reported research findings that assert that task condition interact with metamotivational dominance to determine feelings and motivations. The current study emphasizes the importance of including metamotivational dominance in future reversal theory research. Importantly, this study adds efficacy perceptions to the existent reversal theory literature on telic/paratelic dominance. Telic and paratelic-dominant individuals’ difference in efficacy perceptions might be valuable to consider in order to more fully understand their sport behavior and experience (e.g., affect, physical activity preference, risk taking). Thus, forthcoming reversal theory studies need to consider both telic/paratelic dominance and efficacy perceptions in studying sport and exercise experiences.
CHAPTER 1

INTRODUCTION

The enhancement of performance and affect states during physical activities continue to be of great interest in the field of sport and exercise psychology. Consequently, several theoretical concepts in sport and exercise psychology have been proposed. Apter’s (1982, 2001) reversal theory, as a theoretical framework, has been helpful in clarifying and predicting sport behavior and its underlying motivation (Kerr, 1997, 2001). Reversal theory proposes that there are two metamotivational states that are associated with different emotional preferences (excitement versus relaxation) and goal-orientations (activity versus goal orientation), and that people involuntarily and often switch or reverse between these two states. These metamotivational states are not viewed as particular motives; instead, they are frames of mind corresponding to the way people interpret their motives at any given time (Apter, 2001).

Reversal theory research (for review see Kerr, 1997, 1999, 2001) has helped clarify motor behavior. Typical of the empirical conclusions drawn from reversal theory research (e.g., Kerr & Van Schaik, 1995; Males, Kerr, & Gerkovich, 1998; Perkins, Wilson, & Kerr, 2001; Yoshida, Hirata, Takai, & Yamazaki, 1997) is that successful motor performance is associated with pleasant feelings accompanying physiological arousal. Nevertheless, previous reversal theory research in sport (e.g., Cox & Kerr, 1989; Kerr & Van Schaik, 1995; Wilson & Kerr, 1999) that examined the effect of game outcomes on sport experiences (e.g., arousal, stress, pleasure) had weaknesses. Among these is its failure to assess such effects in individuals who differ in their telic/paratelic metamotivational dominance. This dominance is believed to be a personality construct derived from reversal theory, that reflects the tendency to be more in one metamotivational state than the other, most of the time. This criticism is also true of reversal theory research (e.g., Barr, McDermott, & Evans, 1993; Kerr & Tacon, 2000; Males, 1999) that
assessed the influences of environmental conditions on metamotivational state reversal. It too has ignored the role of telic/paratelic dominance in the reversal process.

Apter’s (1984) reversal theory holds that the factors that tend to induce the telic state have to be stronger in order to bring about such a reversal for paratelic-dominant people than for telic-dominant people, and vice versa for those factors that tend to induce the paratelic state (Apter, 1984). This suggests the need to consider telic/paratelic dominance when investigating the reversal process. Therefore, an investigation is needed that determines whether certain task conditions will influence metamotivational state reversal.

Recently, Tenenbaum, Hall, Calcagnini, Lange, and Freeman (2001) emphasized the importance of the interaction between psychological variables (e.g., self-efficacy, goal orientations) and environmental conditions (favorable vs. unfavorable) in determining both behavioral consequences (e.g., effort, adherence, and consistency) and outcomes (e.g., level of performance). Until now, though, the effects of both task condition and telic/paratelic dominance on motor performance and related affective states (e.g., pleasantness, arousal) have not been studied. Therefore, the present research investigated the effect of metamotivational dominance on motor performance and affect states under conditions that differ in difficulty level and type of external feedback on performance.

Another theory that has been found beneficial in explaining sport and exercise behavior but has not yet been linked to reversal theory is Bandura’s (1977) self-efficacy theory. Self-efficacy theory was originally developed to describe the basic mechanisms of motivation, and it proposes that efficacy beliefs function as important proximal determinants of human motivation, affect, thought, and action (Bandura, 1977, 1986, 1997). “Perceived self-efficacy refers to the beliefs in one’s capabilities to organize and execute the courses of action required to produce given atttainments” (Bandura, 1997, p.3).

The main concerns of self-efficacy theory research in the sport and exercise literature were centered on the influence of perceived capabilities on performance outcomes and emotions. Typical of the empirical conclusions drawn is that high self-efficacy beliefs positively influence motor performance (e.g., Escarti & Guzman, 1999; Schunk, 1995; Theodorakis, 1995; Wells, Collins, & Hale, 1993) and emotion (e.g., Kavanagh, 1992; McAuley, Talbot, & Martinez, 1999). Although these findings suggest a positive linear efficacy-emotion-performance
Within Bandura’s (1997) self-efficacy theory, no attention was drawn to possible different influences of self-efficacy perceptions (high versus low self-efficacy) on affective states and performance outcome for performers differing in their metamotivation (telic versus paratelic). Bandura’s self-efficacy theory seems to suggest that highly efficacious individuals will always perform well and feel happy regardless of their metamotivation. Such metamotivational frames of mind, according to reversal theory, are associated with different emotional preferences (relaxation versus excitement), and goal orientations (goal versus activity-orientation) (Apter, 2001; Kerr, 1997). Furthermore, past self-efficacy theory research made no effort to determine the impact of telic/paratelic metamotivational dominance on individuals’ efficacy perceptions. There is general agreement in the sensation-seeking literature that high sensation seekers hold strong and positive perceptions of self-efficacy since they tend to expose themselves to stimulating situations. Thus, they have relatively more opportunity to experience successful performance in those situations than low sensation seekers (Slanger & Rudestam, 1997). Similarly, a paratelic lifestyle might lead to more opportunities to experience successes in changing situations, and thus lead to greater efficacy perceptions.

A model that pertains to this study’s propositions is presented in Figure 1. This model holds that motor performance, affective states (e.g., pleasantness, and arousal), efficacy perceptions, and telic/paratelic state depend on the metamotivational dominance and the environmental condition under which an individual performs the task. As seen in this model, motor tasks can be performed under either favorable (e.g., positive feedback, easy task) or unfavorable circumstances (e.g., negative feedback, extremely difficult task). Thus, it is the interaction between the individuals’ metamotivational dominance and the environmental condition under which they perform that determine the quality of motor performance, affective states, and telic/paratelic state, both during and at the end of the motor task. This model thus suggests that to better understand and predict motor experiences, both the personal (e.g., metamotivational dominance) and the environmental (e.g., task demands) variables need to be considered.
Figure 1. A model depicting to the role of telic/paratelic dominance and environmental condition in performance, affect, efficacy, and telic/paratelic state.
CHAPTER 2
REVIEW OF LITERATURE

In this chapter, fundamental concepts and issues related to reversal and self-efficacy theories are reviewed as well as related research findings pertaining to sport and exercise.

Reversal Theory

Reversal theory (Apter, 1982, 2001) is a theory of motivation, emotion, and personality that continues to be recognized and accepted in sport and exercise psychology (Kerr, 1997, 1999). It is also embraced in diverse areas such as art therapy, criminal justice, religion, military, sexual violence, family communication, and smoking (Apter, 2001; Potocky & Murgatroyd, 1993). Reversal theory posits a bistable pair of "metamotivational states" that account for the complex relations among arousal, motivation, and emotion (Apter, 1982). These metamotivational states are not viewed as particular motives, but instead as frames of mind corresponding to the way people interpret their motives at any given time (Apter, 2001).

Apter (1982) argues that an individual’s behavior cannot be completely understood without first interpreting the subjective meaning associated with this particular behavior. More specifically, reversal theory proposes that there are two different phenomenological states of mind, in which changes in felt arousal are perceived and experienced in opposite ways, and that people involuntarily switch or reverse between these two states (Apter, 1982). Unlike Hebb's (1955) optimal arousal theory that posits an idiosyncratic preferred single optimal arousal level, reversal theory holds that both low and high levels of arousal can be pleasant depending upon which metamotivational state is operative.

Reversal theory’s telic/paratelic metamotivational states can be represented by two separate curves, each suggesting an opposite way of interpreting arousal. This is shown in
Figure 2. The anxiety-avoiding curve is considered to represent the telic state (from the Greek “telos,” meaning goal). This state is mainly characterized as goal-oriented in which the ultimate goal of any ongoing activity is seen as essential for the individual, and the activity itself is peripheral. Thus, as shown in Figure 1, a high level of felt arousal in this state is experienced as unpleasant because it is perceived as interfering with the achievement of the goal, and is therefore associated with anxiety. Alternatively, low levels of felt arousal are experienced in this state as pleasant and are described in terms of relaxation. Thus, individuals in the telic state are also characterized as serious-minded, future-oriented, and arousal-avoidant (Apter, 2001; Kerr, 1997).

The excitement-seeking curve represents the second metamotivational state: the paratelic state (from the Greek “para,” meaning beside). This state is mainly characterized as activity-oriented; one in which the goal of the activity is not important compared to the ongoing behavior and the experience. In contrast to individuals in the telic state, a high level of felt arousal in this state is experienced as pleasant because it is associated with excitement, whereas low levels of felt arousal are experienced in this state as unpleasant and are described in terms of boredom. Individuals in the paratelic state are also characterized as playful, present-oriented, and arousal-seekers (Apter, 2001; Kerr, 1997).

Reversal theory proposes that each of the metamotivational states is mutually exclusive (Potocky & Murgatroyd, 1993). That is to say, a person can never be in both states at the same time. Thus, the theory received its name from this tendency toward switching back and forth between the two metamotivational states. Reversal theory contends that the metamotivational states’ reversal process is involuntary; an individual cannot decide consciously to reverse to the other state. One can, however, induce a reversal indirectly through exposing himself or herself to stimuli that are more likely to trigger a reversal to a particular state.

Reversal theory holds that the reversal process between telic and paratelic states may be triggered in one of three main ways (Apter & Heskin, 2001). First, some forms of environmental stimulus or events that are referred to in the theory as contingent events may provoke a reversal. For example, a life-threatening injury during competition may induce the telic state of an athlete if it is not already in operation, whereas the winning of an Olympic gold medal may induce the paratelic state in another athlete.
Figure 2. Hypothetical curves representing the opposite ways in which different arousal levels are experienced in different metamotivational states (taken from Apter, 2001, p. 42).

The second way in which reversal occurs is through *frustration* whereby one perceives his inability to achieve satisfaction in the prevailing state. Consider, for example, a tennis player who is in the telic state (serious-minded) and who realizes toward the end of the match that
winning is highly unlikely. As a result, he or she may reverse to the paratelic state and enjoy the excitement of the competition. The third way in which reversal from one state to the other may be facilitated is satiation, which is some kind of force for reversal builds over time so that a reversal from state to the other becomes easier as time goes on (Apter, 2001).

Apter (1984) argued that one of the ways that individuals can differ from each other at the metamotivational level is in their predispositions or tendencies to be more in one state than the other. Such tendency is referred to in reversal theory as dominance. A telic-dominant individual is more likely to be pursuing goals perceived by him or her to be important than engaging in playful activity. On the other hand, a paratelic-dominant individual is more likely to be pursuing goals perceived by him or her as fun rather than engaging in serious activity. Reversal theory further proposes that the factors that tend to induce the telic state have to be stronger in order to bring about such a reversal for paratelic-dominant people than for telic-dominant people, and vice versa for those factors that tend to induce the paratelic state (Apter, 1984). Moreover, it is thought that a person “will contingently reverse easily into his or her dominant state, and will satiate more slowly and become frustrated less easily in that state” (Frey, 1999, p.13).

It should be noted that, according to the reversal theory, dominance is not a trait since people are expected to spend periods of time in a metamotivational state opposite to their typical metamotivational state. Nevertheless, the possible relationship between telic dominance and the Type A behavior pattern has led to some empirical research by Svebak and Apter (1984). It was revealed that the two constructs are two independent psychological characteristics in which it is quite possible that both highly telic dominant and highly paratelic dominant individuals display Type A behavior. According to Kerr (1989), such metamotivational tendencies can be perceived as a personality characteristic.

A central focus of reversal theory research has been the examination of behavioral inconsistency. Apter (1982) indicated that such inconsistency cannot be explained through personality traits, but through the metamotivational concepts proposed by reversal theory. To better understand an individuals’ behavior, Apter (2001) has stressed that it is important to think in terms of how an individual is at a given time (state) and how he or she tends to be over time (dominance). The relevant scientific evidence in sport and exercise is reviewed next in order to examine reversal theory propositions in this domain.
Reversal Theory: Empirical Research in Sport and Exercise

Telic/paratelic states. In sport research, the telic and paratelic metamotivational states continue to receive increased attention (Potocky & Murgatroyd, 1993; Woodman & Hardy, 2001; Zaichkowsky & Baltzell, 2001). Research focused on the effects of telic and paratelic metamotivational state on sport performance has shown that successful motor performance is associated with feelings of pleasant arousal. A study undertaken by Kerr, Yoshida, Hirata, Takai, and Yamazaki (1997) to investigate the effect of the four different combinations of metamotivational state and felt arousal level (telic-low, paratelic-low, telic-high, paratelic-high) on archery performance revealed that better archery performance was observed under pleasant conditions (low-telic, high-paratelic) than under unpleasant conditions (high-telic, low-paratelic), supporting the importance of hedonic tone in sport performance.

Kerr and Pos (1994) conducted an exploratory field study to examine possible differences in psychological mood experience between B-level (less successful) and A-level (more successful) female gymnasts in both training and competition. The results showed that both groups of gymnasts were equally serious-minded (i.e. telic-oriented) before and after competition. However, B-level gymnasts were found to be more serious-minded than A-level gymnasts before and after training. The results further showed that A-level gymnasts were more consistent between training and competition on felt arousal, preferred arousal, and effort compared to B-level gymnasts. Thus, Kerr and Pos concluded that being successful in female gymnastics seems to require a stable mood response both at training and in competition.

Kerr and Van Schaik (1995) examined the effect of game outcomes on rugby players’ psychological experiences. They observed that rugby players were more positive, spontaneous, and less serious after winning than after losing games. Winning a game was found to be also associated with higher arousal and lower stress (paratelic state) than was losing a game. Similar findings were reported by Males, Kerr, and Gerkovitch (1998) when investigating the metamotivational state of elite canoeists during a slalom competition. Males and his colleagues observed that above average performances occurred more frequently when participants were performing in the paratelic state.

Perkins, Wilson, and Kerr (2001) attempted to examine some reversal theory research findings that high positive arousal may improve performance. Using male and female athletes performing in different explosive sports, Perkins et al. found that greatest handgrip strength
performance was in the paratelic state condition, followed by the telic state condition, and then by the neutral condition. Thus, Perkins et al. concluded that a high arousal level positively influences motor performance only when high felt arousal is accompanied by high hedonic tone, as found in the paratelic state. In a similar line of research, Howard, Yan, Ling, and Min’s (2002) study of rock climbers showed that the majority of them were in the paratelic state, which indicates that risky behavior is likely to be exhibited in a paratelic state in which excitement, high positive arousal, is the motivating force for their risky behavior.

**Telic/paratelic states reversal process.** Telic/paratelic states reversal is considered important since it is related to the way people behave and perform in order to maximize the feelings and emotions of their metamotivational states (Apter, 2001). Thus, the reversal process between telic and paratelic states was of interest in several studies. Barr et al. (1993), for example, examined the effect of frustration on the reversal process suggested by reversal theory. An extremely difficult-to-solve puzzle was used in which frustration was highly expected. The data showed that participants who started in the paratelic state reversed to the telic state, which was attributed more to boredom (than frustration) in achieving excitement, whereas participants who started in the telic state reversed to the opposite state, which was attributed more to frustration (than boredom) in solving the puzzle.

Apter and Batler (1997) in their investigation of the feelings experienced by members of parachuting clubs, found that the majority of parachutists experienced their highest anxiety just before the parachute opened, and experienced their highest excitement immediately after that. Thus, Apter and Batler concluded that a contingent telic-to-paratelic reversal occurs as danger turns to safety. Another study that showed contingent reversals was reported by Males (1999) on slalom canoeing subjects in which reversals occurred as a result of the fluctuating challenges experienced by the athletes. Other research (e.g., Kerr, Hayashi, Matsumoto, & Miyamoto, 2002; Kerr & Tacon, 1999) has also confirmed the influences of environmental events, locations, and activities (e.g., medical library, sport center, sport meets, lecture on statistics) on telic/paratelic states reversal. Despite the attention of previous research, the characteristics of the situations or the motor tasks (favorable vs. unfavorable) that target such reversal, as well as the role of an individual’s dominance in the reversal process, remain unclear.

In a laboratory setting, Hudson and Bates (2000) exposed 24 participants to a telic and paratelic version of a dart-throwing task for 10 minutes in which they were free to change from
one task version to another. In the telic version of dart throwing, participants were asked to achieve a randomly selected score and if target score was achieved the participants were awarded a nominal cash bonus (10 pence). In the paratelic version, on the other hand, the required target score for getting more cash bonus award (50 pence) was not conveyed to participants. Thus, for participants in the telic version a serious frame of mind was needed to be able to achieve the target score, whereas for the participants in the paratelic version the outcome was left to chance. Hudson and Bates found that metamotivational state reversals did occur from the telic to the paratelic state and vice-versa over short periods of time. Examination of the reasons that participants provided for their task changes indicated reversals due to satiation (e.g., boredom) or frustration (e.g., lack of success) reasons.

**Telic/paratelic dominance.** Metamotivational dominance has been shown to be important in understanding people’s sport and exercise behavior (Kerr, 1997). Despite the emphasis on the role of dominance on people’s behavior and experiences, little attention has been given to experimentally exploring the role of telic/paratelic dominance on people’s sport experiences. Studies in sport literature (Kerr, 1988, 1991; Kerr & Van Lienden, 1987; Svebak & Kerr, 1989) have focused mostly on the role of dominance in physical activity preferences and participations.

Martin, Kuiper, Olinger, and Dobbin (1987), through conducting a series of studies that examined the stress-moderating effects of telic versus paratelic dominance, found a linear relation between stressors and mood disturbance for the telic-dominant participants, whereas for paratelic-dominant participants there was a curvilinear relation between these variables, with higher mood disturbance at both low and high levels of stress and lower mood disturbance at moderate levels of stress. That is, moderate levels of stress were experienced with the greatest challenge and enjoyment by paratelic-dominant individuals, whereas a no-stress experience was accompanied by feelings of boredom for those individuals.

To provide additional support for the hypothesis that telic-dominant individuals are more unfavorably affected by moderate stress than are paratelic-dominant people, Martin and his colleagues conducted an experimental study in which stress level was manipulated, either by a no-stress or a mildly stressful condition in which the participants’ performance on a video game would be evaluated by the experimenter and compared to that of other participants. The results revealed that paratelic-dominant participants scored significantly higher on the video task in the
moderately stressful condition than in the non-stressful condition, whereas the telic-dominant participants scored higher in the non-stressful than in the moderately stressful condition. Additionally, telic-dominant participants reported feeling significantly more unpleasant and more dissatisfied with their performance and perceived the experimenter as being more hostile and disapproving in the stress than in the no-stress condition.

Several lines of evidence support the role of telic/paratelic dominance in understanding people’s participations and preferences for certain sport and exercise settings. Kerr (1987), for instance, undertook a study to examine the telic dominance characteristics of male sports performers participating in professional, serious amateur, and recreational sports. He found that professionals were more telic-dominant than were the serious amateurs and the recreational participants. The results of the study thus supported the notion that professionals and other highly committed sports participants tend to take their sport involvement more seriously than those who are not professionals. In other words, sport is a telic-oriented activity for them. Alternatively, the sport participation for individuals for whom sport involvements are less serious tends to be associated with the paratelic state characteristics.

Similarly, Kerr and Van Lienden (1987) examined the metamotivational characteristics of master swimmers who were former national, international, and Olympic-level athletes engaging in serious training and competing against other master athletes. They found that the metamotivational characteristics of the master swimmers were similar to those of professional sports performers, and greatly differed from those of the serious amateurs and recreational sports performers studied by Kerr (1987). In accordance with theoretical arguments of Apter’s reversal theory, Kerr and Van Lienden concluded that sport participation for master swimmers is a telic experience since they are still involved in training for competition. The behavior is thus serious and well-planned.

In a similar line of research, Kerr (1988) attempted to identify the metamotivational tendencies of male competitive rugby players from four different countries—Canada, Wales, England, and Australia. Similar patterns of metamotivational characteristics for rugby players from those four different countries were found, suggesting that the nature of the game plays a more important role in determining athletes’ dominance characteristics than the any particular culture.
Through using two different approaches, Svebak and Kerr (1989) examined the relationship between impulsivity and sport preference. In the first approach, high-level tennis and field hockey athletes (explosive sports athletes) were compared to high-level runners (endurance sport athletes). The results showed high-level explosive sport performers to be more impulsive and arousal-seeking than the endurance sport performers. Using another sample, Svebak and Kerr employed another approach to identify which sports were performed by high telic and high paratelic-dominant individuals. Human Movement Education students were asked to list up to three winter and three summer sports that they actually performed regularly during their leisure time. High paratelic-dominant subjects were found to perform baseball, cricket, touch football, surfing, and windsurfing (explosive sports), whereas high telic-dominant subjects performed long distance running and rowing (endurance sports), indicating that impulsivity seems to be associated with the preference for explosive, paratelic sports.

Reversal theory, as a conceptual framework, has also been applied to risk sport participation and preference (Gerkovich, 2001; Kerr, 1997). Kerr and Svebak (1989) were the first to study the dominance characteristics in risky and safe sport participants in order to determine the relationship between telic/paratelic dominance and such activities. Participants were asked to list their first three preferences for summer and winter sports and up to three summer and winter sports in which they actually participated. The data showed that those who chose a high risk sport (e.g., canoeing, caving, downhill skiing) were more paratelic dominant than were subjects who chose a safe sport (e.g., archery, bowling, Frisbee). Similar findings for actual sport participation in which risk sport participation, both summer and winter, was associated with more paratelic dominance than for safe sport participation. This suggests that a preference for and the actual participation in risk sport is strongly associated with a generally paratelic lifestyle, whereas a preference for and actual participation in safe sport is strongly associated with a telic lifestyle.

In contrast with the Kerr and Svebak study, which utilized a general student population, Kerr (1991) conducted three independent studies involving male athletes and examined their arousal-seeking (paratelic dominance) tendencies. In the first study, surfers and sailboarders (risk sport participants) were found to be more paratelic-dominant than weight trainers (safe sport participants). In the second study, Dutch parachutists and motor cycle racers (risk sport participants) were found to be more paratelic dominant than marathon runners (safe sport
participants). In the third study, British male glider pilots were compared with a control group of non-sporting male members of the British general public. The British male glider pilots were found to be more paratelic dominant than the non-sport participants. In line with reversal theory, findings in all three studies suggest that risk sport participants are more arousal seeking than safe sport participants. Kerr’s findings are also consistent with Kerr and Svebak’s findings that paratelic dominant individuals enjoy high arousal and gravitate toward activities that would seem to provide them with such a chance.

Cogan and Brown (1999) explored possible metamotivational tendency differences between male snowboarders (risk sport participants) and male badminton players (safe sport participants). Consistent with previous studies’ findings (Kerr, 1991; Kerr & Svebak, 1989), safe sport athletes were more telic dominant than risk sport athletes, suggesting that safe sport participants, who are telic-dominant, tend to avoid activities which generate high arousal and gravitate more toward activities in which arousal is likely to be low. Alternatively, risk sport participants, who usually are paratelic-dominant, tend to gravitate more toward activities which generate high arousal, and avoid activities in which arousal is likely to be low.

To summarize, in the findings of previous studies, individual’s metamotivational states and dominances have been shown to be important psychological constructs in sport and exercise contexts in that they seem to play a crucial role in how individuals experience their sport involvements. Reversal theory metamotivational tendencies were also shown to influence people’s preference for participation in certain sports. The studies reviewed here provide sufficient support for such claims, showing the importance of considering individuals’ states and dominances when studying people’s exercise and sport behavior.

**Self-Efficacy Theory**

The role of self-efficacy in motivation and sport performance has been substantially explored in different areas since Bandura’s (1977) original publication. “Perceived self-efficacy refers to the beliefs in one’s capabilities to organize and execute the courses of action required to produce given attainments” (Bandura, 1997, p.3). Moreover, Bandura (1997) emphasized the difference between two concepts-outcome expectation and efficacy expectation. An outcome expectation was defined by Bandura as "a person's estimate that a given behavior will lead to
certain outcomes" (1977, p.193). This was differentiated from an efficacy expectation, which Bandura defined as "the conviction that one can successfully execute the behavior required to produce the outcomes" (1977, p.193). According to Bandura, individuals may know what behavior or what particular course of actions will produce the desired outcomes, but they might doubt their ability to carry out the required behavior.

The individual’s self-efficacy about a given situation tends to be derived from several sources of information. The four sources of information, as depicted in Figure 3, that are thought to influence individual’s self-efficacy are: (a) performance accomplishments, (b) vicarious experience, (c) verbal persuasion, and (d) physiological and emotional states (Bandura, 1986, 1997).

Performance accomplishments represent the most influential source of information about one's performance capabilities since they are based upon personal mastery experiences (Bandura, 1997; Cox, Qiu, & Liu, 1993; Feltz, 1992). An individual's successful performance gives rise to expectations for future success, while failure experiences lower those expectations. Yet, the effect of performance accomplishments on self-efficacy depends upon other factors such as the preconceptions of capabilities, perceived difficulty of the task, the amount of effort expended, the amount of external aid received, and the temporal pattern of successes and failures (Bandura, 1997; Hardy, Jones, & Gould, 1996). That is, for example, mastering a difficult task will result in greater self-efficacy than mastering a simple task.

Vicarious experience is the second source of information that is obtained through seeing or visualizing other people successfully performing a prospective activity. Through comparing themselves to others, people persuade themselves that if others can do it, then they should also be able to do it. The third source of information is verbal persuasion, which refers to the verbal encouragement or feedback aimed toward influencing individuals’ beliefs in regard to their ability to perform certain tasks or cope with a certain task’s demand.

The final source of information that can influence perceived self-efficacy is the physiological and emotional states. People often rely on their physiological activation and emotional state to judge their capabilities. For example, as Bandura (1997) discussed, for some people a high arousal level might be an indicator of low capability, whereas a high arousal level might be an indicator of high capability for others, depending on their cognitive appraisal of their
arousal states. That is to say, an increase in efficacy expectation is more likely to be experienced by an athlete who perceived his or her high arousal level to indicate performance readiness. On the other hand, a decrease in efficacy expectation is more likely to be experienced by an athlete who perceived his or her high arousal level as a fear or anxiety (McCullagh, 1993). Bandura
(1997) also indicated that people also rely on their fatigue, breathlessness, and aches and pains as efficacy sources of information.

Based on these sources of information, the consequences of perceived self-efficacy, as depicted in Figure 3, include: (a) the participation in or avoidance of tasks and situations, (b) the expenditure and persistence of effort when confronted with obstacles or aversive experiences, and (c) the thought patterns and emotional reactions to the demands of the situation (Bandura, 1986). According to Bandura, people rely on their beliefs about their capabilities to make decisions concerning selecting, avoiding, and terminating tasks. This suggests that the more efficacious people are, the more likely they undertake challenging tasks that they believe they are capable of handling. Therefore, people usually avoid potentially risky situations, not because they anticipate that they will feel extremely anxious, but because they anticipate a perceived coping inefficacy in these situations (Bandura, 1992). Similarly, judgment of efficacy also determines the effort and persistence people show in the face of difficult tasks and situations. This means that the stronger his perception of personal capabilities, the more likely an individual is to expend effort and persistence in mastering a challenging task.

A third consequence of self-efficacy that Bandura (1986) suggested is the impact upon thought patterns and emotional reactions during actual and anticipated demanding situations. More specifically, a highly efficacious person is more likely to attribute his or her failure to insufficient effort, whereas a less efficacious person with a similar skill might attribute such failure to lack of ability (Bandura, 1986).

**Self-Efficacy Theory: Empirical Research in Sport and Exercise**

Sport and exercise behavioral consequences associated with self-efficacy have also been investigated. Poag-DuCharme and Brawley (1993), for instance, reported that self-efficacy beliefs positively influence exercise intentions and attendance. Poag-DuCharme and Brawley also concluded that self-efficacy contributes to the prediction of exercise program involvements. Another study found that individuals high in self-efficacy attempted to choose more difficult motor tasks, performed the task better, and exhibited higher task satisfaction than those low in self-efficacy (Escarti & Guzman, 1999). In addition, beliefs about efficacy influenced the type of goals set and, thus, the activities or tasks chosen (Bandura, 1990). Therefore, efficacious people are more likely to set challenging goals and be more committed to them (Bandura, 1992; Locke, Frederick, Bobko, & Lee, 1984). Moreover, Bozoian, Rejeski, and McAuley’s (1994)
reported that females who were more efficacious maintained a sense of energy during the exercise and felt more revitalized than the group with low self-efficacy.

Beatty (1993) investigated the role of self-efficacy and telic/paratelic dominance, along with previous running program attendance and gender, in predicting current running behavior (Beatty, 1993). Self-efficacy of exercise behavior was the only significant predictor of membership in one of three groups: dropout, running beneath fitness maintenance level, and running to maintain or increase fitness level. Beatty’s data revealed that individuals with high self-efficacy are more likely to be currently running, whereas those low in self-efficacy are more likely to be dropouts.

Bandura (1997) suggested that preference for activities that involve high physical risk (e.g., rock climbing, sky-diving) was related to sense of mastery rather than a matter of excitement-seeking. This finding is supported by results from other studies reported in the sport psychology literature. For example, Slanger and Rudestam (1997) demonstrated that perceived self-efficacy rather than mere thrill-seeking separated extreme risk takers from high-risk takers in four risk sports: rock climbing, skiing, white water kayaking, and small plane racing and aerobatics. Slanger and Rudestam found that members of the extreme risk-takers’ group felt highly confident in their abilities to handle the threatening activity demands.

Bandura’s (1977) theory of self-efficacy is widely held to be the most extensively adapted theoretical framework for investigating the relationship between sport self-confidence and motor performance (Feltz, 1992). Individuals with similar skills or the same individual under different circumstances may perform poorly or excellently depending on their perceived personal efficacy (Bandura, 1997). LaGuardia and Labbé (1993) demonstrated that faster running performance is related to perceived self-efficacy in which runners with high self-efficacy scores had faster pace times than runners with low scores. Similarly, Tenenbaum et al. (2001), using a general physical self-efficacy measure, found that highly efficacious players were more accurate in their dart-throwing performance under three different feedback conditions (win, lose, and the win/lose condition) compared to other inefficacious players.

In extensive reviews of the sport psychology literature, Feltz (1992) and Feltz and Lirgg (2001) found most studies examining correlations between self-efficacy and various types of sport performance behavior to be in excess of .50. Moritz, Feltz, Fahrback, and Mack’s (2000) meta-analytic review showed that the average correlation between self-efficacy and sport
performance was .38. It should be noted that a number of factors were found to moderate the relationship between self-efficacy and sport performance. Moritz et al. reported that the most important moderators in such relationships were concordance between self-efficacy and performance measures, types of self-efficacy measures (general versus task-specific measures), types of performance measures (self-reported or subjective versus objective measures), the nature of the task (tasks familiar to participants versus novel tasks), and the time of assessments.

As for its relation with some important cognitive variables, self-efficacy was found to be strongly related to anxiety, positive and negative affective states, goal orientation to win, and trait sport confidence (Feltz & Lirgg, 2001), and causal attributions (Locke et al., 1984; McAuley, 1991). In this line of research, Treasure, Monson, and Lox (1996) examined the relationship between self-efficacy, wrestling performance, and affect prior to competition, and found that self-efficacy was significantly associated with positive and negative affect, and with cognitive and somatic anxiety. More specifically, precompetition self-efficacy was positively related to positive affect and negatively related to negative affect and somatic and cognitive anxiety. As for the relationship between self-efficacy and performance, the data in the study by Treasure et al. showed that the higher the precompetition self-efficacy, the better the performance. McAuley (1991) conducted a path analysis that demonstrated that self-efficacy had a significant direct and indirect influence on affect. In McAuley’s study, efficacious participants attributed their progress in the exercise program to more personally controllable causes.

To summarize, Bandura’s self-efficacy theory has gained considerable support in many sport- and exercise-related research studies (e.g., Escarti & Guzman, 1999; McAuley & Courneya, 1992; McAuley et al., 1999; Schunk, 1995; Theodorakis, 1995; Treasure & Newbery, 1998; Weinberg, Gould, & Jackson, 1979; Weinberg, Gould, Yukelson, & Jackson, 1981). The crucial role of self-efficacy beliefs in clarifying behavior in different exercise and sport settings is well established.

**An Integration of Reversal and Self-Efficacy Theories**

Research based on both reversal and self-efficacy theories has contributed a great deal to the understanding of motivations, emotions, and performance outcomes in sport and exercise
environments. Despite the apparent attention given by previously published studies to the effect of self-efficacy and reversal states on emotions and performance outcomes in sport and exercise settings, the interaction effect of the two remains unclear. What follows is a discussion of the potential relationships between Bandura’s (1977) self-efficacy theory and Apter’s (1982) reversal theory.

Self-efficacy research that indicated positive linear relationships between self-efficacy, emotions, and motor performance did not consider metamotivations as proposed by Apter’s (1982) reversal theory. Thus, the question remains whether self-efficacy’s positive effects on emotion and motor performance generalize across all people and across all motor tasks? A proposition is offered here that a negative, or at least a curvilinear relationship is possible between self-efficacy, emotion, and motor performance, depending on the performer’s metamotivation and motor task condition. That is, high self-efficacy beliefs may facilitate motor performance and emotional reaction for some people who engage in some motor tasks; not for all motor tasks.

Within Bandura’s (1997) self-efficacy theory, no attention has been drawn to possible different influences of self-efficacy perceptions on emotions and performance outcome for performers differing in their metamotivation dominance. Bandura’s self-efficacy theory seems to suggest that highly efficacious individuals will always perform well and feel happy regardless of their metamotivation. Such metamotivational frames of mind, according to reversal theory, are associated with different emotional preferences (relaxation versus excitement), and goal orientations (goal versus activity-orientation) (Apter, 2001; Kerr, 1997). In accordance with reversal theory, individuals in the excitement-seeking mode tend to exhibit a consistent need for new challenges or activities to satisfy their excitement needs. A non-challenging task which an individual is highly capable of performing is less likely to bring such excitement. In other words, excitement-seekers are less likely to invest much effort in a task that presents little challenge, which they perceive themselves to be highly capable of completing. Furthermore, engaging in such a non-challenging or not exciting task is more likely to intensify feelings of boredom, and signal the likelihood of low effort, and, thus lead to poorly motivated behavior causing performance deterioration.

Barr et al. (1993) exposed their participants to an extremely difficult-to-solve puzzle, and found that those participants who started in the paratelic state spent over twice as much time.
trying to solve the puzzle than their telic counterparts. Barr and his colleagues, therefore, proposed that knowing the metamotivational state a person started with prior to embarking upon the task may help in predicting how persistent this person is likely to be in the task. Although Barr et al. did not directly measure participants’ efficacy perceptions, it is reasonable to assume that in a low-efficacy condition (e.g., trying to solve an extremely difficult puzzle) paratelic-minded individuals will show more persistence compared to telic-minded individuals. Therefore, metamotivation in combination with efficacy perceptions may be a crucial component in accounting for motor performance.

Another study by Martin et al. (1987) showed that paratelic-dominant individuals performed best on a video task in the moderately stressful condition than in the non-stressful condition. In contrast, telic-dominant participants performed best in the non-stressful rather than in the moderately stressful condition. In this regard, stressful situations are more likely to be interpreted as challenging for paratelic-dominant individuals and threatening for telic-dominant individuals (Martin et al., 1987; Martin & Svebak, 2001). In other words, without the feelings of excitement, which are usually attained through challenging activities, playful paratelic individuals performing an easy task might eventually reduce their efforts, or even terminate their involvement if possible. In this instance, the feeling of excitement for highly paratelic individuals is the motivational force that increases their effort and persistence and, thus, enhances their performance on a given task. That is, the feeling of boredom is likely to be experienced by a paratelic-minded individual who is engaging in an easy task when he or she feels highly efficacious in performing. Young children who disengage from video games with which they are familiar after a period of time, is another example of the possible reversed effect of self-efficacy beliefs on emotion and performance. For children, who usually tend to seek excitement through these games, the belief that they are easily capable of winning the video game is less likely to bring such feelings of excitement for them.

These predictions are inconsistent with what self-efficacy theory proposes (Bandura, 1997). Results from prior self-efficacy research suggest that a positive linear efficacy-emotion-motor performance relationship exists for every person (Escarti & Guzman, 1999; Feltz & Lirgg, 2001; McAuley et al., 1999; Moritz et al., 2000; Schunk, 1995; Theodorakis, 1995; Kavanagh, 1992). The extent to which Apter’s (1982) conceptualization of telic/paratelic states interacts with self-efficacy particularly in sport and exercise settings is certainly worthy of examination.
Specifically, there is a need for empirically sound research that examines the personality (telic/paratelic) by motor task interactions, which may moderate the effects of self-efficacy beliefs upon motor performance and emotions.

**Conclusion**

Previous reversal theory research has shown that telic/paratelic metamotivation plays an important role in the way individuals experience sport. Previous reversal theory research in the context of sport that examined the effect of game outcomes on perceptions about the sport experience (e.g., arousal, pleasure, performance) failed to incorporate telic/paratelic metamotivational dominance in their designs. Likewise, past reversal theory research that assessed the influences of environmental conditions on people’s metamotivational state reversal process, ignored the role of telic/paratelic dominance in the telic/paratelic state reversal process. Investigations that assess the influence of task settings (favorable versus unfavorable) and telic/paratelic dominance on motor performance, affective states, and telic/paratelic state reversal are warranted.

Bandura’s self-efficacy theory is another theory that has gained considerable support in many sport and exercise related studies. The crucial role of self-efficacy beliefs in providing valuable explanations of people’s behavior in different exercise and sport settings has been established; however, no known research has yet been conducted to determine whether the motor task efficacy perception is different for people differing in their telic/paratelic metamotivational tendencies. Likewise, self-efficacy theory research that suggested that high self-efficacy beliefs positively influence individuals’ motor performance and affective states, made no effort to determine whether such a positive linear relationship is similar for individuals who differ in their telic and paratelic metamotivations. The extent to which Apter’s (1982) telic/paratelic notions induced changes in the influences of self-efficacy on individuals’ sport and exercise experience is certainly worthy of examination.
Significance of the Study

Considering Apter’s (1984, 2001) reversal theory conceptions of telic and paratelic-dominant individuals, and considering previous reversal theory research findings (e.g., Martin et al., 1986), it is clear that metamotivational dominance plays a critical role in behaviors and affective reactions during motor activities. It is apparent, therefore, that investigation of the effect of motor task condition (favorable vs. unfavorable) on people differing in their metamotivational dominance is warranted in order to understand and predict their motor performance outcomes and affective reactions.

Through this investigation, a clear psychological understanding of the role of metamotivational dominance in motor performance and affective states will be enhanced and important implications and guidelines for coaches and others who work with athletes will be generated. More specifically, interventions that aim to enhance affective responses and performance outcomes will be optimized when tailored to meet the needs of athletes of different emotional needs (relaxation versus excitement), and goal orientations (goal versus activity-orientation).

The Purpose of the Current Study

The main purpose of this study was to examine and compare telic and paratelic-dominant individuals’ motor performance, pleasantness, and arousal while performing under favorable and unfavorable conditions, which vary in difficulty level and supportive external feedback on performance. Previous reversal theory research (e.g., Barr et al., 1993; Kerr & Tacon, 2000; Males, 1999) that examined the effect of task conditions on the telic/paratelic state reversal failed to account for telic/paratelic dominance in the reversal process. Of interest in this study was the role of metamotivational dominance in people’s telic/paratelic state reversal. Since no known effort has been made to examine the influence of favorable and unfavorable motor task conditions on efficacy perception for individuals who differ in their metamotivational dominance, an additional aim of this study was to explore whether motor task efficacy perception is sensitive to individuals’ telic and paratelic metamotivational dominance.
Hypotheses

The following main hypotheses were the focus of the present study:

1. Paratelic-dominant participants would show better dart accuracy performance than telic-dominant participants under the long throwing distance (3.37m), and the negative (i.e., losing) feedback conditions, whereas telic-dominant participants would perform better than paratelic-dominant participants under the short throwing distance (1.37m), and the positive (i.e., winning) feedback conditions.

2. Paratelic-dominant participants would report more pleasant feelings than telic-dominant participants under the long throwing distance, and negative feedback conditions, whereas telic-dominant participants would report more pleasant feelings than paratelic-dominant participants under the short throwing distance, and the positive feedback conditions.

3. Participants would report their highest arousal feelings while throwing under the long throwing distance, and the negative feedback conditions, whereas they would report their lowest arousal feelings while throwing under the short throwing distance, and the positive feedback conditions.

4. Telic-dominant participants would reverse to or maintain a paratelic state of mind while throwing darts under the short throwing distance, and the positive feedback conditions. Alternatively, paratelic participants, compared to telic participants, would tend to maintain a paratelic state for a long period of time until they reverse to a telic state of mind while throwing darts under the negative feedback condition.

5. Paratelic-dominant participants would report higher self-efficacy perceptions than telic-dominant participants under both the long throwing distance, and the negative feedback conditions.
CHAPTER 3

METHOD

This chapter includes information related to participants, instrumentation, procedure, and data analyses used in this study.

Participants

Participants were 30 male (\(M\) age = 26.73, \(SD\) = 6.95) and 10 female (\(M\) age = 23.40, \(SD\) = 6.60) students recruited from Florida State University undergraduate and graduate classes. Students were with either no or some dart-throwing previous experience, and had no injuries that might hinder their performance in dart-throwing. Participants received course credit for participation.

To examine the effects for metamotivational dominance on motor performance affective states, efficacy perceptions, and telic/paratelic state, participants were placed into three groups based on their paratelic dominance scale (PDS) total scores (Appendix A). Participants with a score of 16 to 30 were considered to be paratelic-dominant (\(n = 12, 30\%\)); those with scores of 0 to 7 were considered to be telic-dominant (\(n = 13, 32.5\%\)); and those with a score of 8 to 15 were considered to be nondominant (\(n = 15, 37.5\%\)). The approval of the Institutional Review Board for the Protection of Human Subjects was obtained prior to the initiation of this research (Appendix B).
Instrumentation

Consent Form (Appendix C)
This form details what was asked of the participants, and informs them of the right to withdraw from the study at any time. The form also provides assurance of anonymity for the participants. This form was used to obtain written permission from the participants for their participation in this experimental study.

Demographic Information (Appendix D)
On this form participants provided details about gender, age, dart-throwing previous experience, and injuries that might hinder their performance in dart-throwing.

Dart-Throwing Accuracy
Dart-throwing accuracy was used as a performance measure in this study. Each participant was given four darts to throw. In accordance with the World Darts Federation, the dartboard was positioned with its uppermost edge 1.73m high from the floor, and all darts were thrown from the standard distance of 2.37m from the dartboard in the competitive task, and from distances of 1.37m (short throwing distance), and 3.37m (long throwing distance) in the self-standard (noncompetitive) task. Each condition with each task consisted of 24 trials, and a set of 4 darts in each trial. The dartboard was made up of 3 circles, with scoring as follows: (a) 5 points for darts inside the bull’s-eye; (b) 3 points for darts inside the triple-score circle (but not in the bull’s-eye); and (c) 1 point for darts inside the double-score (outer) circle (but not inside the triple-score circle). Darts missing the dartboard were given 0 points. Therefore, each participant’s final score in each block trial could range from 0 to 20 points.

Task-specific Self-efficacy Scale (Appendix E)
Two task-specific measures of self-efficacy for both the self-standard and competitive tasks were developed in this study. Each measure included a single-item regarding the participants’ efficacy level using an efficacy scale that ranged from 0 (“no confidence at all”) to 100 (“complete confidence”) points in 10 unit intervals. In the self-standard, the efficacy item assessed participants’ self-confidence in their ability to score at least 12 points with the four darts at each block trial, whereas in the competitive type, the efficacy item assessed participants’ self-confidence in their ability to win the block trial.
The Affect Grid (Russell, Weiss, & Mendelsohn, 1989; Appendix F)

The affect grid is a single-item scale designed specifically as a quick and simple measure of affect along the dimensions of pleasure-displeasure and arousal-sleepiness. The advantage of using a single-item scale is that it can be used rapidly and repeatedly to measure rapid fluctuations of affect that can occur in response to changes in the surrounding environment (Raedeke & Stein, 1994; Russell et al., 1989). Completing the 9X9 grid involves placing an X mark in the box that represents one’s feelings, then converting the location of the X mark to a 1-9 score for each dimension. The pleasure score can range from 1 to 9, counting the squares in the grid starting from the left, whereas the arousal score can range from 1 to 9, counting the squares in the grid starting from the bottom. Participants were instructed as to (Russell et al., 1989) how to fill out the affect grid prior to the experiment (Appendix G).

The affect grid is reported to have a strong convergent validity with other measures of arousal and pleasure even when response format varied, and a strong discriminant validity between the dimensions of arousal and pleasure in four studies (Russell et al., 1989). Moreover, aggregated affective judgments gathered with the affect grid appeared reliable (Russell et al., 1989). Other studies (Eick & Metcalfe, 1987; Forth & Hare, 1987; McFarlane, Martin, & Williams, 1988; Russell & Alden, 1987; Snodgrass, Russell, & Ward, 1988; as cited in Russell et al., 1989) that used the affect grid as a measure of mood have provided evidence on the construct validity of the affect grid, and have justified the use of the affect grid as a measure of mood.

Telic State Measure (TSM; Svebak & Murgatroyd, 1985; Appendix H)

TSM was used in this study to measure the operative telic/paratelic state of participants. The TSM consists of five items, each with a 6-point rating scale with defining adjectives at each end. The items include (1) serious-playful; (2) preferred planned-preferred spontaneous; (3) low felt arousal-high felt arousal; (4) preferred low arousal-preferred high arousal; and (5) low effort-high effort. Item 5, “the investment of effort in a task” (low effort-high effort) is completed after a task, and was a later addition to earlier versions of the TSM. A sixth item, “arousal discrepancy” is further derived by subtracting the score for item 3 “felt arousal” from the score for item 4 “preferred arousal.” Items 1, 2, and 4 measure three aspects of the telic-paratelic dimension: seriousness versus playfulness, planning versus spontaneity, and low-preferred arousal versus high-preferred arousal (Apter, 1999; Svebak & Murgatroyd, 1985).
Participants were asked to respond only to items 1, 2, and 4 since they determine whether the telic or paratelic state was or is operative (Apter, 1999; Cox & Kerr, 1989; Svebak & Murgatroyd, 1985). Scores in the range 1-3 on these three items indicate the telic state, and scores in the range 4-6 indicate the paratelic state (Svebak & Murgatroyd, 1985). Psychometric properties of the TSM are not available due to the single-item nature of each of the TSM subscales and since the scale is supposed to measure state changes over time (Apter & Desselles, 2001). Participants were made familiar with the measure before its use and were given instructions as to how to respond to the items.

The Paratelic Dominance Scale (PDS; Cook & Gerkovich, 1993; Appendix I)

PDS is a 30-item instrument designed to measure an individual’s tendency to be in the paratelic or telic state most of the time. PDS has three theoretically-based subscales: playfulness, spontaneity, and arousal-seeking. Each of the PDS statements is judged as true or false. Each subscale has 10 items, thus giving a possible maximum subscale score of 10 and a possible maximum PDS total score of 30.

PDS is based on the telic dominance scale (TDS; Murgatroyd, Rushton, Apter, & Ray, 1978), which became one of the mainstays of reversal research for many years (Apter & Desselles, 2001). TDS showed evidence of convergent validity and discriminant validity with other measures of personality (for review see Apter & Desselles, 2001). Psychometric problems (e.g., low internal reliability, a factor structure that is inconsistent with reversal theory) have arisen with the TDS, when it began to be used in countries other than that of its origin (Apter & Desselles, 2001; Cook & Gerkovich, 1993). Therefore, these problems with the TDS led to the development of the PDS.

Cook and Gerkovich (1993), in their process of developing the PDS, attempted to select the best items from the TDS, and used expert judgment to establish content validity of the PDS. The factor structures of the PDS were reported to be consistent with reversal theory. Data from odd and even numbered subjects were used to test the internal reliability of the three 10-item factors derived from the factor analyses. For odd and even numbered subjects, alpha values were reported to be at 0.83 and 0.84 for spontaneity, 0.83 and 0.84 for arousal-seeking, and 0.75 and 0.78 for playfulness. Alpha coefficients for the total score were found to be 0.87 and 0.86, respectively. Measures of skewness and kurtosis showed that the scores were normally distributed. No meaningful gender differences were found (Cook & Gerkovich, 1993). Young
(1998; as cited in Apter & Desselles, 2001), in her study of the flow experience in tennis players, found that telic-dominant players liked flow experiences because it helped them reach their goal, whereas paratelic-dominant players responded positively to flow experiences because they enabled the feeling of being energized. Thus, construct validity is provided for the PDS.

**Task Manipulations**

To test the study’s hypotheses, task conditions were experimentally manipulated, through increasing the throwing distance for the target (in the self-standard task), and through providing different performance feedback (in the competitive task). Participants were required to perform the dart-throwing within two main tasks: (1) a self-standard (non-competitive) task, and (2) a competitive task, in random order.

In the self-standard task, each participant was instructed to throw darts under the following two throwing distance conditions, in random order: (1) the short throwing distance condition, in which all darts were thrown from a distance of 1.37m from the dartboard, and (2) the long throwing distance condition, in which all darts were thrown from a distance of 3.37m from the dartboard. In the competitive task, participants performed under the following three feedback conditions, in a random order: (1) positive feedback (winning) condition, that is the participant is winning consistently; (2) negative feedback (losing) condition, the participants is consistently losing; and (3) variable feedback (winning/losing) condition, the participant is winning and losing 50% of the time respectively. The use of external feedback on performance found to be an effective way to manipulate motor performance and related affective states (e.g., Escarti & Guzman, 1999; McAuley et al., 1999; Schunk, 1995; Tenenbaum et al., 2001).

The procedure used in the competitive task is a modified version of the one used in the Tenenbaum et al. (2001) study. Two participants competed against each other, standing side by side approximately 2 meters apart. Using a white curtain that was placed between participants, each participant was prevented from seeing his or her opponent’s dartboard and, thus, knowing his or her score. The two participants were, however, able to see each other while standing side by side and getting ready to throw. After each trial, the experimenter provided verbal feedback indicating the name of the winner of that trial (e.g., the winner of this trial is John), regardless of
the actual performance, followed by an encouragement statement (e.g., well done, good job). After announcing the winner, participants were asked to collect their darts and prepare to throw on the experimenter's command to insure that they start their dart throwing at the same time.

**Procedure**

Participants in the study were asked to visit the sport psychology laboratory and read and sign the consent form before becoming part of the study. At the beginning of the session, completion of the PDS, and the dart-throwing and injuries histories questionnaire took place. Upon completion of these questions, 5 minutes were devoted to familiarizing each participant with the measures that they would be asked to complete throughout the experiment, and the procedure and scoring system for the task.

Participants then were given instructions (see Ennis, 1978; McClintock, 1977; Simkins, 1978; Appendix J) about throwing darts. This was followed with an initial practice period lasting approximately three minutes in which each participant threw 8 darts from each distance line. Then, prior to performing the dart-throwing task in both the self-standard and competitive tasks, participants were asked to complete the TSM, Affect Grid, and the efficacy scale. In each task condition, participants were asked to complete the affect grid, TSM, and the efficacy-task measure immediately after trials 8, 16, and 24.

A model that pertains to the presentations of the above psychological measures in each task condition is presented in Figure 4. In each self-standard task condition, participants threw their darts in three blocks of 8 trials, totaling 24 trials. A set of 4 darts was thrown in each of the 24 trials, totaling 96 throws. Analogous with the self-standard task, participants were asked to complete the affect grid, TSM, and the efficacy-task measure immediately after they had been told the winner of trials 8, 16, 24, in each feedback condition. After completing the experiment, participants were debriefed.
Figure 4. A scheme describing the psychological measures presentations during each task condition.
Statistical Analyses

Descriptive statistics (means and SDs) for telic, nondominant, and paratelic groups in the self-standard and competitive tasks were computed for dart performance, pleasantness, arousal, self-efficacy, and TSM. To examine the differences in the dependent variable scores across trials that are attributable to conditions, group (paratelic vs. telic vs. nondominant), and their interaction, repeated measures (RM) analyses of variance (ANOVAs) were performed for the following dependent variables: dart performance, pleasantness, arousal, self-efficacy, and TSM, within each task. The dominance type (paratelic vs. telic vs. nondominant) was the between-subject factor, and the distance (1.37m, and 3.37m) in the self-standard task, and the feedback (positive, variable, and negative) in the competitive task, along with the trials were the within-subjects factors.

In the self-standard task, the RM-ANOVA was performed on the 24 dart performance values that were measured for each participant during the two throwing distance conditions, with one between-subjects factor (paratelic vs. telic vs. nondominant), and two within-subjects factors: distance (1.37m vs. 3.37m) and trials (24 trials within each condition). In the competitive task, the analysis was based on the scores for trials 2 to 24 (the first trial was not included since feedback was provided only after the first trial in each condition). Thus, the RM-ANOVA was performed on the 23 dart-throwing performance values that were measured for each participant during the three feedback conditions with one between-subjects factor (paratelic vs. telic vs. nondominant), and two within-subjects factors: feedback conditions (positive vs. variable vs. negative) and trials (23 trials within each feedback condition).

In testing the hypotheses under investigation, the most important results were those pertaining to the interaction between experimental conditions, trials across conditions, and telic versus nondominant versus paratelic-dominant groups. Thus, results that pertain to the interaction effects were particularly reported in the results section. For all RM-ANOVA analyses, degrees of freedom for F tests were modified using the Huynh-Feldt correction procedure when violations in the assumption of homogeneity of covariance (sphericity) were observed (Howell, 1997). Probability values reported in the results section were corrected; degrees of freedom were uncorrected to specify the number of observation on which the statistical test was made. Upon observation of a significant F test, paired samples t tests were
conducted to identify the source of any significant main effects and interactions with the Bonferroni corrections for multiple comparisons to keep the Type 1 error rate at $\alpha = .05$ (Stevens, 1992). The significance level that was used in this study is 0.05.
CHAPTER 4

RESULTS

Preliminary Analyses

Prior to hypotheses testing, an examination of the skewness of the data was undertaken to secure normality of distribution assumptions. For all data, skewness ranged from -1.32 to .66 for the self-standard task data, and from -1.53 to .74 for the competitive task data. Since the coefficient limit of ± 2 was kept, the data were considered supporting the assumed normality of the distributions. Degrees of freedom for F tests were modified using the Huynh-Feldt correction procedure when violations in the assumption of homogeneity of covariance (sphericity) were observed.

To test for groups differences on efficacy, pleasantness, arousal, and TSM prior to task conditions, one-way analyses of variance (ANOVAs) were utilized. The ANOVA analyses (Table 1) for the self-standard (distance) data revealed only one significant difference between the dominance groups in the efficacy measures taken prior to the short (1.37m) distance condition, $F(2, 37) = 7.83, p = .001$. In the competitive task, the ANOVA analyses (Table 2) revealed one significant difference between the dominance groups in the arousal measure taken prior to the variable feedback condition, $F(2, 37) = 3.57, p = .04$. Given that no differences between groups were observed prior to task conditions that were pertained to the hypotheses of interest to this study, the hypotheses testing were carried on.
Descriptive Statistics

Means and standard deviations (SDs) of dart performance, pleasantness, arousal, self-efficacy, and TSM for telic, nondominant, and paratelic groups in the self-standard and competitive conditions are summarized in Table 3.

Table 1

<table>
<thead>
<tr>
<th>Variable prior to</th>
<th>Group</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Telic</td>
<td>Nondominant</td>
<td>Paratelic</td>
</tr>
<tr>
<td>1.37m</td>
<td>63.07</td>
<td>88.66</td>
<td>86.66</td>
</tr>
<tr>
<td>(24.28)</td>
<td>(13.56)</td>
<td>(16.69)</td>
<td></td>
</tr>
<tr>
<td>3.37m</td>
<td>48.46</td>
<td>61.33</td>
<td>52.50</td>
</tr>
<tr>
<td>(23.04)</td>
<td>(25.87)</td>
<td>(31.66)</td>
<td></td>
</tr>
<tr>
<td>Pleasantness</td>
<td>6.84</td>
<td>7.26</td>
<td>7.42</td>
</tr>
<tr>
<td>prior to 1.37m</td>
<td>(1.52)</td>
<td>(1.62)</td>
<td>(.90)</td>
</tr>
<tr>
<td>Pleasantness</td>
<td>6.2308</td>
<td>6.53</td>
<td>6.16</td>
</tr>
<tr>
<td>prior to 3.37m</td>
<td>(1.83)</td>
<td>(1.81)</td>
<td>(2.40)</td>
</tr>
<tr>
<td>Arousal</td>
<td>6.76</td>
<td>7.06</td>
<td>5.50</td>
</tr>
<tr>
<td>prior to 1.37m</td>
<td>(1.36)</td>
<td>(2.22)</td>
<td>(1.78)</td>
</tr>
<tr>
<td>Arousal</td>
<td>6.92</td>
<td>5.73</td>
<td>5.42</td>
</tr>
<tr>
<td>prior to 3.37m</td>
<td>(1.70)</td>
<td>(2.46)</td>
<td>(1.50)</td>
</tr>
<tr>
<td>TSM</td>
<td>3.48</td>
<td>3.51</td>
<td>3.55</td>
</tr>
<tr>
<td>prior to 1.37m</td>
<td>(.91)</td>
<td>(1.22)</td>
<td>(.99)</td>
</tr>
<tr>
<td>TSM</td>
<td>3.20</td>
<td>3.22</td>
<td>3.05</td>
</tr>
<tr>
<td>prior to 3.37m</td>
<td>(1.15)</td>
<td>(.80)</td>
<td>(.86)</td>
</tr>
</tbody>
</table>
Table 2

Means and Standard Deviations of Efficacy, Pleasantness, Arousal, and TSM prior to the Competitive Conditions, and a Summary of One-way ANOVA between the Groups.

<table>
<thead>
<tr>
<th>Variable prior to FB</th>
<th>Telic</th>
<th>Nondominant</th>
<th>Paratelic</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficacy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive FB</td>
<td>56.92 (23.93)</td>
<td>72.00 (22.10)</td>
<td>55.83 (31.46)</td>
<td>1.72</td>
<td>.19</td>
</tr>
<tr>
<td>Variable FB</td>
<td>60.76 (24.65)</td>
<td>70.00 (30.23)</td>
<td>71.66 (31.28)</td>
<td>.53</td>
<td>.59</td>
</tr>
<tr>
<td>Negative FB</td>
<td>70.76 (22.89)</td>
<td>76.66 (24.39)</td>
<td>70.83 (25.03)</td>
<td>.27</td>
<td>.76</td>
</tr>
<tr>
<td>Pleasantness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive FB</td>
<td>6.61 (1.98)</td>
<td>5.93 (2.28)</td>
<td>5.66 (2.01)</td>
<td>.68</td>
<td>.51</td>
</tr>
<tr>
<td>Variable FB</td>
<td>5.23 (2.61)</td>
<td>6.53 (1.92)</td>
<td>6.75 (1.35)</td>
<td>2.09</td>
<td>.14</td>
</tr>
<tr>
<td>Negative FB</td>
<td>6.38 (2.29)</td>
<td>6.33 (2.25)</td>
<td>6.41 (1.50)</td>
<td>.01</td>
<td>.99</td>
</tr>
<tr>
<td>Arousal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive FB</td>
<td>6.92 (1.44)</td>
<td>7.00 (2.26)</td>
<td>7.00 (1.41)</td>
<td>.01</td>
<td>.99</td>
</tr>
<tr>
<td>Variable FB</td>
<td>7.38 (1.61)</td>
<td>6.06 (1.79)</td>
<td>5.50 (2.06)</td>
<td>3.57</td>
<td>.04</td>
</tr>
<tr>
<td>Negative FB</td>
<td>7.07 (1.44)</td>
<td>6.40 (2.55)</td>
<td>6.25 (1.54)</td>
<td>.65</td>
<td>.53</td>
</tr>
<tr>
<td>TSM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive FB</td>
<td>2.87 (.82)</td>
<td>2.81 (.73)</td>
<td>2.99 (1.06)</td>
<td>.14</td>
<td>.87</td>
</tr>
<tr>
<td>Variable FB</td>
<td>2.89 (1.09)</td>
<td>3.59 (1.31)</td>
<td>3.79 (.85)</td>
<td>2.27</td>
<td>.12</td>
</tr>
<tr>
<td>Negative FB</td>
<td>3.20 (1.14)</td>
<td>2.73 (1.14)</td>
<td>2.96 (.75)</td>
<td>.71</td>
<td>.49</td>
</tr>
</tbody>
</table>
Table 3


<table>
<thead>
<tr>
<th>Variable</th>
<th>Group</th>
<th>Self-Standard Conditions (Distance)</th>
<th>Competitive Conditions (Feedback)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Short (1.37m)</td>
<td>Long (3.37m)</td>
</tr>
<tr>
<td>Dart Performance</td>
<td>Telic</td>
<td>13.24 (1.02)</td>
<td>7.54 (2.03)</td>
</tr>
<tr>
<td></td>
<td>Nondominant</td>
<td>13.74 (0.72)</td>
<td>8.63 (1.20)</td>
</tr>
<tr>
<td></td>
<td>Paratelic</td>
<td>13.49 (1.22)</td>
<td>7.37 (2.24)</td>
</tr>
<tr>
<td>Pleasantness</td>
<td>Telic</td>
<td>7.25 (1.26)</td>
<td>5.34 (1.97)</td>
</tr>
<tr>
<td></td>
<td>Nondominant</td>
<td>7.21 (1.29)</td>
<td>6.18 (1.91)</td>
</tr>
<tr>
<td></td>
<td>Paratelic</td>
<td>6.97 (1.63)</td>
<td>5.39 (1.67)</td>
</tr>
<tr>
<td>Arousal</td>
<td>Telic</td>
<td>6.44 (1.78)</td>
<td>6.52 (1.91)</td>
</tr>
<tr>
<td></td>
<td>Nondominant</td>
<td>6.21 (2.35)</td>
<td>6.20 (2.10)</td>
</tr>
<tr>
<td></td>
<td>Paratelic</td>
<td>4.45 (0.80)</td>
<td>5.91 (1.08)</td>
</tr>
<tr>
<td>TSM</td>
<td>Telic</td>
<td>3.47 (0.75)</td>
<td>3.27 (0.73)</td>
</tr>
<tr>
<td></td>
<td>Nondominant</td>
<td>3.68 (1.19)</td>
<td>3.34 (0.84)</td>
</tr>
<tr>
<td></td>
<td>Paratelic</td>
<td>3.70 (0.66)</td>
<td>3.11 (0.79)</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>Telic</td>
<td>75.38 (21.28)</td>
<td>40.96 (24.51)</td>
</tr>
<tr>
<td></td>
<td>Nondominant</td>
<td>92.66 (8.83)</td>
<td>59.33 (24.57)</td>
</tr>
<tr>
<td></td>
<td>Paratelic</td>
<td>89.16 (16.14)</td>
<td>46.46 (27.92)</td>
</tr>
</tbody>
</table>
Dart Accuracy Performance

The first hypothesis stated that under the short throwing distance (1.37m) and the positive feedback conditions, telic-dominant participants would maintain optimal dart performance while paratelic-dominant participants would decline in performance. Alternatively, it was hypothesized that under the long throwing distance (3.37m) and the negative feedback conditions, paratelic-dominant participants would show better dart performance compared to telic-dominant participants. To test these premises, two repeated measures (RM) analyses of variance (ANOVAs) were performed for the self-standard and the competitive tasks, respectively. The RM-ANOVA analyses results for the self-standard and the competitive tasks are summarized in Table 4.

The RM-ANOVA for the self-standard data revealed significant main effects for distance ($p < .00$), and for trials ($p = .04$), and a significant ($p = .02$) trials by distance interaction effect, indicating that participants’ dart throwing performance varied according to the dart-throwing distance and trials. A significant distance effect showed that as the throwing distance increased, participants’ dart accuracy scores tend to decrease. Post hoc paired samples $t$ test revealed that dart performance was significantly, $t (39) = 27.499, p < .00$, superior in the short throwing distance ($M = 13.51, SD = .98$) compared to the long throwing distance ($M = 7.89, SD = 1.88$), with a calculated difference of 41.6%.

The effect for trials is presented in Figure 5. Participants’ dart accuracy scores tended to consistently increase as task progressed from trial 1 to 4, whereas their performance tended to vary from trial 5 to 24. A significant trials by distance interaction is presented in Figure 6. Participants exhibited more dart performance variability in the long dart-throwing distance condition than in the short throwing distance condition.
Table 4

Summary of Repeated Measures ANOVAs Results using Dart Performance as a Dependent Variable Across the Self-Standard and Competitive Task Conditions.

<table>
<thead>
<tr>
<th>Effect</th>
<th>Self-Standard Task</th>
<th></th>
<th></th>
<th></th>
<th>Competitive Task</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>df</td>
<td>p</td>
<td>1-β</td>
<td>F</td>
<td>df</td>
<td>p</td>
</tr>
<tr>
<td>Between subjects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dominance</td>
<td>1.58</td>
<td>2,37</td>
<td>.22</td>
<td>.31</td>
<td>3.19</td>
<td>2,37</td>
<td>.053</td>
</tr>
<tr>
<td>Within subjects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distance/Feedback</td>
<td>808.63</td>
<td>1,37</td>
<td>.00</td>
<td>1.00</td>
<td>.55</td>
<td>2,74</td>
<td>.58</td>
</tr>
<tr>
<td>Distance/Feedback X Dominance</td>
<td>2.24</td>
<td>2,37</td>
<td>.12</td>
<td>.43</td>
<td>.57</td>
<td>4,74</td>
<td>.69</td>
</tr>
<tr>
<td>Trials</td>
<td>1.57</td>
<td>23,851</td>
<td>.04</td>
<td>.97</td>
<td>.79</td>
<td>22,814</td>
<td>.73</td>
</tr>
<tr>
<td>Trials X Dominance</td>
<td>1.22</td>
<td>46,851</td>
<td>.16</td>
<td>.99</td>
<td>1.28</td>
<td>44,814</td>
<td>.11</td>
</tr>
<tr>
<td>Distance/Feedback X Trials</td>
<td>1.71</td>
<td>23,851</td>
<td>.02</td>
<td>.98</td>
<td>.75</td>
<td>44,1628</td>
<td>.88</td>
</tr>
<tr>
<td>Distance/Feedback X Trials X Dominance</td>
<td>.66</td>
<td>46,851</td>
<td>.96</td>
<td>.79</td>
<td>.98</td>
<td>88,1628</td>
<td>.53</td>
</tr>
</tbody>
</table>

Figure 5. Dart accuracy mean scores throughout the self-standard task trials.
The hypothesized distance by dominance differences in dart accuracy failed to achieve statistical significance ($p = .12$). The distance by dominance interaction effect, demonstrated in Figure 7, revealed that telic ($M = 13.24, SD = 1.02, M = 7.54, SD = 1.01$, respectively) and paratelic ($M = 13.49, SD = 1.22, M = 7.37, SD = 1.88$, respectively) participants’ dart throwing mean scores were relatively similar in both the 1.37m and the 3.37m distance conditions. Figure 7 shows also that nondominant participants ($M = 8.63, SD = 1.20$) were relatively more successful in the long throwing distance condition than telic ($M = 7.54, SD = 1.01$) and paratelic participants ($M = 7.37, SD = 1.88$). Figure 8 demonstrates the distance by trials by dominance non-significant interaction. It shows that dart accuracy scores in all trials tended to fluctuate more for the telic and paratelic participants than the nondominant participants who tended to perform on average better than the other two dominance groups.

Figure 6. Dart accuracy mean scores throughout the trials of the self-standard task distance conditions.
The RM-ANOVA analysis on the competitive feedback data revealed no significant main or interaction effect. Nevertheless, the main effect of dominance approached statistical significance \( (p = .053) \). The effect of dominance, presented in Figure 9, revealed that nondominant participants \( (M = 11.98, SD = 0.84) \) were the most successful in dart-throwing.
across the three feedback conditions, followed by paratelic participants ($M = 11.08, SD = 1.76$), then the telic participants ($M = 10.74, SD = 1.41$).

Figure 10 illustrates the non-significant feedback by dominance interaction. As shown in Figure 10, dart performance mean scores for telic and paratelic participants were relatively similar under the three feedback conditions. Nevertheless, throughout the three feedback conditions, the nondominant participants were more successful in their dart-throwing compared to the telic and paratelic participants. Furthermore, this result shows that, contrary to expectation, paratelic participants ($M = 11.27, SD = 2.03$) performed slightly better than telic participants ($M = 10.78, SD = 1.60$) under the positive feedback condition. Thus, the hypothesis that paratelic participants, compared to their telic counterparts, would exhibit performance deterioration while receiving positive feedback was not supported. Nevertheless, paratelic participants ($M = 11.27, SD = 2.03, M = 10.91, SD = 1.92$, respectively), as anticipated, were relatively more successful in their dart accuracy performance than telic participants ($M = 10.57, SD = 1.26, M = 10.86, SD = 1.73$) under the variable and negative feedback conditions.

![Figure 9](image_url)  

*Figure 9. Dart accuracy mean scores for telic, nondominant, and paratelic participants in the competitive task.*
Figure 10. Dart accuracy mean scores for telic, nondominant, and paratelic participants across the competitive task conditions.

Pleasantness

The second hypothesis stated that under the short throwing distance and the positive feedback conditions, telic-dominant participants would report more pleasant feelings compared to paratelic-dominant participants. Alternatively, it was hypothesized that under the long throwing distance and the negative feedback conditions, paratelic-dominant participants would report more pleasant feelings compared to telic-dominant participants. Two RM-ANOVAs analyses were employed for the self-standard and the competitive tasks, respectively. The RM-ANOVA analyses results for the self-standard and the competitive tasks are summarized in Table 5.
The RM-ANOVA for the self-standard task data revealed significant main effects for distance \((p < .00)\), and trials \((p = .01)\). The interactions were not significant. For the main effect of the throwing distance, the pleasantness mean scores in the distance conditions showed that more pleasant feelings were significantly, \(F(1,37) = 29.39, p < .00\), reported under the short throwing distance condition \((M = 7.15, SD = 1.36)\) than under the long throwing distance condition \((M = 5.64, SD = 1.85)\), with a calculated difference of 21.1%. A significant trials effect is graphically presented in Figure 11. The results show some minor differences across the four trials, in which participants felt most pleasant before the first trial and least pleasant after the fourth trial.
Despite the non-significant distance by dominance interaction, the pleasantness mean scores across the two distance conditions, displayed in Figure 12, revealed, as predicted, that telic participants felt more pleasant in the short throwing distance condition ($M = 7.25, SD = 1.26$) compared to paratelic ($M = 6.97, SD = 1.63$) participants, with a calculated difference of 3.8%. Nevertheless, the prediction that paratelic participants would feel more pleasant while performing under the long throwing distance than telic participants was not supported. Mean scores for telic ($M = 5.35, SD = 1.96$) and paratelic ($M = 5.39, SD = 1.67$) participants under the long throwing distance were very similar.
The RM-ANOVA analysis for the competitive task data yielded significant main effects for feedback ($p < .00$), trials ($p = .01$), and a significant ($p = .01$) interaction effect for feedback by trials. The feedback effect is graphically demonstrated in Figure 13. Comparisons of mean scores across the feedback modes revealed that pleasant feelings were significantly greater when receiving positive feedback ($M = 6.84, SD = 1.56$) than either when receiving variable ($M = 6.41, SD = 1.60$), $t(39) = 2.83, p = .02$, or negative ($M = 5.85, SD = 1.90$) feedback, $t(39) = 4.48, p = .001$; the pleasant feelings in the variable feedback condition were significantly, $t(39) = 2.94, p = .01$, greater than in the negative feedback condition. A significant trials effect is graphically presented in Figure 14, showing that pleasant feelings tended to fluctuate across trials. The feedback by trials interaction effect, shown in Figure 15, reveals that across trials, pleasantness mean scores under the positive feedback mode tended to be higher than under the variable and negative feedback modes.
Figure 13. Pleasantness mean scores across the competitive task conditions.

Figure 14. Pleasantness mean scores across the competitive task trials.
Figure 16 illustrates the non-significant interaction between feedback and dominance. It reveals that paratelic participants reported, as predicted, higher pleasant feelings in the negative feedback condition ($M = 6.08$, $SD = 1.23$) than their telic counterparts ($M = 5.25$, $SD = 2.50$), with a calculated difference of 13.6%. The feedback by trials by dominance interaction effect, presented in Figure 17, approached statistical significance ($p = .09$). This interaction revealed, as anticipated, that paratelic participants’ mean scores across the four trials of the negative feedback condition ($M = 6.41$, $SD = 1.50$, $M = 5.57$, $SD = 2.26$, $M = 6.08$, $SD = 2.15$, $M = 6.08$, $SD = 1.37$, respectively) were higher than those of the telic participants ($M = 6.38$, $SD = 2.29$, $M = 5.07$, $SD = 2.66$, $M = 4.76$, $SD = 3.03$, $M = 4.76$, $SD = 2.91$, respectively). Nevertheless, the hypothesis that telic participants would feel more pleasant, compared to paratelic players, while receiving positive feedback was not supported. Paratelic participants reported, contrary to expectation, more pleasant feelings under the positive feedback condition ($M = 7.06$, $SD = 0.91$) compared to their telic counterparts ($M = 6.73$, $SD = 1.78$), with a calculated difference of 4.6%. Nevertheless, paratelic participants’ pleasant mean scores across the trials of the positive feedback condition, as anticipated, decreased highly from trial 2 to 4.
**Figure 16.** Pleasantness mean scores for telic, nondominant, and paratelic participants in competitive task conditions.

**Figure 17.** Pleasantness mean scores for telic, nondominant, and paratelic participants across the trials of the positive, variable, and negative feedback conditions.
Arousal

The third hypothesis stated that all participants would report their highest arousal while performing under the long throwing distance and the negative feedback conditions, whereas they would report their lowest arousal feelings while performing under the short throwing distance and the positive feedback conditions. Two RM-ANOVAs analyses were employed for the self-standard and the competitive tasks, respectively. The RM-ANOVA analyses results for the self-standard and the competitive tasks are presented in Table 6.

Table 6
Summary of Repeated Measures ANOVAs Results using Arousal Variable as a Dependent Variable Across the Self-Standard and Competitive Task Conditions.

<table>
<thead>
<tr>
<th>Effect</th>
<th>Self-Standard Task</th>
<th></th>
<th>Competitive Task</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>df</td>
<td>p</td>
<td>1-β</td>
</tr>
<tr>
<td>Between subjects</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dominance</td>
<td>2.01</td>
<td>2,37</td>
<td>.14</td>
<td>.39</td>
</tr>
<tr>
<td>Within subjects</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distance/Feedback</td>
<td>6.32</td>
<td>1,37</td>
<td>.02</td>
<td>.68</td>
</tr>
<tr>
<td>Distance/Feedback X Dominance</td>
<td>5.37</td>
<td>2,37</td>
<td>.01</td>
<td>.81</td>
</tr>
<tr>
<td>Trials</td>
<td>1.95</td>
<td>3,111</td>
<td>.14</td>
<td>.41</td>
</tr>
<tr>
<td>Trials X Dominance</td>
<td>.49</td>
<td>6,111</td>
<td>.75</td>
<td>.16</td>
</tr>
<tr>
<td>Distance/Feedback X Trials</td>
<td>4.36</td>
<td>3,111</td>
<td>.02</td>
<td>.74</td>
</tr>
<tr>
<td>Distance/Feedback X Trials X Dominance</td>
<td>1.77</td>
<td>6,111</td>
<td>.14</td>
<td>.52</td>
</tr>
</tbody>
</table>
RM-ANOVA analysis for the self-standard data revealed a significant distance main effect ($p = .02$), and significant distance by trials ($p = .02$), and distance by dominance ($p = .01$) interaction effects. The distance effect indicated that as the throwing distance increased, participants’ arousal feelings tended to increase. Mean arousal scores in the short throwing distance condition ($M = 5.76, SD = 1.97$) were significantly ($p = .02$) lower than in the long throwing distance condition ($M = 6.23, SD = 1.76$), with a calculated difference of 7.5%. The interaction effect of distance by trials, presented in Figure 18, revealed that participants’ arousal mean score in trial 1 while performing under the 1.37m condition was higher than while performing under the 3.37m condition, and vice versa for trials 2-4.

The significant ($p < .02$) distance by dominance interaction effect is graphically displayed in Figure 19. It reveals that, as predicted, paratelic participants reported significantly, $t (11) = -3.88, p = .003$, higher arousal feelings in the 3.37m condition ($M = 5.92, SD = 1.08$) than in the 1.37m condition ($M = 4.46, SD = 0.80$), with a calculated difference of 24.6%. Telic and nondominant participants, on the other hand, arousal feelings were relatively similar in the 1.37m ($M = 6.44, SD = 1.78, M = 6.22, SD = 2.35,$ respectively) and the 3.37m ($M = 6.52, SD = 1.91, M = 6.20, SD = 2.10,$ respectively) conditions.

![Figure 18. Arousal mean scores throughout the trials of the self-standard conditions.](image-url)
The RM-ANOVA analysis on the competitive task data revealed significant main effect for trials \((p < .00)\). This effect is presented in Figure 20. Participants’ arousal feelings tended to decrease as the task progressed from trial 2 to 4 by an average of 4.7%. Moreover, the results show that arousal mean scores for all participants in the positive \((M = 6.75, SD = 1.58)\), variable \((M = 6.70, SD = 1.43)\), and negative \((M = 6.76, SD = 1.62)\) feedback conditions tended to be similar.

The non-significant feedback by dominance interaction is presented in Figure 21. It shows, as predicted, that telic participants reported their lowest arousal feelings while performing under the positive feedback condition \((M = 6.98, SD = 1.55)\), whereas their highest arousal feelings were reported while performing under the negative feedback condition \((M = 7.25, SD = 1.28)\), with a calculated difference of 3.7%. Nevertheless, contrary to expectation, paratelic participants’ arousal feelings were similar in positive \((M = 6.31, SD = 1.40)\) and negative \((M = 6.30, SD = 1.68)\) feedback conditions. Thus, the hypothesis that paratelic participants would report higher felt arousal while receiving negative feedback compared to while receiving positive feedback was not supported.
Figure 20. Arousal mean scores in the competitive task trials.

Figure 21. Arousal mean scores for telic, nondominant, and paratelic participants in the competitive task feedback conditions.

Metamotivational states

The fourth hypothesis stated that telic participant would reverse to a paratelic state of mind while throwing darts under the short throwing distance and the positive feedback
conditions. Alternatively, paratelic participants would tend to maintain a paratelic state for a long period of time until they reverse to a telic state of mind while throwing darts under the negative feedback condition. Note that low scores are indicative of the telic state, whereas high scores are indicative of the paratelic state. Two RM-ANOVAs analyses were employed for the self-standard and the competitive tasks, respectively. The RM-ANOVA analyses results for the self-standard and the competitive tasks are summarized in Table 7.

Table 7
Summary of Repeated Measures ANOVAs Results using Telic State Measure as a Dependent Variable Across the Self-Standard and Competitive Task Conditions.

<table>
<thead>
<tr>
<th>Effect</th>
<th>Self-Standard Task</th>
<th></th>
<th></th>
<th></th>
<th>Competitive Task</th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>df</td>
<td>p</td>
<td>1-β</td>
<td>F</td>
<td>df</td>
<td>p</td>
</tr>
<tr>
<td>Between subjects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dominance</td>
<td>.11</td>
<td>2,37</td>
<td>.89</td>
<td>.06</td>
<td>.32</td>
<td>2,37</td>
<td>.73</td>
</tr>
<tr>
<td>Within subjects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distance/Feedback X</td>
<td>15.24</td>
<td>1,37</td>
<td>.00</td>
<td>.96</td>
<td>3.53</td>
<td>2,74</td>
<td>.03</td>
</tr>
<tr>
<td>Distance/Feedback X</td>
<td>1.35</td>
<td>2,37</td>
<td>.27</td>
<td>.27</td>
<td>2.16</td>
<td>4,74</td>
<td>.08</td>
</tr>
<tr>
<td>Distance/Feedback X</td>
<td>1.77</td>
<td>3,111</td>
<td>.16</td>
<td>.42</td>
<td>3.82</td>
<td>3,111</td>
<td>.01</td>
</tr>
<tr>
<td>Distance/Feedback X</td>
<td>.29</td>
<td>6,111</td>
<td>.92</td>
<td>.12</td>
<td>1.02</td>
<td>6,111</td>
<td>.42</td>
</tr>
<tr>
<td>Distance/Feedback X</td>
<td>.36</td>
<td>3,111</td>
<td>.71</td>
<td>.11</td>
<td>6.13</td>
<td>6,222</td>
<td>.00</td>
</tr>
<tr>
<td>Distance/Feedback X</td>
<td>.35</td>
<td>6,111</td>
<td>.85</td>
<td>.13</td>
<td>1.81</td>
<td>12,222</td>
<td>.08</td>
</tr>
</tbody>
</table>
RM-ANOVA analysis for the self-standard task data revealed significant ($p < .00$) distance main effect. No significant interactions were observed. The distance effect on participants’ metamotivational state revealed that participants were significantly more paratelic-minded while throwing from the short throwing distance ($M = 3.62, SD = 0.91$) than from the long throwing distance ($M = 3.25, SD = 0.77$), with a calculated difference of 10.2%. Under both distance conditions, however, the paratelic state of mind was operative.

The prediction that telic participants would tend to be more paratelic minded in the short throwing distance than in the long distance was supported. Figure 22, illustrates the distance by dominance non-significant interaction. It shows that, as expected, telic participants were more paratelic-minded while performing under the short throwing distance condition ($M = 3.47, SD = 0.75$) than while performing under the long throwing distance condition ($M = 3.27, SD = 0.73$), with a calculated difference of 5.7%.

$\text{Figure 22. TSM mean scores for telic, nondominant, and paratelic participants in the self-standard task conditions.}$

However, contrary to expectation, telic participants tended to be more paratelic-minded while performing under 3.37m condition ($M = 3.27, SD = 0.73$) than paratelic participants ($M = 3.11, SD = 0.79$), with a calculated difference of 4.3%. On the other hand, paratelic participants ($M = \ldots$
3.70, $SD = 0.66$) were more paratelic-minded while throwing darts from the short distance compared to telic participants ($M = 3.47, SD = 0.75$), with a calculated difference of 6.2%. The overall results revealed that the paratelic metamotivational state was operative for all three groups under the two distance conditions.

For the competitive task data, the RM-ANOVA analysis revealed significant main effect for feedback ($p = .03$), and trials ($p = .01$), and feedback by trials interaction ($p < .00$), indicating that participants’ metamotivational state varied in according to the feedback mode that was provided. The feedback mode effect is graphically illustrated in Figure 23. Participants were more telic-minded while receiving negative feedback ($M = 2.84, SD = 0.90$) than while receiving variable ($M = 3.00, SD = 0.82$) or positive ($M = 3.06, SD = 0.90$) feedbacks. Post-hoc paired samples $t$ test revealed that participants’ TSM mean score was significantly greater under the positive feedback condition than under the negative feedback condition, $t(39) = 2.41, p = .02$. The effect for trials is presented in Figure 24, showing marginal difference across the four trials. The interaction effect of feedback by trials is illustrated in Figure 25. Again, it reveals that participants tended to be more paratelic-minded across the positive feedback mode trials than either the variable or the negative feedback modes trials.

![Figure 23. TSM mean scores in the competitive task conditions.](image)
Figure 24. TSM mean scores in the trials of competitive task.

Figure 25. TSM mean scores throughout the trials in the competitive task conditions.

The interaction effects for the feedback by dominance ($p = .08$), and the feedback by trials by dominance ($p = .08$) approached statistical significance. The feedback by trials by dominance interaction effect is illustrated in Figure 26. Throughout the four trials of the positive
feedback condition, paratelic participants, as predicted, exhibited greater increases in their TSM scores (more toward the paratelic end) compared to telic and nondominant participants. Furthermore, the overall paratelic participants’ TSM mean scores under the positive ($M = 3.35$, $SD = 0.96$) and variable ($M = 3.16$, $SD = 0.69$) feedback conditions indicated, as predicted, that they tended to be more paratelic-minded compared to telic ($M = 3.00$, $SD = 0.88$, $M = 2.86$, $SD = 0.86$, respectively), and nondominant ($M = 2.88$, $SD = 0.84$, $M = 2.97$, $SD = 0.91$, respectively) participants. Telic participants’ TSM mean scores across the trials of positive feedback condition revealed that they reversed to the paratelic state after the first and third trials. Nondominant participants’ TSM scores, on the other hand, indicated that the telic state was operative throughout the positive feedback condition.

Under the variable feedback condition, both nondominant and paratelic participants’ TSM scores declined greatly from trial 1 to 2 (toward the telic end), then tended to be relatively constant afterward. Telic participants, on the other hand, TSM mean scores tended to fluctuate (more toward the telic state) throughout the four trials of the variable feedback condition. Figure 26 also reveals, as predicted, that paratelic participants were more telic-minded throughout the trials of the negative feedback condition ($M = 2.82$, $SD = 0.83$) compared to the positive ($M = 3.35$, $SD = 0.96$), or the variable ($M = 3.16$, $SD = 0.69$) feedback conditions. Nevertheless, the prediction that telic participants would operate in a more telic state of mind while receiving negative feedback than while receiving positive feedback was not supported. Telic participants’ TSM mean scores while receiving positive ($M = 3.00$, $SD = 0.88$) and negative ($M = 3.00$, $SD = 0.95$) feedback were similar. Furthermore, contrary to expectation, telic participants ($M = 3.00$, $SD = 0.95$) were more paratelic minded under negative feedback condition compared to paratelic participants ($M = 2.82$, $SD = 0.83$). Telic participants were more paratelic minded (more toward the telic end) in trials 1 and 3 under negative feedback condition compared to paratelic participants. Nevertheless, telic ($M = 2.89$, $SD = 0.92$) and paratelic ($M = 2.94$, $SD = 1.16$) participants’ TSM mean scores were relatively similar in the last trial of the negative feedback condition, at the telic end. Thus, the fourth hypothesis was not fully supported.
Figure 26. TSM mean scores for telic, nondominant, and paratelic participants across the trials of the competitive feedback conditions.

**Self-Efficacy**

The final hypothesis stated that paratelic participants would report higher self-efficacy perceptions under both the long throwing distance, and the negative feedback conditions than telic participants. Two RM-ANOVAs analyses were employed for the self-standard and the competitive tasks, respectively. The RM-ANOVA analyses results for the self-standard and the competitive tasks are summarized in Table 8.

The self-standard task RM-ANOVA analysis revealed significant main effects for distance ($p < .00$), and dominance ($p = .04$), and distance by trials interaction ($p < .00$), indicating that participants’ efficacy perceptions varied according to the dart-throwing distance condition and trials. The efficacy mean scores in the two distance conditions indicated that participants felt more efficacious under the 1.37m throwing distance condition ($M = 86, SD = 17.28$) compared to the long throwing distance ($M = 49.5, SD = 26.19$), with a calculated difference of 42.4%. The main effect for dominance is presented in Figure 27. It shows that the nondominant participants felt most efficacious ($M = 76, SD = 15.09$), followed by the paratelic participants ($M = 67.8, SD$...
= 19.73), then the telic participants ($M = 58.17$, $SD = 20.15$). The significant distance by trials interaction effect, illustrated in Figure 28, reveals that participants’ efficacy perceptions throughout the 1.37m trials tended to be higher than those of the 3.37m trials.

Table 8

*Summary of Repeated Measures ANOVAs Results using Self-Efficacy as a Dependent Variable Across the Self-Standard and Competitive Task Conditions*

<table>
<thead>
<tr>
<th>Effect</th>
<th>Self-Standard Task</th>
<th>Competitive Task</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>df</td>
</tr>
<tr>
<td><strong>Between subjects</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dominance</td>
<td>3.32</td>
<td>2,37</td>
</tr>
<tr>
<td><strong>Within subjects</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distance/Feedback</td>
<td>111.28</td>
<td>1,37</td>
</tr>
<tr>
<td>Distance/Feedback X Dominance</td>
<td>.69</td>
<td>2,37</td>
</tr>
<tr>
<td>Trials</td>
<td>.205</td>
<td>3,111</td>
</tr>
<tr>
<td>Trials X Dominance</td>
<td>.56</td>
<td>6,111</td>
</tr>
<tr>
<td>Distance/Feedback X Trials</td>
<td>5.86</td>
<td>3,111</td>
</tr>
<tr>
<td>Distance/Feedback X Dominance</td>
<td>1.19</td>
<td>6,111</td>
</tr>
</tbody>
</table>
Figure 27. Self-efficacy mean scores for telic, nondominant, paratelic participants in the self-standard task.

Figure 28. Self-efficacy mean scores across the trials of the self-standard conditions.

The non-significant distance by dominance interaction effect is displayed in Figure 29. It reveals that, as predicted, paratelic participants were more self-efficacious in the long throwing
distance condition \((M = 46.45, SD = 27.92)\) than telic participants \((M = 40.96, SD = 24.5)\), with a calculated difference of 11.8%. Furthermore, Figure 30, displays efficacy mean scores for the three dominance groups across the trails of the distance conditions. It shows that, as predicted, paratelic participants did sustain higher efficacy perceptions throughout the trials of the distance conditions compared to their telic counterparts. Figure 30, also, shows that under the 3.37m condition, telic participants’ efficacy perceptions tended to deteriorate consistently from trials 1 to 4.

**Figure 29.** Self-efficacy mean scores for telic, nondominant, and paratelic participants in the self-standard task conditions.

**Figure 30.** Self-efficacy mean scores for telic, nondominant, and paratelic participants across the trials of the self-standard distance conditions.
The competitive task data analysis revealed a significant ($p < .00$) main effect for feedback, and a significant ($p < .00$) feedback by trials interaction effect, indicating that participants’ efficacy perceptions varied according to the feedback modes. The feedback main effect is illustrated in Figure 31. Comparisons of the efficacy means under the three feedback modes revealed that efficacy perceptions were significantly greater under the positive feedback mode ($M = 76.43$, $SD = 17.75$) than under the variable feedback mode ($M = 68.62$, $SD = 21.82$), $t(39) = 3.4$, $p = .001$, or the negative feedback mode ($M = 60.56$, $SD = 26.25$), $t(39) = 6.4$, $p = .00$; and the efficacy perception under the variable feedback mode was greater than under the negative feedback mode, $t(39) = 3.31$, $p = .002$. The feedback by trials interaction effect, demonstrated in Figure 32, revealed that participants’ efficacy perceptions increased when positive feedback was provided, whereas their efficacy perceptions decreased when negative feedback was provided. Participants’ efficacy levels, however, tended to remain consistent across the trials of the variable condition.

![Figure 31](image.png)

*Figure 31. Self-efficacy mean scores in the competitive task conditions.*
The non-significant feedback by dominance interaction is presented in Figure 33. It shows that paratelic participants were, as predicted, more self-efficacious \((M = 55.41, SD = 27.85)\) than telic participants \((M = 52.31, SD = 21.56)\) while performing under the negative feedback condition, with a calculated difference of 5.6%. Likewise, Figure 34, displaying the feedback by trials by dominance interaction, shows that paratelic participants reported consistently higher efficacy perceptions than telic participants across the negative feedback trials. Furthermore, efficacy perceptions for both telic and paratelic participants increased consistently across the positive feedback trials, whereas their efficacy perceptions decreased consistently across the negative feedback trials.
Figure 33. Self-efficacy mean scores for telic, nondominant, and paratelic participants in the competitive task conditions.

Figure 34. Self-efficacy mean scores for telic, nondominant, and paratelic participants across the trials of the competitive feedback conditions.
CHAPTER 5
DISCUSSION

This research was undertaken to examine the effects of task condition on motor performance, pleasantness, arousal, self-efficacy perceptions, and telic/paratelic state for individuals differ in their telic/paratelic dominance. Based on Apter’s (2001) description of telic-dominant individuals being serious-minded and anxiety-avoidant, and paratelic-dominant individuals as being playful and excitement-seeking, it was predicted that individuals with different metamotivational dominance would behave and respond differently to the changes in the task condition. Previous empirical research findings (e.g., Cogan & Brown, 1999; Kerr, 1991; Kerr & Svebak, 1989; Martian et al., 1987) in the motor domain have supported such a prediction. Despite the emphasis on the role of metamotivational dominance on behavior and perceptions about various experiences (Apter, 1984, 2001; Kerr, 1997), little attention has been given to experimentally exploring the link between metamotivational dominance and on motor performance related affective states. Studies in the sport literature (Kerr, 1988, 1991; Kerr & Van Lienden, 1987; Lindner & Kerr, 2001; Svebak & Kerr, 1989) so far have focused mostly on the role of dominance in physical activity preferences and participation.

The current study was designed mainly to examine the effects of (1) Task distance (i.e., short vs. long dart-throwing distance), and (2) External feedback (i.e., positive vs. variable vs. negative) on motor performance, pleasantness, arousal, efficacy perception, and telic/paratelic state reversal for telic and paratelic-dominance individuals. For this purpose, participants of this study were divided into three dominance groups (telic, nondominant, and paratelic) based on their scores on the paratelic dominance scale (PDS).

A repeated measure design was utilized in each condition of this research in which participants were required to complete the psychological measures prior, during, and at the end of each condition. This design allowed for a more comprehensive examination of the psychological changes within the three dominance groups during each task condition. Despite
the fact that all three experimental groups performed under identical conditions, the results of this research revealed several differences among them in performance, and related affective states.

Based on Apter’s (2001) reversal theory conceptions of telic-dominant individuals being serious-minded and anxiety-avoidant, and paratelic-dominant individuals being playful and excitement-seeking, it was predicted that individuals with different metamotivational dominance would behave and respond in a different way to the changes in the task condition. Several studies (Cogan & Brown, 1999; Kerr & Svebak, 1989; Svebak & Kerr, 1989) found that telic/paratelic metamotivations influenced preference for certain motor activities. That is, telic/paratelic dominance is likely to influence selection for either easy or extremely challenging tasks. It is speculated, therefore, that a non-challenging task is less likely to bring such excitement for individuals with paratelic tendency; yet engaging in such a non-challenging or not exciting task is more likely to intensify feelings of boredom, and signal the likelihood of low effort; thus lead to poorly motivated behavior causing performance deterioration. Reversal theory studies failed to comprehensively examine the role of motor task condition (favorable vs. unfavorable), and telic/paratelic metamotivation dominance on motor performance. Only in one study involving video games (Martin et al., 1987), telic and paratelic-dominant individuals’ task performance were investigated under no-stress and mildly stressful conditions. Martin et al. found that paratelic-dominant individuals scored higher on the video task in the moderately stressful condition than in the non-stressful condition, whereas the telic-dominant individuals scored higher in the non-stressful than in the moderately stressful condition. Thus, the initial hypothesis in the research stated that telic-dominant individuals would maintain more optimal dart accuracy performance while throwing dart from the short throwing distance, and while receiving positive external feedback on performance compared to paratelic-dominant individuals who would exhibit performance decrements as the task progressed. Conversely, it was predicted that under the long throwing distance, and while receiving negative feedback, paratelic individuals would maintain a better dart accuracy performance throughout the task compared to telic individuals.

The results of this study revealed, contrary to expectations, no significant condition-by-dominance interaction effects on dart accuracy performance. Telic and paratelic-dominant groups did not significantly differ in their dart accuracy performance under the distance and
feedback conditions. Comparisons of mean dart accuracy scores showed that paratelic-dominant individuals performed slightly better than their telic-dominant counterparts under the short throwing distance and positive feedback condition. These differences were however not statistically significant. Thus, the contention that paratelic-dominant individuals would exhibit performance deterioration while throwing darts from the short distance and under the positive feedback condition was not supported. However, in accordance with predication, paratelic-dominant individuals were more successful in their dart accuracy performance throughout the trials of negative and variable feedback conditions than their telic counterparts. This result is in line with Martin et al.’s (1987) findings, where individuals with paratelic dominance performed better under the stressful and challenging condition than those with telic dominance. It should be noted that the difference between scores of telic and paratelic participants on dart accuracy were trivial and not statistically significant. Thus, the above hypothesis was not fully verified.

The non-significant results reported here may be attributed to the fact that dart-throwing was a novice task for most participants, and thus was appealing for both metamotivational dominant groups. The absence of group differences in the predicted direction could also be attributed to the short duration for each condition. Twenty-four trials of dart-throwing may be insufficient to produce the feelings of boredom, as expected for paratelic-dominant individuals under such conditions, and thus performance decrements did not occur. If the conditions had more dart-throwing trials and were greater in duration, then consistent with reversal theory and previous research findings (Martin et al., 1987), paratelic-dominant individuals might have exhibited boredom after achieving an easy “victory”. Their performance may therefore have deteriorated. Moreover, examining the dart accuracy performance of telic and paratelic-dominant individuals across the trials under each throwing condition revealed high variations in performance from one trial to the other. It seems likely that different motor task could results in the differences among the dominance groups. The variations in dart performance might also be due to the fact that most of the participants in this study were novices. For future research, expert participants might be needed since less intra-individual performance variation is expected with such a sample.

Of interest to this research is the effect of dominance and task condition on people’s affect states. Previous reversal theory research in sport (e.g., Cox & Kerr, 1989; Kerr & Van Schaik, 1995; Wilson & Kerr, 1999) that examined the effect of game outcomes on sport
experiences (e.g., arousal, pleasure) has failed to assess such effects in individuals who differ in their telic/paratelic metamotivational tendency. In accordance with Apter’s (2001) reversal theory conceptions of telic-dominant individuals being serious-minded and relaxation-seeking, and paratelic-dominant individuals being playful and excitement-seeking, it was predicted that telic and paratelic-individuals would feel and respond differently to the changes in the task condition. Previous empirical research findings (e.g., Cogan & Brown, 1999; Kerr, 1991; Martian et al., 1987) supported this proposition. Martian et al., for example, demonstrated that paratelic-dominant individuals tended to easily experience boredom in non-stressful or situations, yet they tended to experience greatest challenge and enjoyment in moderately stressful conditions. Telic-dominant individuals, on the other hand, tended to avoid difficulties and stressful situations as much as possible where they would be quickly feel overwhelmed and threatened. In this regard, in accordance with reversal theory conception of paratelic-dominant persons being excitement seekers (Apter, 2001), the feeling of boredom is likely to be experienced by a paratelic-minded individual engaged in less challenging and effortlessly winning competition; thus leading to a decline in performance. It was speculated therefore that paratelic-minded individuals, when repeatedly winning a game and/or performing an easy motor task, would report unpleasant feelings (in the form of boredom). On the other hand, constantly winning a game and/or performing an easy motor task is likely to be associated with more pleasant feelings (in the form of relaxation) for telic-dominant individuals. Thus, in this research, the second hypothesis stated that telic-dominant individuals would report more pleasant feelings while throwing dart from the short throwing distance and while receiving positive feedback than paratelic-dominant individuals, and vice versa while throwing darts from the long throwing distance and while receiving negative feedback.

For all participants, the overall results revealed that more pleasant feelings were reported while performing under the short throwing distance, compared to the long throwing distance, and while receiving positive feedback on performance, compared to while receiving either variable or negative feedback, with significant differences between conditions. These findings are consistent with results from previous research (Kerr & Van Schaik, 1995; Wilson & Kerr, 1999) that winning is associated with more pleasant than unpleasant feelings, and losing with more unpleasant than pleasant feelings. However, the hypothesized task condition-by-dominance interaction effects on pleasant feelings were not statistically significant. Nonetheless, several
differences between telic and paratelic-dominant individuals on pleasantness were in the anticipated direction.

Despite the fact that paratelic players performed relatively better in the short distance, the results of this study indicated, as anticipated, that telic-dominant individuals felt more pleasant in this condition than those individuals with paratelic dominance. The results further showed that the pleasant feelings for the two groups while performing under the long throwing distance were similar. In line with Apter’s (1984) reversal theory, the absence of challenge in the short throwing distance conditions might have produced the feelings of boredom (low pleasant feelings) more in excitement-seeking (i.e., paratelic) individuals. On the other hand, for the telic, anxiety-avoidant individuals, this condition might have been perceived as less threatening. They therefore may have felt more pleasant. These results provided some support for Martin et al.’s (1987) findings in which telic-dominant individuals tended to feel more pleasant under non-stressful condition than paratelic-dominant individuals.

In the competitive task, the results showed, as anticipated, that the paratelic-dominant participants experienced more pleasant feelings while performing under the variable and negative feedback condition than their telic counterparts. Nevertheless, the hypothesis that telic-dominant participants would feel more pleasant compared to paratelic dominant participants who anticipated to show unpleasant feelings (in the form of boredom) as the task progressed while receiving positive feedback was not supported. Paratelic-dominant participants reported relatively more pleasant feelings under the positive feedback condition compared to their telic counterparts. However, paratelic-dominant participants’ pleasant feelings across trials of the positive feedback condition, as anticipated, tended to decline highly as the task progressed. From Apter’s (1984) reversal theory, it might be speculated that the competition condition and novelty of the dart-throwing task made it to some extent stimulating and challenging, and thus more pleasant for individuals with excitement-seeking tendencies. Perhaps exposing paratelic-dominant individuals who are experts in dart-throwing to similar conditions for longer periods might produce unpleasant feelings (in the form of boredom), and thus lead to poor performance. It should be noted that participants of this study were knowledgeable that they would receive the extra credit for their participation whether they won or lost the game, and thus, might have limited the effects of the negative feedback that was provided. Thus, the effect of feedback modes on telic and paratelic-dominant individuals should be investigated under authentic stress.
or non stress conditions. The overall results of this study are compatible with Martin et al.’s (1987) findings, where individuals with paratelic dominance felt more pleasant under the stressful condition than those with telic dominance.

Previous reversal study research (e.g., Cox & Kerr, 1989; Kerr & Cox, 1991; Kerr & Van Schaik, 1995) that examined the effect of motor task on felt arousal failed to account for individual dominance. Of further interest to this study was therefore the effect of motor task on telic and paratelic-dominant individuals’ arousal. According to reversal theory (Apter, 2001), individuals with telic tendencies tend to be arousal-avoiding, whereas individuals with paratelic tendencies tend to be arousal-seeking. Therefore, constantly winning a game and/or performing an easy motor task would be more likely be associated with low arousal for telic (in the form of relaxation) and paratelic (in the form of boredom) individuals. On the other hand, it can be argued that constantly losing a game and/or performing a difficult motor task could be associated with high arousal feelings for telic (in the form of anxiety) and paratelic (in the form of excitement) individuals. Previous reversal theory research supports these assertions. For example, winners in a squash tournament reported experiencing significantly higher levels of arousal and significantly lower levels of stress than losers (Cox & Kerr, 1989, 1990). Similarly, Kerr and Van Schaik (1995) found that the arousal feelings for rugby players to be significantly higher and stress scores significantly lower after winning games than after losing games. Therefore, it was hypothesized that telic and paratelic-dominant individuals would experience their lowest arousal feelings while throwing darts from the short throwing distance and receiving positive feedback, whereas their highest arousal would be experienced while throwing darts from the longest throwing distance and receiving negative feedback. The results of this study provided some support for these predictions.

As expected, paratelic-dominant individuals did significantly experience their lowest arousal while performing under the short dart-throwing distance compared to the long dart-throwing condition. In telic-dominant individuals, on the other hand, arousal feelings were, as anticipated, lower in the short than in the long condition, yet not significant. The results further showed, as predicted, that, across the feedback conditions, telic-dominant individuals reported their lowest arousal feelings while performing under the positive feedback condition, whereas their highest arousal feelings were reported while performing under the negative feedback condition. For paratelic-dominant individuals, the changes in feedback modes did not affect
arousal feelings as hypothesized. Paratelic-dominant individuals’ arousal feelings were, contrary to expectation, similar across the feedback conditions, yet lower than the telic-dominant individuals. Perhaps for task condition effect on arousal to be noticed, it may be necessary to require performance over a longer period of time. Thus, future research that attempts longer experimental manipulations is warranted. Moreover, it is speculated that the effect of feedback modes on telic and paratelic-dominant individuals’ arousal feelings would be revealed under conditions where winning and losing have some important consequences (e.g., receiving cash award for winning).

The telic/paratelic states reversal process has received notable interest in sport literature (Kerr, 2001; Potocky & Murgatroyd, 1993; Woodman & Hardy, 2001; Zaichkowsky & Baltzell, 2001). Previous reversal theory research (e.g., Barr et al., 1993; Hudson & Bates, 2000; Kerr et al., 2002; Kerr & Tacon, 2000; Males, 1999), which assessed the impacts of surrounding environment and task conditions on metamotivational state reversal process, ignored the possible influences of telic/paratelic dominance in the reversal process. Apter’s (1984) reversal theory holds that the three factors, i.e., contingency, frustration, and satiation, that tend to induce the telic state have to be stronger in order to bring about such a reversal for paratelic-dominant people than for telic-dominant people, and vice versa for those factors that tend to induce the paratelic state. To more comprehensively understand people’s behaviors, Apter (2001) has stressed that it is important to think in terms of how an individual is at a given time (state) as well as how he or she tends to be over time (dominance). Moreover, it is thought that a person “will contingently reverse easily into his or her dominant state, and will satiate more slowly and become frustrated less easily in that state” (Frey, 1999, p.13). Thus, it could be speculated that influence of certain motor settings on metamotivational state reversal will be sensitive as a function of individuals’ metamotivational dominance. Therefore, an additional aim of this study was to examine the interaction effect of metamotivational dominance and motor task condition on telic/paratelic state reversal. Previous reversal theory studies (e.g., Barr et al., 1992; Hudson & Bates, 2000; Kerr & Tacon, 2000) measured telic/paratelic state only before and following motor task performance. Nevertheless, telic/paratelic state reversal is very likely to occur during the task (Barr et al., 1992; Hudson & Bates, 2000) and thus, more research that measures metamotivational states during the motor task is needed. In line with previous research suggestions, telic/paratelic state was measured during each task condition.
In this study, the fourth hypothesis stated that telic-dominant individuals would reverse to a paratelic state of mind while throwing darts under the short throwing distance and receiving positive feedback. It was also predicted that paratelic-dominant individuals, compared to telic-dominant individuals, would maintain a paratelic state for a longer period of time until they reverse to the telic state in the negative feedback condition. Several differences between telic and paratelic-dominant individuals on TSM were in the anticipated direction, yet not statistically significant.

In the distance conditions, the overall results revealed that participants were significantly more paratelic-minded while throwing from the short throwing distance than from the long throwing distance. Furthermore, the results showed that participants tended to be more telic-minded while receiving negative feedback than while receiving variable or positive feedback. In the negative feedback condition, participants rated themselves as more serious-minded than in either the variable or the positive feedback conditions. These results are consistent with previous research (Kerr & Van Schaik, 1995) findings where rugby players’ psychological experiences were more spontaneous and less serious (paratelic state) after winning games than after losing games. In accordance with Apter’s (1982, 2001) notion and previous research findings (Kerr et al., 2002; Kerr & Tacon, 2000; Kerr & Van Den Wollenberg, 1997) that environmental events can induce reversal between states, this study results suggested that task circumstances (favorable vs. unfavorable) have influential impact on telic/paratelic state reversal. Examinations of TSM mean scores across the trials of each condition revealed that several reversals from telic-to-paratelic state and from paratelic-to-telic state have occurred. These results therefore provided support to previous studies’ notion (Barr et al., 1992; Hudson & Bates, 2000) that the reversal process very likely to be occurring during the tasks.

The prediction that telic-dominant individuals would tend to be more paratelic minded in the short throwing distance than in the long distance was supported. The results showed, as expected, that telic-dominant individuals tended to be more paratelic-minded while performing under the short throwing distance condition than under the long throwing distance condition. In the competitive conditions, paratelic-dominant individuals were, as predicted, more telic-minded throughout the trials of the negative feedback condition compared to the positive, or the variable feedback conditions. Furthermore, as predicted, paratelic-dominant individuals were more paratelic-minded under the positive and variable feedback conditions compared to telic-dominant
individuals. The results further showed that telic-dominant individuals reversed from telic to the
paratelic state after the first and third trials of positive feedback condition. Nevertheless,
contrary to expectation, telic-dominant individuals tended to be more paratelic minded under
negative feedback condition compared to paratelic-dominant individuals, yet both telic and
paratelic-dominant individuals were in the telic state at the end of the negative feedback
condition. Thus, the fourth hypothesis was not fully verified by this study data. One possible
explanation for the lack of significant differences between dominance groups on TSM is
probably due to the fact that few paratelic-dominant participants (3 out of 12) scored near the
upper limit of the PDS, toward the paratelic end. It is speculated that had the dominance groups
been composed of purer types, the differences among them would have been observed on TSM
and the other variables of interest to this research.

Reversal theory research findings (e.g., Cogan & Brown, 1999; Kerr, 1991; Kerr &
Svebak, 1989) that paratelic-dominant individuals prefer and participate more in challenging and
risky activities, whereas telic tend to avoid such activities, seem to indicate that the two
dominance groups might differ in their efficacy perceptions. Self-efficacy literature (e.g.,
Bandura, 1997; Slanger & Rudestam, 1997), showing that challenging and risky activities are
more likely to be taken by self-efficacious individuals, provides support to the assertions that
paratelic individuals may have a strong tendency to perceive their ability to handle the demand
of the situations compared to telic individuals, who probably tend to underestimate their ability
in these situations. Moreover, self-efficacy beliefs were found to positively influence
individuals’ motor performance (e.g., Bandura, 1990; Escarti & Guzman, 1999; Locke et al.,
1984; Schunk, 1995; Theodorakis, 1995) and emotions (e.g., LaGuardia & Labbé, 1993;
Kavanagh, 1992; McAuley & Courneya, 1992; McAuley et al., 1999; Treasure & Newbery,
1998). Individuals’ perceptions about their capabilities were believed to influence their task
(e.g., difficult or challenging versus simple task) preference (Bandura, 1997). Highly efficacious
individuals were found to choose more difficult tasks than those low in self-efficacy (Bandura,
1997; Escarti & Guzman, 1999).

Furthermore, there is a notion in the sensation-seeking literature that high sensation-
seekers achieve a greater perception of self-efficacy due to exposing themselves to more
stimulating situations that provide them with more opportunity to experience successful
performance compared to low sensation-seekers (Slanger & Rudestam, 1997). This may suggest
that individuals with paratelic dominance may gain greater efficacy perceptions due to their paratelic lifestyle compared to individuals with telic dominance. In reversal theory research, no effort has been made to investigate the role of telic/paratelic dominance on efficacy perceptions. Of interest in this study therefore was the influence of task condition on efficacy perception for telic and paratelic-dominant individuals. The fifth hypothesis in this study stated that paratelic-dominant individuals would report higher self-efficacy perceptions under both the long throwing distance, and the negative feedback conditions than telic-dominant individuals.

The results of this study revealed that participants felt significantly more efficacious throughout the trials of the short throwing distance compared to the long throwing distance. Furthermore, comparisons of efficacy perceptions under the three feedback modes revealed that ratings of self-efficacy were greatest in positive feedback condition, followed by the variable feedback condition, then the negative feedback condition, with significant differences between conditions.

Although statistically non-significant, the results further showed, as anticipated, that paratelic-dominant individuals were more self-efficacious throughout the trials of the long throwing distance and the negative feedback condition compared to telic-dominant individuals. This seems to suggest that paratelic-dominant people tend to highly perceive their abilities even under unfavorable circumstances or, at least, their efficacy perceptions were not decreased in these situations compared to people with telic tendency. These findings may shed light on previous findings in which paratelic-dominant individuals tend to gravitate toward risk sports, whereas telic-dominant individuals tend to avoid such activities (e.g., Cogan & Brown, 1999; Kerr, 1991; Kerr & Svebak, 1989). Furthermore, findings that paratelic-dominant individuals tended to appraise arousal-related situations as challenging, whereas telic-dominant individuals tended to appraise them as threatening (Martin et al., 1987), could be attributed to the dissimilar self-efficacy perceptions of both groups. Overall, the present study data seem to suggest that metamotivational dominance might play a role in people’s efficacy perceptions in the sporting context. Nevertheless, it should be noted that the above differences between telic and paratelic-dominant individuals on efficacy perceptions were not statistically significant. Thus, future research is needed in this area.

The overall results on dart performance, pleasantness, and efficacy perception in the competitive task revealed that greater dart accuracy performance, pleasant feelings, and efficacy
perceptions were reported when positive feedback was provided. Moreover, the results showed that the effects of receiving variable and negative feedback were relatively more negative for telic-dominant individuals than for their paratelic counterparts. Under variable and negative feedback, paratelic-dominant individuals showed higher dart accuracy performance, pleasant feelings, and efficacy perceptions compared to telic-dominant individuals. This suggests that the effect of motor task condition could vary according to people’s metamotivational dominance.

Perhaps a more interesting observation was related to efficacy perception, pleasantness, and telic/paratelic state. In reversal theory, the three mechanisms that are believed to cause such reversal are frustration, satiation, and contingent events (Apter, 2001; Kerr, 1997). Nevertheless, the individuals’ personal features (e.g., efficacy perception) that might target such reversal were not considered in previous reversal theory research (e.g., Barr et al., 1993; Hudson & Bates, 2000; Kerr et al., 2002; Kerr & Tacon, 2000; Males, 1999) that examines the effect of task condition on telic/paratelic state reversal. These studies were relying mostly on reversal theory’s telic/paratelic concepts to account for motor performance and related affective states.

From Bandura’s (1997) self-efficacy theory perspective and past research (e.g., LaGuardia & Labbé, 1993; Kavanagh, 1992; McAuley et al., 1999; Treasure & Newbery, 1998), high efficacy beliefs tend to be associated with high pleasant feelings. Perceptions of capability were found to directly and indirectly influence motor performance and emotions (McAuley, 1991). Since self-efficacy is believed to influence the nature and intensity of emotional states (Bandura, 1992), it is possible for individuals in the paratelic state, experiencing high arousal level as excitement, to reverse to a telic state in which their high arousal level would be experienced as anxiety if their self-efficacy beliefs were reduced to a very low level. Alternatively, individuals in the telic state are less likely to experience anxiety if their perceived efficacy is strengthened to the maximal level through, for example, repeated positive performance feedback.

The overall results of this study showed that participants were more paratelic-minded and felt most pleasant in the short throwing distance and the positive feedback conditions, where their efficacy perceptions were the highest. This suggests that the perception of self-efficacy is important in order to feel more pleasant, as well as to induce the paratelic state while performing. These results thus might shed light on previous reversal theory findings. Pervious reversal theory research (Kerr & Van Schaik, 1995) findings that rugby players’ psychological
experiences were more positive, spontaneous, and less serious (paratelic state) after winning games than after losing games can be explained by dissimilar efficacy perceptions after winning and losing games. It is reasonable to say that those rugby players felt more efficacious after winning the games than after losing the games.

Furthermore, the results showed that although paratelic-dominant individuals performed better and felt more self-efficacious under the short throwing condition than telic-dominant individuals, they felt less pleasant compared to their telic counterparts. In accordance with reversal theory, paratelic-minded individuals were very likely to interpret their high efficacy as an indication of task competence and, thus, such non-challenging or less competitive task is less likely to be appealing to them since it is less likely to bring such excitement. This finding might suggest that too much of either low or high self-efficacy can lead to unpleasant consequences. The extent to which Apter’s (1982) telic/paratelic notions induced changes in the influences of self-efficacy on individuals’ pleasant feelings and telic/paratelic state is certainly worthy of further examination.

**Limitations and Future Research Directions**

Although the current study findings are quite encouraging, there were several limitations. One of the major limitations of the study pertains to the use of dart accuracy as a performance measure. Perhaps it would have been more beneficial to investigate motor performance using motor tasks that have minimum variations in performance across trials. In this study, dart accuracy performance tend to fluctuate from trial to the other that was due mostly to variations associated with dart-throwing, especially for novice participants. Moreover, the novelty of the dart-throwing task for most participants in this study made it favorably stimulating and exciting, even under unfavorable (e.g., losing) conditions. Thus, it might be hypothesized that the nature of the dart accuracy performance investigated in the present study could have diminished dominance differences on performance. It is recommended therefore that the designs applied in this study be extended to other sports and settings.

Another major limitation is related to competitive conditions. For the win/lose feedback mode to have an effect on participants, it might have been necessary to have associated them with some important consequences (e.g., receiving cash award for winning). In this research,
participants knew that they would receive extra credit for their participation regardless if they were winning or losing the dart-throwing trials, and thus, limited the effects of the feedback that was provided. Thus, the effect of feedback modes on telic and paratelic-dominant individuals needs to be investigated under condition with real influential consequences. Furthermore, this research took place in a laboratory setting and not during actual athletic competition. Further research is needed under real-life conditions.

An additional limitation noticed in this research has to do with insufficient duration and trials in each condition. Perhaps exposing dart-throwing experts with paratelic tendencies to similar conditions for longer period might produce unpleasant feelings (in the form of boredom), and thus lead to poor performance. Each task condition period was about 20 minutes. It is plausible that with a longer period exposition to either positive or negative feedback mode, more changes in pleasantness could have been noticed. Thus, there is a need to increase the number of trials and durations within each task condition in order to enable exploration of how reactions differ from initial trials to later trials.

The final limitation related to the telic/paratelic dominance classification. As previously indicated, of the 40 participants in the current study, only three individuals scored in the upper limit of the PDS, toward the paratelic direction. Most participants \((n = 20)\) scored within the 10-19 range. Thus, pure telic and paratelic dominance types classification was not truly achieved. It is believed that, had the dominance groups been composed of purer dominance types, the differences among them would have been observed on the variables of interest to this study.

**Summary and Conclusions**

Despite its role in understanding individuals’ physical activity preference and participation, sufficient attention has not been drawn to the usefulness of reversal theory telic/paratelic dominance in observing some valuable aspects of sport and exercise behaviors. This study contributes to the existing reversal theory literature by experimentally examining the influences of telic/paratelic dominance and task conditions on motor performance and related affective states. There is some evidence to indicate that motor performance, pleasantness, arousal, efficacy perceptions, and metamotivational state reversal may be affected by
metamotivational dominance and motor task condition. Thus, this study provided some support to reversal theory.

It should kept in mind that previous reversal theory studies in sport have not investigated the effects of being nondominant (neither telic nor paratelic-dominant) on motor performance and related affective states. A major contribution of the present study to the reversal theory literature derives from its findings regarding the unstudied population of nondominant individuals. The results of this study showed that nondominant individuals tend to perform and feel better than individuals with telic or paratelic-dominance. Importantly, the current study data emphases the importance of considering nondominant individuals in future reversal theory research.

Furthermore, this study adds efficacy perceptions to the existent reversal theory literature on telic/paratelic dominance. An awareness of difference in efficacy perceptions between telic and paratelic-dominant individuals might be valuable in understanding their sport behavior and experience (e.g., affect, physical activity preference, risk taking). Research on reversal theory has ignored the usefulness of self-efficacy beliefs in understanding some of its findings. The results of this research indicated that telic and paratelic-dominance individuals may differ in their efficacy perceptions. Thus, forthcoming studies need to consider both telic/paratelic dominance and efficacy perceptions in studying sport and exercise experiences.

This research should be seen as a preliminary attempt to identify the possible interactional effects of motor task condition and metamotivational dominance on people’s motor performance and related affective states. Further research is needed in this area. Such future efforts should provide a fuller understanding of the effects of task condition on people’s sport experience since they are likely to yield useful information about the development of sport settings for optimal performance outcomes and related affective states. These settings should be most effective when they can be designed to accommodate different metamotivation needs (excitement- versus relaxation-seeking) and abilities (task efficacy perception), and task condition (favorable versus unfavorable).
APPENDIX A

PARATELIC DOMINANCE SCALE (PDS) SCORES
### PARATELIC DOMINANCE SCALE (PDS) SCORES

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APPENDIX B

HUMAN SUBJECT APPROVAL
APPROVAL MEMORANDUM

Human Subjects Committee

Date: 4/21/2003

Jamal Bindarwish
501 Blainstone Rd. Apt. #822
Tallahassee, FL 32301

Dept.: Educational Psychology & Learning Systems

From: David Quadagno, Chair

Re: Use of Human Subjects in Research
The Effect of Metamotivational Dominance and Task Condition on Motor Performance and Affective States

The forms 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 exempt per 45 CFR § 46.101(b) 2 and has been approved by an accelerated 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 the project has not been completed by 4/20/2004 you must request renewed approval for continuation of the project.

You are advised that any change in protocol in this project must be approved by resubmission of the project to the Committee for approval. Also, the principal investigator must promptly report, in writing, any unexpected problems causing risks to research subjects or others.

By copy of this memorandum, the chairman 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 of such investigations 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 Protection from Research Risks. The Assurance Number is IRB00000446.

Cc: Dr. Gershon Tenebaum
HSC No. 2003.190
APPENDIX C

CONSENT FORM
CONSENT FORM

I freely and without coercion, consent to participate in the research study entitled, “The Effect of Metamotivational Dominance and Task Condition on Motor Performance and Affective States.”

This research is being conducted by Jamal Bindarwish, a Ph.D. student in the sport and exercise psychology program in the Department of Educational Psychology and Learning Systems at Florida State University. The purpose of the research is to examine the effect of telic/paratelic dominance in individuals’ dart performance, self-efficacy perceptions, pleasantness, arousal, and metamotivational state while performing under three dart-throwing distances and under three performance feedback modes (win, lose, and win/lose modes) conditions. I understand I will be providing the researcher with the information regarding: my efficacy perception, pleasant level, arousal level, and mood states across trials as well as whether I my dominant mood characteristics (i.e., telic or paratelic dominant).

I understand that the research will involve me filling out three scales, which will look at my metamotivational dominance (i.e., whether telic or paratelic), efficacy perception, pleasant level, arousal level, and moods states at particular trials. I understand that in the first task, I will throw darts from three throwing distances (1.37 m, and 3.37 m) from the dartboard. I also understand that, in the second task, I will receive feedback (e.g., winning, or losing) on my dart performance while competing against another student.

I understand that there are no foreseeable physical or psychological risks due to my participation in this study. I understand benefits of this study may include me being aware about my metamotivational dominance (i.e., whether telic or paratelic) and its influences on my dart performance and affect states.

I understand that the researcher will maintain confidentiality to the fullest extent of the law. The researcher will do so by storing data in a locked cabinet, identifying participants by a code name, and destroying any lists that contain identifying materials. I therefore understand that my name will not appear on any of the results. No individual responses will be reported. Only group findings will be reported.

I understand that my consent and participation can be withdrawn from the study at any time without any prejudice or penalty. I have been given the opportunity to ask and have any questions or concerns I may have concerning my participation in this study answered.

I understand that I may contact Jamal Bindarwish at (850) 656-8314, or his supervisor in the Department of Educational Psychology and Learning Systems, Dr. Gershon Tenenbaum at (850) 644-8791, if I have any concerns or further questions concerning this research. If I have any questions about my rights or participation in this study, I can contact the chair of the Human Subjects Committee, Institutional Review Board at (850) 644-8633. I also understand I may ask Jamal Bindarwish for my results upon completion of this study.

I have read and understand this consent form.

_______________________________________                 ______________________________
Participant’s Signature   Date                                   Please print your name
APPENDIX D

DEMOGRAPHIC INFORMATION
DEMOGRAPHIC INFORMATION

**Directions:** Please provide the following information about yourself and your dart-throwing experience.

1. Your age: _____

2. Your gender: ____Male  **OR**  ____Female

3. Rate your experience in dart-throwing?

   0  10  20  30  40  50  60  70  80  90  100

   *no experience at all*  **high experience**

4. Are there any medical condition that you think that might negatively or positively affect your dart-throwing performance?

   _____ Yes:  (Please explain)………………………………………………………………………………
   
   _____ No:  …………………………………………………………………………………………………
APPENDIX E

SELF-EFFICACY SCALES
SELF-STANDARD (DISTANCE) TASK

**Direction:** How confident are you *as of now* in your ability to score *at least 12 points* with *four darts*?

<table>
<thead>
<tr>
<th>Score</th>
<th>Not Confident at All</th>
<th>Moderately Confident</th>
<th>Extremely Confident</th>
</tr>
</thead>
<tbody>
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<td></td>
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</tr>
<tr>
<td>10</td>
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<td>100</td>
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COMPETITIVE (FEEDBACK) TASK

**Direction:** How confident are you *as of now* in your ability to *win the next trial*?

<table>
<thead>
<tr>
<th>Score</th>
<th>Not Confident at All</th>
<th>Moderately Confident</th>
<th>Extremely Confident</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
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</table>
APPENDIX F

THE AFFECT GRID
THE AFFECT GRID

Stress

High Arousal

Excitement

Unpleasant Feelings

Depression

Sleepiness

Relaxation

Pleasant Feelings
APPENDIX G

THE AFFECT GRID INSTRUCTIONS
THE AFFECT GRID INSTRUCTIONS

You use the “affect grid” to describe feelings. The center of the square represents a neutral, average, everyday feeling. It is neither positive nor negative.

The right half of the grid represents pleasant feelings. The farther to the right the more pleasant. The left half represents unpleasant feelings. The farther to the left, the more unpleasant.

The vertical dimension of the map represents degree of arousal. Arousal has to do with how wide awake, alert, or activated a person feels – independent of whether the feeling is positive or negative. The top half is for feelings that are above average in arousal. The lower half for feelings below average. The bottom represents sleep, and the higher you go, the more awake a person feels.

If you imagine a state we might call frantic excitement (remembering that it could be either positive or negative), then this feeling would define the top of the grid.

If the “frantic excitement” was positive it would, of course, fall on the right half of the grid. The more positive, the farther to the right. If “frantic excitement” was negative, it would fall on the left half of the grid. The more negative, the farther to the left. If the “frantic excitement” was neither positive nor negative, then it would fall in the middle square of the top row.

Other areas of the grid can be labeled as well. Up and to the right are feelings of ecstasy, excitement, joy. Opposite these, down and to the left, are feelings of depression, melancholy, sadness, and gloom. Up and to the left are feelings of stress and tension. Opposite these, down and to the right, are feelings of calm, relaxation, and serenity.

Feelings are complex. They come in all shades and degrees. The labels I have given are merely landmarks to help you understand the affect grid. When actually using the grid, put an X anywhere in the grid to indicate the exact shade and intensity of feeling. Please look over the entire grid to get a feel for the meaning of the various areas.
EXAMPLE 1: Suppose that you were just surprised. Suppose further that the surprise was neither pleasant nor unpleasant. Probably you would feel more aroused than average. You might put your mark as shown.

EXAMPLE 2: Suppose, instead, that you were only mildly surprised but that the surprise was a mildly pleasant one. You might put your mark as shown.
CHECK 1: Suppose that you were just surprised. Suppose further that the surprise was neither pleasant nor unpleasant. Probably you would feel more aroused than average. How would you put your mark in the grid?

<table>
<thead>
<tr>
<th>Stress</th>
<th>High Arousal</th>
<th>Excitement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unpleasant Feelings</td>
<td>Sleepiness</td>
<td>Relaxation</td>
</tr>
<tr>
<td>Depression</td>
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<tr>
<td>Depression</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CHECK 2: Suppose, instead, that you were only mildly surprised but that the surprise was a mildly pleasant one. How would you put your mark in the grid?

<table>
<thead>
<tr>
<th>Stress</th>
<th>High Arousal</th>
<th>Excitement</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>Depression</td>
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<td></td>
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</tbody>
</table>
APPENDIX H

TELIC STATE MEASURE
TELIC STATE MEASURE

**Instruction:** Rate how do you feel right now:

1. **Serious** .......................... 1 2 3 4 5 6 .......................... **Playful**

2. **Planning ahead** .............. 1 2 3 4 5 6 .......................... **Spontaneous**

3. **Preferred arousal** ............. 1 2 3 4 5 6 .......................... **Low** .......................... **High**

1. By **"serious"** here is meant the feeling that you are pursuing (or at least thinking about) some essential goal. By **"playful"** is meant the feeling that you are doing what you are doing for its own sake.

2. By **"planning ahead"** is meant trying to organize your behavior in such a way that it leads effectively to some goal in the (perhaps distant) future, and being aware of the future consequences of your present actions. By **"spontaneous"** is meant that your actions are undertaken on impulse, with little regard for future consequences.

3. By **"preferred arousal"** here is meant how "worked up" you want to feel.
APPENDIX I

THE PARATELIC DOMINANCE SCALE
THE PARATELIC DOMINANCE SCALE

**Directions:** Here are some statements that describe different characteristics of people. Please read each statement carefully and decide whether the statement is TRUE or FALSE as it applies to you.

1. I usually make decisions based on the way I feel at the time.  ( ) True  ( ) False
2. Usually, my leisure activities have no specific purpose.  ( ) True  ( ) False
3. I have long-term life ambitions.  ( ) True  ( ) False
4. I regularly think of the future.  ( ) True  ( ) False
5. If I have extra time, I prefer to spend it accomplishing something important.  ( ) True  ( ) False
6. I often take risks.  ( ) True  ( ) False
7. I think we should let the future look after itself.  ( ) True  ( ) False
8. I like being in unpredictable situations.  ( ) True  ( ) False
9. I usually do things just for fun.  ( ) True  ( ) False
10. I generally do not take anything too seriously.  ( ) True  ( ) False
11. I am an adventurous sort of person.  ( ) True  ( ) False
12. I usually enjoy thinking about my long-term goals.  ( ) True  ( ) False
13. I almost never like to take chances.  ( ) True  ( ) False
14. I usually like to have peace and quiet.  ( ) True  ( ) False

*Please Continue on Next Page*
15. I am a serious-minded person.  ( ) True  ( ) False
16. I usually make decisions based on my long-term goals.  ( ) True  ( ) False
17. I often do things just for excitement.  ( ) True  ( ) False
18. I like to take each day as it comes.  ( ) True  ( ) False
19. In my free time, I prefer activities with no serious purpose.  ( ) True  ( ) False
20. I think it is important to plan for the future.  ( ) True  ( ) False
21. I prefer leisure activities that have a serious purpose.  ( ) True  ( ) False
22. I seldom make long-term plans.  ( ) True  ( ) False
23. I prefer my life to be predictable and orderly.  ( ) True  ( ) False
24. I prefer a peaceful, quiet environment.  ( ) True  ( ) False
25. I make decisions based on what I expect my future needs to be.  ( ) True  ( ) False
26. In my free time, I prefer activities with no serious purpose.  ( ) True  ( ) False
27. I would rather think about the present than the future.  ( ) True  ( ) False
28. I prefer to go through life safely.  ( ) True  ( ) False
29. I tend to be impulsive.  ( ) True  ( ) False
30. I prefer to think in the long-term.  ( ) True  ( ) False
APPENDIX J

DART-THROWING INSTRUCTIONS
DART-THROWING INSTRUCTIONS

The stance: “Stand behind the throwing line with your front foot (the right foot if you are right-handed, or the left foot if you are left-handed) forward placed on the throwing line, and pointing toward the dartboard. Your feet should feel comfortable to you. The non-throwing arm should be positioned in such a fashion that it gives you the proper body balance at the moment you release the dart.” The grip: “Grip your dart lightly and naturally. Use your thumb, index finger, and middle finger in gripping the dart. Your thumb and index finger are positioned in the middle of the barrel, and your middle finger is touching the very end of the barrel and resting lightly in the top section.” Sighting: “Set your target precisely with your eyes, without attempting to bring the point of the dart into your line of vision. The throw: Throw with as little body motion as possible. The throw starts with the hand and the lower arm coming back, past the right side of your face, and then going forward quickly and smoothly, while the elbow is down, acting as a hinge.” The release: “Make the release a single, free-flowing motion, with the wrist kept straight and the fingers extended.”
REFERENCES


BIOGRAPHICAL SKETCH

Jamal Bindarwish was born on November 1973 in the United Arab Emirates. He graduated from the UAE University in 1996 with a Bachelor’s degree in Physical Education. In 1998, he continued his education at Ball State University and received his Master’s of Science degree in Sport Psychology in the spring of 2000. Florida State University has been his school of choice for his doctoral studies. During his studies in FSU, he received a minor in Measurement and Statistics from the Department of Educational Research. After obtaining his Ph.D., he plans to teach in the UAE University and conduct research.