

**EXPLORING MOTIVATIONAL STATES IN AN
INTERNATIONAL SAMPLE OF COMPETITIVE
SPRINGBOARD AND PLATFORM DIVERS**

Saara Haapanen

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Department of Sport Sciences

University of Jyväskylä

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ABSTRACT

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The main aim of the present study was to explore motivational states in an international sample of springboard and platform divers using the Self-Determination and Achievement Goal frameworks. Secondary aims included exploring the relationship of competitive level with autonomous motives and goal orientations, and discovering if the reasons for ceasing participation are related to a lack of intrinsic motivation. Additional goals of the study included examining the relationship between the Achievement Goal Theory (AGT) and the Self-Determination Theory (SDT), and to adapt the Task and Ego Orientation in Sport Questionnaire and the Sport Motivation Scale to fit divers.

Participants included 639 current (n=375) and former (n=264) divers (229 males, 410 females) representing 31 different countries. The age of respondents ranged from 13 to 68 with a mean age of 21.45 (SD 6.2). Competitive experience ranged from local to Olympic. The respondents were contacted through online networking methods (facebook, email, diving web sites). The data collecting website mysurvs.com was used and the survey remained open for a period of one month.

Measures used in this study include the Sport Motivation Scale (SMS; Pelletier, Fortier, Vallerand, Tuson, Britre, & Blais, 1995) and the Task and Ego Orientation in Sport Questionnaire (TEOSQ; Duda & Nicholls, 1992)

Results revealed that divers in the sample seem to be highly motivated and have unique motivational profiles that are not found in other sports. No significant motivational differences were found between the seven competitive levels for the whole sample, with gender differences for only one variable; IM to know. Differences were found between current and former divers, with current divers having higher values for the motivational variables of introjected regulation, external regulation and task orientation, while the former divers had higher levels of amotivation. There were no differences between current and former divers for any of the autonomous forms of motivation, as was hypothesized, although gender differences were found for amotivation, IM to experience stimulation and IM to know. Task orientation was positively correlated with all three types of intrinsic motivation, moderately correlated with identified and introjected regulation, and negatively correlated with amotivation. External regulation and ego orientation were unrelated to task orientation in the sample of divers. Ego orientation was highly related to both introjected and external regulation, while amotivation was not significantly related with ego orientation. The diving versions of the scales had high internal reliability and seem to fit the diving population well. Results aid in gaining a better understanding of the motivational states of competitive springboard and platform divers.

Keywords: Competitive Diving, Intrinsic Motivation, Motivational Profiles, Task and Ego Orientation, Self-Determination Theory, Achievement Goal Theory

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1 INTRODUCTION

Motivation is an important factor in an individual's life, in general and within the context of sport. Within the sport context and more specifically in the sport of diving it is important to discover the types of motives divers have. Diver's motivational profiles are particularly interesting and important to study because they have received little research attention. Motivational profiles can give us a better understanding of the how and why divers participate (or participated) in the sport of diving. Due to the uniqueness of the sport, and certain hardships that are associated with involvement (fear, high anxiety, overtraining, repeated impact with the water, repetitive training etc.) one often wonders how divers stay motivated and persist in spite of all the difficulties.

Springboard and platform diving may be the most under-researched sport when it comes to sports psychology. Most studies that are conducted in diving are focused on physiological aspects (for example; Bonifazi, Della, Rossi, & Mazzocchio, 2008; Cheng & Hubbard, 2005, 2007; Furtner, Werner, Felber, & Schmidauer, 2006; Sanders & Burnett, 2004; Yeadon, Kong, & King, 2006). Previous research has been focused on; mental practice (Grouios, 1992; Reed, 2002), self-efficacy and movement variability (Slobounov, Yukelson, & O'brien, 1997), positive mental approach (Oras, 1969), state and trait anger (Sinclair, Czech, Joyner, & Munkasy, 2006), problem representation and procedural knowledge (Harter, 1989), perceived stress (Ness, 1975), attentional style, neuropsychology (Zillmer, 2003), physical self-concept and sensation seeking (Hinton-Bayre & Hanrahan, 1999). However, research in the area of motivation is scarce.

The idea for the current study stemmed from personal curiosity and the recognition that the psychological side of the sport of diving is under researched. In addition, there is a need for more motivational research conducted on elite athletes. Not only is this study the only one of its kind, but it also provides insight within a range of experience and ability contained in the context of one sport. In addition, studying motivational states within the diving population can also provide both scientific and practical implications. There is a need for a scientific-exploratory study within the culture of divers to see how they differ

from other athletes, with results also being of practical use. Acrobatic sports are very unique, for this reason the motivation is bound to be different from 'typical' athletes. This study will provide a better understanding of the types of motives divers have. Practical use of results can aid coaches in their understanding of why individuals dive, and why they have ceased participation, hopefully influencing coaching decisions that can keep divers in the sport for longer periods of time. Therefore, to help fill the void in research, the purpose of this study is to explore motivational states in springboard and platform divers.

For the basis of this study, two main theoretical approaches will be used in examining motivational states in an international sample of competitive springboard and platform divers. The first is the Self-Determination Theory (SDT; Deci and Ryan 1985, 1991, 2000), which is both a social cognitive and needs theory. The SDT is one of the only major human motivation theories that can identify both spontaneous, intrinsically motivated behaviour and identify the factors which can increase or hinder it. The second, Achievement Goal Theory (AGT; Nicholls 1984,1989) will be used to help explain the motives and cognitive variables of achievement behaviours. The AGT is also a social cognitive theory, it uses goal orientations to help clarify competence perceptions, causes of success and the purpose behind behaviors, as well as intrinsic interest, burnout and exerted effort. The theories compliment each other, and will aid in gaining a better understanding of what drives divers to dive, or to cease participation.

The main purpose of the study is to discover motivational states in an international sample of divers using the Self-Determination and Achievement Goal frameworks. Secondary aims include exploring the relationship between competitive level and nine motivational variables, and to discover if divers have ceased participation due to a lack of intrinsic motivation. Additional goals of the study include using results to further assess the relationship between the AGT and the SDT, and to adapt the Task and Ego Orientation in Sport Questionnaire; TEOSQ (Duda & Nicholls, 1992) and the Sport Motivation Scale; SMS (Pelletier et al., 1995) to fit the diving population.

This literature review is divided into two main parts; the first will focus on the SDT and begins with an explanation of the main theory, followed by an explanation of the self-determination continuum which includes three different types of intrinsic motivation (IM), extrinsic motivation (EM), and amotivation (AM) as well as the Cognitive Evaluation Theory (CET) a sub theory of the SDT. A brief overview of what increases and undermines IM will be provided, including a section on the effects of scholarships on motivation. The first section will conclude with a summary table of the sequential pattern of motivation according to the SDT. The second part of the literature review will consist of a general overview of the AGT explaining the two types of goal orientations and how they are orthogonal in nature, followed by a brief explanation of orientations versus involvements as well as the motivational climate. Finally, the literature review will conclude with an attempt to conceptually and empirically link the two theories together.

2 SELF DETERMINATION THEORY

Ryan and Deci's Self-Determination Theory (1985, 1991, 2000) is one of the leading theories in the field of motivation, and looks at motivation from both a social cognitive and needs perspective. One of the strengths of the SDT is that it considers the whole continuum of motivation from intrinsic to amotivation. Due to the contextual nature the sport setting, and more specifically the context of diving, the SDT was chosen because it aims to discover what kind of motivation is being exhibited at any given time. It looks at the ultimate or universal reasons for motivation and behaviour, and takes both psychological and social needs into account. The SDT is logical and views the environment as nurturing both need satisfaction and motivation (Hagger & Chatzisarantis, 2005).

The SDT is based upon earlier work by White (1959) and Harter (1978) but still remains to be one of the most used theories of today (Hagger & Chatzisarantis, 2007). It looks at behaviour from the perspective that needs represent the energy that is the underlying factor behind people's behavior. The main concept is that humans strive for three essential and innate basic psychological needs; the need for competence, the need for relatedness and the need for autonomy (Deci & Ryan, 2000).

Competence is described as the need to be able to produce behavioural outcome, autonomy (self-determination) is the need to be the initiator and regulator of one's own actions, and relatedness is the need to have meaningful relationships with others (Deci & Ryan, 2000). These three needs are the main driving force behind self-motivation and personality integration (self-determination/autonomy), and all three needs must be satisfied to experience optimal motivation, adaptive functioning, and well-being (Deci & Ryan, 2000; Goudas, Biddle & Fox, 1994; Wang & Biddle, 2001). People engage in certain behaviors to fulfill their needs, and depending on the extent of their needs being met, individuals become motivated to engage in certain behaviors out of their own choosing (Vallerand, 2001).

The social environment also plays an important role within the SDT. If the social environment is supportive of the three needs, the individual will move toward integration and develop their own personal resources for taking on adaptive and autonomous regulations of his/her behaviour (Deci & Ryan, 2000). On the other hand, if the social environment is perceived as controlling, confrontational or uninvolved; the individual will exhibit protective behaviours and psychological withdrawal will result. This is due to the hindering of internalization and autonomous motives (Deci & Ryan, 2000).

2.1. The Self-Determination Continuum

As briefly addressed previously, motivation lies on a continuum from the most autonomous forms of motivation (IM) to less autonomous forms (external regulation) and even includes the lack of motivation (amotivation). The following section will explain the types of motivation (also known as the perceived locus of causality constructs) according to the SDT.

2.1.1 Intrinsic Motivation (IM)

Intrinsic motivation (IM) is the most autonomous form of motivation. A great deal of research has revealed that IM can lead to many positive outcomes in both the sport and exercise settings, including more interest and satisfaction, excitement and confidence (Deci & Ryan, 2000), enhanced performance, greater persistence and creativity (Pelletier et al., 1995; Vallerand, 1997), heightened self-esteem, (Deci & Ryan, 1995) general well-being (Deci & Ryan, 1991) positive emotions (Pelletier et al., 1995; Vallerand, 1997) minimal tension and pressure (Vallerand 2001), better sportsmanship (Martens & Webber, 2002), longer careers and more effort to continue in sport (Vallerand, 1997; Deci & Ryan, 2000). Athletes who are intrinsically motivated participate for the pure enjoyment and pleasure they get from the actual involvement of the activity. They participate in sport because they enjoy it. IM focuses on the process not the outcome, and allows the individual to be focused on the task at hand. It leads an athlete to experience pleasant emotions, such as enjoyment, freedom, and relaxation (Vallerand, 2001). Ryan (1995) describes intrinsically motivated behaviour as spontaneous, fully self-regulated, experienced as autonomous, and is accompanied by an internal perceived locus of causality (PLOC).

Through funding from the United States Olympic Committee a study was conducted on 10 Olympic athletes (Gould, Dieffenbach, & Moffett, 2001). Results revealed that IM was one of the key characteristics of the 10 Olympians, and was one of the main factors leading to beliefs about their own athletic success. Between the 10 athletes they had won 32 Olympic medals, including 28 gold, 3 silver and 1 bronze. These results help to indicate how valuable IM is in the successful (and elite) athletic population.

Vallerand and colleagues (1989, 1992, 1993) have suggested that IM is multi-dimensional and consists of the following three types; IM to know, IM to accomplish, and IM to experience stimulation. An individual who is engaged in an activity for the pleasure and satisfaction they feel while learning, exploring, or trying to understand something new is intrinsically motivated to know. An example is an athlete who will try and discover new training techniques for the pleasure they experience while learning something new (Pelletier et al., 1995). An athlete who is attempting to accomplish or create something new, or to surpass oneself for the pure pleasure and satisfaction they feel, is one who is intrinsically motivated to accomplish. This individual is focused on the process and not on the result. IM to accomplish has been linked with such terms as task-orientation, efficacy motivation and mastery motivation. An example of an athlete who is intrinsically motivated to accomplish is one who will try and master certain difficult training techniques to experience personal satisfaction (Pelletier et al., 1995). Finally, an individual who participates in an activity for the pleasant sensations that are associated with it, usually with one's senses, is intrinsically motivated to experience stimulation (Vallerand, 2001). An example of an athlete who is intrinsically motivated to experience stimulation is one who is involved in their sport to live exciting experiences (Pelletier et al., 1995).

The three types of IM are helpful when classifying an athlete as being intrinsically motivated. It is possible that an athlete is highly intrinsically motivated for one type of IM and low in another. The three types of IM also allow for a deeper and more thorough understanding of motivational behaviors and states. Often in the literature the three types are combined because the researcher assumes that they measure the same aspect. In the

current study, the three different types of IM will be treated as separate variables in the data analysis to gain a better understanding of the relationship between IM and competitive level.

Although IM leads to many positive consequences, athletes all unique and it is possible that some may not be intrinsically motivated at all, for this reason extrinsic motivation will be briefly described next.

2.1.2 Extrinsic Motivation (EM)

Extrinsic motivation (EM) is defined as performing an activity to obtain a separate outcome (Ryan & Deci, 2000), or doing something as a means to an end. In the context of sport this can include such things as rewards for performance (trophies, medals, money) or praise from a coach or parent. EM has been linked with such negative things as increased pressure, a shorter athletic career, higher dropout from sport, and increased state anxiety (Martens & Webber, 2002).

EM is similar to IM in the sense that it is also multidimensional, and lies on the same self-determination continuum (Deci and Ryan, 1985, 1987, 1989, 1992). The Self-determination continuum is part of Deci and Ryan's SDT. Motivational variables differ in their degree of self-determination (autonomy), with IM being the most self-determined form of motivation, as described previously (all three types of IM represent the same degree of self-determination). The four dimensions that make up EM range from low autonomy to high autonomy and are: external regulation, introjected regulation, identified regulation and integrated regulation, and will be explained in the following paragraph.

External regulation is the most external form of motivation and is characterized by behaviors that are regulated through external means, either to gain something or to avoid negative consequences (Vallerand 2001, Pelletier et al., 1995). An example of an externally regulated athlete is one who is involved in sport to please their parents, or to get praise from their coach. *Introjected regulation* is the first stage when the reasons for actions begin to be internalized, but involves behaviour that is controlled by self imposed

pressure. This type of EM is not truly self-determined because it merely replaces an external source of control with an internal one. The behavior may still be motivational but it is not self determined, and is usually reinforced by internal pressure such as guilt or anxiety (Pelletier et al., 1995). An athlete who is involved in sport because they feel pressure to be in good shape is an example of introjected regulation. *Identified regulation* is seen as acting out because the behaviour is observed as important, this is the stage of the continuum when the behavior is done out of choice, and is done freely even if it is not pleasurable. An athlete who is involved with sport because they feel their involvement is contributing to a part of their growth and development is an example of an athlete who is motivated by identified regulation. Finally, the last type of EM on the self-determination continuum is labeled *integrated regulation*, and is the most intrinsic and autonomous form of EM. It occurs when an individual engages in an activity out of choice. This choice represents a pleasant part of the self within the individual. An individual's choice is made as a function of their coherence with other aspects of the self (Vallerand, 2001). An athlete who may choose to stay home on a Friday night instead of going to party so she/he is ready for the competition the following day is an example of an athlete who is motivated by integrated motivation. Unfortunately, none of the existing sport motivation questionnaires assesses this dimension

2.1.3 Amotivation

There is a seventh form of motivation, named amotivation which is similar to no motivation at all, individuals who exhibit this type are neither intrinsically motivated nor extrinsically motivated. As such, it is perceived that one's actions have no control over outcomes and behaviour is determined by forces out of one's control (Deci & Ryan, 1985). Athletes in this state cannot identify any good reason to continue training, and usually decide to discontinue their sport (Pelletier et al., 1995).

Initially the focus of the study was on IM, but in reality it is unrealistic to have such a narrow concentration when studying motivation. For this reason the broad spectrum of motivation (amotivation to intrinsic) will be considered as well as achievement goals,

competitive level, number of years diving, gender, and financial rewards to get a more thorough understanding of the diving sample.

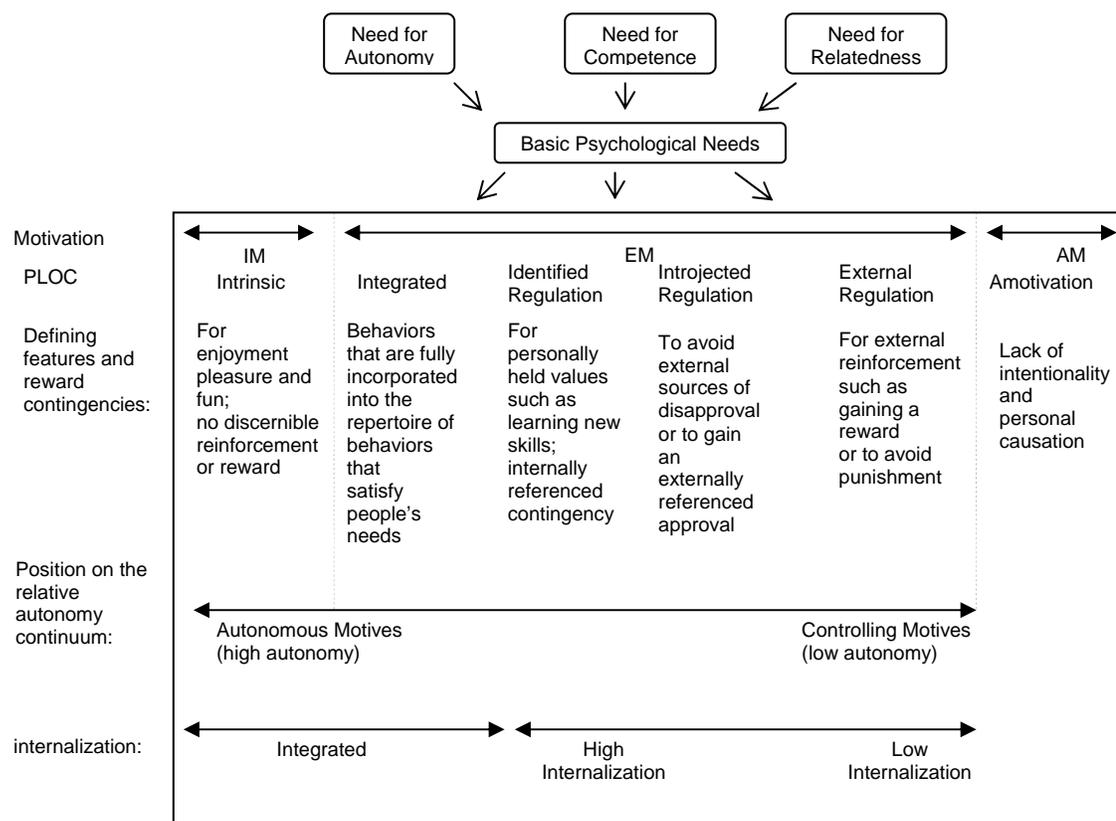


Figure 1. The Self-Determination Continuum (Hagger & Chatzisarantis, 2007)

2.2 Cognitive Evaluation Theory CET

The Cognitive Evaluation Theory (CET; Deci & Ryan, 1985) is a sub-theory within the framework of the SDT, and is focused on IM. The foundation of the CET is based in the environmental and social factors and/or conditions which help to facilitate intrinsic motivation. The CET aims to specify factors that help to explain variability in IM, while focusing on the needs of competence and autonomy (self-determination/perceived locus of causality). The theory argues that social-contextual events which lead to feelings of competence during action can increase IM. For this reason, optimal challenge, positive-encouraging feedback, and freedom from humiliating or negative evaluations are all factors which will increase IM (Ryan & Deci, 2000).

According to the CET there are four main beliefs. First, intrinsically motivated activities are autonomous. Any activity that does not have an internal PLOC or is not self-determined will undermine IM (Frederick & Ryan, 1995). Second, IM is maintained by feelings of competence and the anticipation of challenge, therefore feedback which enhances an individual's feeling of competence is expected to also increase IM. Non-optimal challenges (too easy or too difficult) fail at increasing IM, because they do not increase feelings of competence. Third, feedback, rewards or other communication effects depend on their functional significance. If feedback and rewards are perceived as informational they will enhance IM, but if perceived as controlling or amotivating they will affect one's feelings of self-determination and autonomy and lead to decreased IM (Frederick & Ryan, 1995). Finally, informational, controlling and amotivating inputs are applicable to "intra-psychic regulation of action" as well as interpersonal events.

2.3 Increasing and Undermining IM

2.3.1 Increasing IM

Due to the positive factors associated with IM, as previously discussed, current research suggesting how to increase IM will be reviewed in brief. A more thorough review can be found in the discussion section (Practical Implications 10.7) of the study.

The SDT assumes that IM will prosper in environments that are characterized by a sense of relatedness and security. Therefore it is important to give an individual choice, vary opportunities for direction and give them a chance to acknowledge their feelings (Ryan & Deci, 1985), to allow for more autonomy. Ryan and Deci (1975) also stated that for something to be intrinsically motivating it has to be interesting, provide optimal challenge, involve feedback, and permit people to experiment with their own way of doing things. Feedback can also aid in enhancing IM, but only if it is positive and increases ones self-efficacy or self-determination, and is perceived as informational, as discussed prior in the CET section (Frederick & Ryan, 1995).

Task orientation, which will be discussed in detail in the second section of the literature review, can also help to increase IM. Due to the fact that task orientated individuals are

focused on exhibiting mastery of the skill, and not on showing normative high ability. This results in self-referenced perceived ability, leading an athlete to feel confident while learning and/or mastering a skill, as well as personally improving while expending high effort. (Brunel, 1996). Just as important as increasing IM, the factors and situations which can undermine or decrease IM will also be reviewed briefly, a more complete discussion will be included in the discussion (Practical Implications 10.7) section.

2.3.2 Undermining IM

Previous research suggests that extrinsic rewards can and do weaken IM, although the results seem to be rather controversial. However, a fairly recent meta-analysis conducted on 128 lab experiments established that all expected tangible rewards that were dependent on task performance; engaging in an activity, completing an activity, or reaching a certain level of performance all reliably undermined IM (Deci, Koestner, & Ryan, 1999, 2001). Although, this seems to be more apparent in school-aged children, compared to college aged participants, due to the reason that adults can make the choice to participate because they are more developed. The current finding is that rewards are detrimental to motivation only if they are perceived as controlling. Rewards can maintain or even facilitate motivation if they are informational and can increase perceived competence, additionally if the reward is not expected and is task-non-contingent it does not decrease IM (Deci, Koestner, & Ryan, 1999).

Similarly, in accordance with the CET, feedback has been found to have parallel results towards motivation as rewards. Feedback statements that are perceived to be controlling undermine IM, while autonomy supportive statements can preserve or even enhance IM (Deci, Koester, & Ryan, 1999).

Investigations have also revealed the following factors are also damaging and can undermine IM; threats, deadlines, directives, pressured evaluations, money, food, good player awards, prizes, surveillance, and imposed goals (Deci & Ryan, 1985), due to an external PLOC. In addition, coaches who show punishment-orientated, ignoring and

autocratic behaviors also tend to have athletes who are less IM (Amorose & Horn, 2000). In any situation where the athlete loses autonomy the IM is likely to decrease.

Ego-involved athletes compared to task involved athletes have been found to have lower levels of IM. Ego-involvement is where an individual feels pressure to accomplish specific goals or outcomes to protect their self-esteem; leading to feelings of being internally controlling and therefore decreasing an athletes' level of IM (Frederick & Ryan, 1995). Ego-orientation and involvement will be explained in more detail in the second section of the literature review.

Finally, there is also the theory of the 'over-justification effect'. This happens in cases where an individual is rewarded for an intrinsically interesting task, which is followed by subsequent task involvement with no reward, and results in a decrease of IM. This is due to the perceptual shift from internal to external. The behavior would have occurred anyway, and the reward merely over-justified the behavior, making the reason external resulting in decreased IM (Treasure, Lemyre, Kuczka, & Standage, 2007). To summarize, most feedback, rewards and/or other communication which are perceived by athletes as controlling or amotivating will decrease the level of IM.

2.3.3 External rewards and gender

As previously stated, some external rewards have been shown to undermine IM. The following section will look at external rewards (mainly scholarships) and their effect on IM

In terms of gender, there seem to be some differences in the way external rewards, such as scholarship affect individuals. Results indicate that males exhibit less self-determined motives for engaging in sport, and higher levels in external regulation compared to females (Fredrick & Ryan, 1995). Similar gender differences were found in a study (Medic et al., 2007) in which it was found that male scholarship athletes reported higher levels of introjected regulation than female non-scholarship athletes, and higher levels of external regulation compared to female scholarship athletes and all non-scholarship athletes.

Overall, it depends how the scholarship (or financial aid) is perceived by the athlete, whether it affects an individual's motivational level.

Controversy in the gender area seems to exist as an additional separate investigation which researched IM, gender, scholarship and coaches behaviors conducted by Amorose and Horn (2000) on 386 Division I college athletes, discovered three main conclusions. First, it was found that scholarship athletes reported higher level of IM than did non-scholarship athletes, second, male athletes reported higher IM than did female athletes, and third, perceived coaching behaviors were related to athlete's IM. The athletes with higher IM perceived their coaches to exhibit a leadership style that emphasized training and instruction, as well as high frequencies of positive and informational feedback from their coaches, which is all in line with the Cognitive Evaluation Theory (CET).

It has been argued that athletic scholarships can have an effect on IM in athletes. Previous research has been controversial with varying results. In 1977 Ryan conducted research and found males reported that scholarships undermine their IM, because they have less enjoyment and more extrinsic motives for participation compared to their non-scholarship teammates. A few years later (Ryan, 1980) male wrestlers, football players, and female athletes were examined to determine the effect of scholarship on their motivational levels. It was discovered that scholarships undermined the football players IM, while IM was not undermined for the male wrestlers or the female athletes. Ryan suggested that football players viewed the scholarship as controlling while the other athletes believed their scholarship to be informational or as an acknowledgment of their personal competence. At the time, females and wrestlers were not receiving scholarships as frequently as football players (Ryan 1977, 1980 as cited in Fredrick & Ryan, 1995), indicating that scholarships may be viewed as controlling for some of the athletic population. More recently in a 2007 study conducted by Medic and colleagues (Medic, Mack, Wilson, & Starkes, 2007) it was found that for non-scholarship athletes the future possibility of obtaining full athletic scholarships resulted in an increase of external regulation, decreased IM to experience stimulation, and decreased IM to accomplish things. While for scholarship athletes, the possibility of removing full athletic scholarships resulted in a decrease of their IM to experience stimulation and decreased IM to accomplish.

On the other hand, Vallerand (2007) states that because of the contextual-ness of scholarships (scholarships remain present for the duration of the athletes career) the individual athletes may begin to feel that they participate in their sport more to justify scholarship rather than for pleasure of sport which can become less intrinsically motivating. The way the individual athlete perceives the external rewards seems to be more important than the actual reward, but due to such diverse results more work needs to be done in the area.

To conclude the first section of the literature review the following table (Table 1) sums up the SDT very concisely and lists the social factors, psychological mediators, types of motivation and the types of responses. The motivation column also provides a visual representation of the SD continuum, from the most autonomous forms of motivation to amotivation.

2.4 The Sequential Pattern of Motivation

Table 1. The sequential pattern of motivation proposed by the SDT (slightly modified)

Social Factors → → → → Psychological → → Motivation → → → → Consequences Mediators			
-Perceptions of choice in exercise environment -Feedback that enhances/thwarts competence(ies) -Perceptions of support (family, friends, spousal) -Origin/ Mastery/ Performance climate	Perceptions of: -Competence -Autonomy -Relatedness	-IM to know -IM stimulation -IM accomplish -Integrated regulation -Identified regulation -Introjected regulation -External Regulation -Amotivation (SDT continuum)	Responses: -Affective -Behavioural -Cognitive

(Deci & Ryan, 1985, 1991; Vallerand, 1997; Vallerand & Losier, 1999)

When researching motivation within the physical activity and sport setting, there seems to be a social cognitive focus, which leads one to Nicholls' Achievement Goal Theory (1984). Fortunately, the AGT and SDT have many overlapping ideas and fit together rather well. According to Roberts (2001), motivation is a social cognitive *process* where one

becomes motivated or amotivated by assessing their competence both in the achievement context and in the context of their own personal meaning. The social cognitive perspective within the sport setting defines achievement as “*the attainment of a personally or socially accepted valued goal in a physical activity context*”. The main idea is that humans are active participants in making decisions and planning their achievement behaviours. Based on this definition, the second part of the literature review will focus on the AGT and the literature that supports it as well as attempting to connect the two theories of SDT and achievement goals.

3 ACHIEVEMENT GOAL THEORY (AGT)

The effect of achievement behaviour in the study of motivation is the investigation of the direction, regulation and energization behind actions (Roberts, 2001). Achievement behaviour is the realization of either a personal or social valued achievement goal that has meaning for a person in the exercise or sport setting (Roberts et al., 2007). These achievement behaviours provide the basis for the AGT. The theory assumes that individuals are intentional, goal directed organisms who operate in rational manners. Decision making behaviours are guided and directed by achievement goals in different achievement contexts and situations. Individual goal orientations lead to differences in personal belief patterns, which help to determine three main factors, an individual's approach and avoidance strategies, their different engagement levels, and their different achievement responses (Nicholls, 1984).

Within the sport setting achievement behaviours can be witnessed when athletes try harder, concentrate more, persist longer, perform better, choose to practice longer, pay more or greater attention and join or drop out of an activity. They are not representations of motivational action, but instead they symbolize the behavioural assessment, which can help to understand motivation or the lack of it (Roberts, Treasure, & Conroy, 2007). Overall, the main driving concept of the AGT is to demonstrate and develop competence. Depending on the concept of ability within the person, these achievement goals and behaviour can differ (Nicholls, 1984). Some individuals hold an undifferentiated concept of ability while others have differentiated ability concepts, these are also known as task (undifferentiated) and ego (differentiated) involvement, and will be discussed in detail in the following section.

Athletes are unique and create their own beliefs and perceptions, which later form their own personal theory of achievement for a specific activity (Nicholls, 1989; Roberts 2001; Roberts et al., 1997). This leads to a reflection of their perception of how things work in achievement situations, and affects their belief of how to be successful and how to avoid failure. This leads an individual to adopt one of the two concepts of ability; task or ego

involvement. Nicholls (1989) argues that individuals differ in their *proneness* to be task or ego involved, this difference stems from the way an individual judges their own competence and defines successful accomplishments (Duda, 2001).

3.1 Types of Achievement Goals: Task and Ego

Overall there is support in the field of sports and exercise psychology that a task orientation (also referred to as mastery) or involvement leads to better consequences. An individual who is task orientated is one who wants to develop mastery, improve and learn. A task orientation is where ability and effort are not differentiated, this can be due to the fact that the individual is not capable, they are a young child, or they simply choose not to differentiate. Ability demonstration in an individual with a task goal is self referenced, and associated with the belief that hard work and cooperation lead to success in sport. As you may notice, the description of task orientation shares similar characteristics with the more autonomous forms of IM, but this link will be discussed in section 4 *Linking Theories*. Roberts and colleagues (2007) suggested that a task orientation is linked with the belief that the purpose of sport is to enhance self esteem, advance good citizenship, foster mastery and cooperation (Duda 1989; Wang & Chian, 2008), encourage a physical activity lifestyle (White et al., 1998) and foster lifetime skills and pro-social values such as social responsibility, cooperation and willingness to follow rules (Roberts & Ommundsen, 1996; Roberts et al., 1996). According to Duda (2001) individuals who are task orientated also seem to exhibit the following characteristics; they attempt to gain skill or knowledge, exhibit effort, perform at their best, and experience personal improvement, which can all lead to feelings of competency and success. Task orientation is specifically relevant to the current study because it has been positively associated with the motivational indicators of IM (Duda, Chi, Newton, Walling, & Catley, 1995; Goudas, Biddle, & Fox 1994, Wang & Chian, 2008) positive affect (Ntoumanis & Biddle, 1999) and sports competence (Wang & Chian, 2008).

It is suggested by Tenenbaum (2007) that a task goal focus appears to increase the probability that an athlete will exhibit maximal performance and high effort, prefer an optimally challenging task, and demonstrate persistence (regardless if the individual

believes that he/she is good at an activity) In addition, the following positive consequences have also been linked with task orientations; lower anxiety: because self-worth is not threatened (Roberts et al., 2001), keeping ones concentration/feeling good about the game (Newton & Duda, 1992), and using effective coping strategies in elite competition (Pensgaard & Roberts, 2003), while in team sports it has been shown to lead a team to believe they are more united (Boon & Duda, 1994; Chi & Lu, 1995). On the other hand, task orientation has been negatively associated with; pre-competitive anxiety (Vealey & Campbell, 1988), cognitive and somatic anxiety (Hall & Kerr, 1997), task irrelevant worries, the tendency to withdraw from an activity (Newton & Duda, 1992), and concerns about mistakes and parental criticisms (Hall & Kerr, 1997; Hall, Kerr, & Mathews, 1998). Overall a task orientation seems to only be of benefit for an athlete.

Surprisingly, an ego goal focus seems to hold the same predictions as task goals as long as the individual is confident in their ability level or their perceived competence. If an individual is high in ego orientation and perceives that they have high ability, they are likely to approach the task and engage in adaptive achievement behaviors. When ego goals are paired with high perceived competence they are facilitative of achievement and can function as a motivating construct. Individuals who have high ego orientations, with high competence seek competitive contests where they can demonstrate superiority, and are very motivated to demonstrate competence over others. If they can demonstrate ability with even less effort than their opponent, they view this as evidence of even higher ability (Nicholls 1984, 1989). In general, task orientated athletes have been known to have decreased cognitive trait anxiety, although if paired with low perceived competence both somatic and cognitive anxiety can increase. Both task orientation and high perceived competence are required to keep anxiety under control (Hall, Kerr & Matthews, 1998).

Consequently, when ego orientated individuals have low perceived competence or ability they may begin to form unrealistic aspirations. This leads individuals to choose tasks that are too easy or too difficult which can result in a lack of effort (low achievement behaviour) when the possibility of failure or the chance of 'looking bad' arise. Nicholls (1989) states that an individual who is ego orientated, tends to be more threatened by the

expectation of looking incompetent rather than by failure to complete a task. Eventually, this can lead to maladaptive behaviours such as regular high anxiety; due to the high concern of social comparison (Roberts, 1986), devaluing, task/challenge avoidance, reducing persistence in the face of difficulty, exerting little effort (Cury & Biddle, 1997), dropping out of sport if goals appear too difficult (Tenenbaum, 1997), and learned helplessness and/or loss of interest in an activity (Duda, 2001). These athletes seem to believe that the avoidance behaviors are adaptive because they disguise a lack of ability. They tend to pick tasks that are too difficult so they have an excuse for failure, or too easy so that they are guaranteed success, resulting in the perseverance of their self-esteem. Ego goals seem to be conceptually linked with external regulation (as discussed in the SDT section) for the reason that individuals are engaged in the behaviour or sport activity for extrinsic reasons such as social comparison and/or to win.

Characteristics of an individual who is ego involved vary greatly from task characteristics, ego traits are more focused on the expression of adequacy, ability and demonstration of superior competence. The ego perspective is based on subjective achievement, normative ability, social comparison in performance, and exerted effort compared with others (Duda & Whitehead, 1998). The main goal for an ego-orientated athlete is to demonstrate their high ability by outperforming others, and these individuals tend to use deception strategies such as cheating, and trying to impress the coach. Individuals high in ego orientation have a tendency to use their goal orientation to provide them with things such as social status, enhancing their popularity (Roberts and Ommundsen, 1996) career mobility, to build a competitive spirit (Duda, 1989) and to teach superiority and deceptive tactics (Duda 1989, 1992). Cury and Sarrazin (1998) also suggested that ego orientated individuals do not show adaptive learning strategies and seem to doubt their ability. Research has discovered many other negative distinctive qualities of ego orientations including; a positive relationship related to state and trait anxiety (Newton & Duda, 1999; Vealey & Campbell, 1988; White & Zellner, 1996), cognitive anxiety in the form of worry (White & Zellner, 1996) getting upset or making a disruption during competition (Newton & Duda, 1999; White & Zellner, 1996).

3.2 Orthogonal

The current idea is that these dispositional goal perspectives, task and ego orientations, should be viewed as orthogonal rather than bipolar. Nicholls (1989) suggested that the two goal orientations are unrelated and different combinations of task and ego orientation can be present in one individual at the same time. Working with Nicholls findings, Duda (1992, 1996) suggested the use of the term *goal orientation* to describe dispositional goal perspectives or “habitual achievement preoccupations with task and ego goals”.

In many studies, athletes are characterized into four main goal profiles: high task high ego, high task low ego, low task low ego, or low task high ego. Within the current study the means of task and ego orientations will be used, instead of classifying athletes into the four categories, due to the similarity of the sample and the tendency of the divers to have very similar motivational profiles. The following paragraphs will briefly discuss goal profile research. Most research has found that high task/high ego athletes tend to have motivation over the long run, due to the fact that they have their strong task orientation to fall back on if their normative competence is ever in danger (Duda, 1988, 1997). Most elite athletes seem to have this kind of profile, they thrive to win but also enjoy learning and reaching their own personal best during each competition. Fox et al. (1994) discovered that young people, who are both high in task and ego orientation, appear to be more motivated in sport. The current study predicts that most divers (especially the highly competitive) will exhibit both high task and high ego levels.

High task/low ego athletes seem to be somewhat insulated from the negative consequences of low perceived ability that often accompanies ego orientation, while athletes who have low task and low ego are the most de-motivated. Low task/low ego, seems to be the most interesting profile, but more research needs to be conducted on this type of athlete, this athlete is usually difficult to find because these are the profiles of individuals who more than likely do not participate in sport. Finally, Low task/high ego athletes seem to be the most problematic and have been associated with higher legitimacy judgments concerning intentional aggressive acts (Kavussanu & Roberts, 1999). Low task/high ego profiles are the most negative when coupled with low perceived ability; these individuals are more

likely to select extremely easy or extremely difficult tasks, spend less time training for upcoming skills tests, and rejected feedback (objective or task) that can facilitate skill development (Cury & Sarrazin, 1998) they also tend to doubt their ability and tend not to show adaptive learning strategies.

3.3 Orientation vs. Involvement in Goal Perspectives

Duda (2001) argues that task and ego goal perspectives can be present at both dispositional and psychological state levels. Task and ego involvement differs from task and ego orientation. Achievement involvement (also known as the goal state) is present at the psychological state level; it is more like a process and allows for changes throughout an activity or sport. Goal involvements change depending upon the athlete's perception of the task (Tenenbaum, et al., 2007), and are a great deal more dynamic than goal orientations. Achievement orientations on the other hand are more global and based on how the athlete typically defines success in his or her sport. Goal orientations are found at the dispositional level, and are based in a self and/or normative referenced way. These orientations are individual differences regarding activity processing, and are assumed to be present in an individual by the age of twelve (Nicholls, 1989). In the present study goal orientations will be studied because it is a broader more stable characteristic within an individual, while goal states are too dependent on specific situations. Furthermore, by studying goal orientations instead of involvements, retrospective measurements can be conducted on the divers who have ceased participation. Goal orientations are much like cognitive schemas, such that they are dynamic and subject to change as information is processed but they do have stability over time.

It is believed that individuals are predisposed to act in a task or ego manner, resulting from socialization through a task or an ego involving context (similar to motivational climate) in the home, or in significant achievement contexts (Nicholls, 1989; Roberts et al., 1997). Motivational climate can also affect an individual's task or ego orientation, and will be discussed briefly in the following section.

3.4 Motivational Climate

In addition to the personal goal orientation of an individual it is thought that the climate of the environment also affects an individual's tendency to act in a task or ego involved manner in the sports setting. Roberts and colleagues (1997) define the motivational climate as,

The nature of an individual's experience influences the degree to which task and ego criteria are perceived as salient in the context. This is then assumed to affect the achievement behaviors, cognition and affective responses through individuals' perception of the behaviors necessary to achieve success (p.7)

Motivational climate has also been explained by Ames (1992) as the goal structure in the achievement context. There are two types; the mastery or task-involving climate where there are structures that support effort, cooperation, and an emphasis on learning and task mastery is encouraged. And secondly, the performance or ego-involving climate where normative conditions, social comparison and inter-personal competition are fostered along with a punitive approach by the teacher/coach for mistakes (Ames, 1992; Newton et al., 2000).

The motivational climate can be either task or ego involved and usually the environment which is promoted by the coach is often integrated into the athlete. A task-involving environmental focus should lead an athlete to develop perceptions of competence and a focus on the learning process. This is due to the self-referenced criteria (effort) that underlies competence judgments and develops feelings of success which leads to a more controllable and readily achievable outcome in comparison to normative-based criteria (winning), and protecting one's ability or ego that is promoted in the ego involving climate (Duda, 2001; Duda & Hall, 2001). The task climate is more conducive to the growth of self-determined forms of motivation, such as intrinsic and identified regulation (Vallerand, 2007). The AGT and SDT appear to overlap, with perceived motivational climate and social environment being very parallel concepts.

Situational and individual variables differ, and both need to be taken into consideration when studying motivation. It is suggested that to enhance motivation one should adopt a mastery climate, although as previously stated ego goals can also lead to positive

motivation. Roberts suggests that a mastery climate is most important when working with children so that they learn to get the most out of physical activity or sport (Roberts 2009, personal contact through lecture). Reinboth and Duda (2006) have also stated that the perceptions of a task-involving climate positively predict an increased satisfaction of the needs for autonomy, competence and relatedness. Although the motivational climate can and does play a role in helping to create goal orientations for individuals, in this specific study it will not be measured when collecting data from the divers. But one should keep in mind that, often the motivational orientation that the athlete adopts is one that is similar to what the coach or significant others create.

3.5 Competitive Level

Previous studies have been conducted using both self-determination and achievement goal frameworks which explore the motivational differences in varied levels of competition. These will be reviewed briefly in the following section.

According to the CET it is predicted that in the elite sports context ego orientation is present, due to the tendency of a characteristic winning focus, and external rewards such as great financial incentives. This results in the promotion of lower levels of self-determination, and consequently lower levels of intrinsic motivation. The SDT suggests elite level athletes in the above situation, will have less self-determined motivation and higher amotivation and introjected regulation when compared with athletes who are practicing sport at lower competitive levels (Deci & Ryan, 1985). Additionally, it is also expected that the athletes who compete in more elevated levels, present higher values for ego orientation (Mallet & Hanrahan, 2004). However, Duda (1998) proposed that most elite athletes (highly competitive) seem to be high in both task and ego orientations due to thriving to win, enjoyment of learning and reaching their own personal best during each competition. Similar results were found in the Carpenter and Yates (1997) soccer study which revealed amateurs scored significantly higher on task orientation than semi-professional plays, while ego-orientation scores were higher for semi-professionals although not significant. There seems to be controversy in the area, as a football study conducted in Portugal (Sarmiento, Catita, & Fonseca, 2008) found no significant

differences in task and ego orientations as a function of competitive level of play, with similar results found in other studies (Etnier *et al.* (2004) as cited in Sarmiento *et al.*, 2008). This is contrary to the CET and the findings of White & Duda (1994) which found that the football players who competed in higher levels were more ego-orientated than those who compete at lower levels. Additionally, another study which measured IM levels in a fitness sample and compared it with bicycle racers, found similar results to the Sarmiento *et al.* (2008) study in that there was no change in IM across competitive level (Frederick-Recascino & Schuster-Smith, 2003). Furthermore, the premise of the CET was also tested within the sports and exercise context by Fortier, Vallerand, Briere & Provencher (1995). In their study, competitive athletes were compared to recreational athletes in terms of motivational style. Results showed that competitive athletes exhibited lower levels of intrinsic motivation and higher levels of identified regulation and amotivation when compared to the recreational athletes. It has also been found in a study conducted by Kavussanu & Roberts (1996) of novice tennis players that a competitive, outcome-oriented tennis environment was found to be detrimental to players' intrinsic motivation. Leading one to the current hypothesis of highly competitive athletes having lower levels of IM compared to the diver's at lower level competition.

Although, it is important to note that it was Duda (2001) who clearly stated that significant associations between task and ego orientations are dependent on factors such as competitive level and cultural variation. Perhaps this provides some insight into the controversial findings of previous studies, in that they may be due to cultural differences.

4 LINKING THEORIES

From an intrinsic interest, autonomy and perceived competence/ability perspective the two theories seem to overlap a significant amount. The first similarity that both theories share is the emphasizing role of social factors as forerunners of achievement related behaviour. In an early study conducted by Ryan and Deci (1985) it was stated that IM and task orientation could predict athletes' sport engagement behaviours. While, Nicholls (1989) connects the AGT with the SDT by arguing that a task (mastery) goal orientation will promote IM. This is due to the fact that IM is evident when people engage in an activity for its own sake and experience something as an end in itself. When an athlete has an emphasis on developing competence, their goals are likely to lead to developments such as hard work, challenge seeking, persistence and task involvement (Nicholls, 1989) which leads to an increase in IM toward the task. Ego (performance) goals, on the other hand, are expected to have a negative relationship with IM because the experience of task engagement is taken as a means to an end. The focus is on demonstrating competence rather than enjoyment of the task, and the task is seen as an end in itself (Nicholls, 1989) resulting in the undermining of IM. Before looking at specific studies which research the links between theories, it should be summarized that; both frameworks suggest IM is thwarted in situations where social comparison dominates, normative comparisons exist, and rewards are contingent on behaviour. While environments which promote choice and self-mastery, offer situations where IM can be nurtured.

Both theories used in the current study are well-known and very popular in the study of motivation, nevertheless there is limited research that tries to discover the empirical and theoretical links of the key constructs within the achievement goal and self determination theories. The following section describes connections and relationships that have been found between the two theories, and provides insight into previous research that has attempted to use the two theories to study this link.

Nicholls and colleagues (1989) consider goal perspectives as the immediate precursor of varied consequences, while Deci and Ryan (2000) suggest that IM and its consequences

are functions of both the environment and individual differences with regard to their need for self-determination and competence aspects of external or internal PLOC. Ryan (1982) compares internal events with goal orientations, and states that contextual factors can promote an internal or external PLOC and affect IM. He states that internal events can be either controlling or informative, and if viewed as controlling it corresponds with ego involvement and self-esteem is threatened. On the other hand, if the event is seen as internally informative it corresponds with task involvement, and can lead to increases in IM. This is consistent with the CET, and can be used as self-feedback for an individual.

Additionally, Ntoumanis (2001) used regression analysis to show that task orientation predicted motivational variables with high self-determination, while ego orientation predicted motivational variables with low self-determination in a sample of 247 British university students. There was also a significant interaction that emerged between task and ego orientations in predicting external regulation. Results suggest that in sport, task orientation can play an adaptive role in facilitating self-determined motivation.

As stated previously, SDT is based on the idea that the factors which help to facilitate the three basic needs (autonomy, competence and relatedness) will promote self-determined types of motivation. Trying to link the two theories Ntoumanis (2001) argues that high task orientation can fulfill one or more of these needs, and therefore it can increase self-determined motivation. This is because individuals who are task involved have motivation from intrinsic properties and not from expected outcomes. Duda (1992) argues that it can also foster feelings of competence, since individuals with high task orientation are less likely to feel incompetent in sport compared to those high in ego orientation. These high task orientated individuals use self-referenced criteria to judge their competence, which is more controllable and more achievable. In addition, other researchers (Ryan, 1982; Brunel, 1999) have also stated task orientation facilitates the autonomy of behaviour.

Ego orientated individuals on the other hand, base their competence on normative criteria, which is out of one's control and not autonomous. When high ego orientation is paired with low perceived competence, it does not contribute to the satisfaction of the needs

(Brunel, 1999). Literature suggests that the controlling aspects of ego orientation undermines autonomy and fosters an external locus of causality. Individuals with high ego orientation tend to be more concerned with the expected outcomes (social approval, rewards, winning) of an activity rather than in the activity itself (Nicholls, 1989), this controls their behavior. In these situations athletes are less likely to find personal satisfaction in the intrinsic aspects of an activity and in the process of task mastery. Hence, ego orientation is more likely to relate to controlling rather than self-determined types of motivation. Support for this argument has been reported by Brunel (1999) who stated that ego orientation was positively related to introjected regulation and external regulation in 160 French undergraduate students who were enrolled on a badminton course. Moreover, in the early 80's Ryan (1982) showed that ego involvement undermined intrinsic interest in hidden-figures puzzles. Although it has been argued that athletes with high ego orientation and high perceived competence can be self-determined, due to the reason that sport achievement can satisfy the need for competence (Ntoumanis, 2001). Nevertheless, the creators of the SDT believe that high perceived competence will only lead to self-determined types of motivation when autonomy is present (Deci & Ryan, 1985).

It has also been shown by Duda and colleagues (1995) that intrinsic interest and effort in sport were positively related to task orientation and negatively related or unrelated to ego orientation in two samples of undergraduate students. Vlachopoulos and Biddle (1996) and Dorobantu and Biddle (1997) studied British and Romanian physical education contexts, and reported that the students who were the most intrinsically motivated were those with high task orientation irrespective of their ego orientation. Similar results were also found in other studies, where task orientations predicted orientations through IM and identification, while ego orientation predicted through perceived competence and the four types of regulation of the SDT (Biddle et al., 1998). Although, in a later study, Newton and Duda (1999) examined potential interactions between goal orientations, motivational climates and perceptions of competence in a sample of junior female volleyball players and found no significant interactions. Although results did find that enjoyment or interest in volleyball was positively predicted by a task-promoting motivational climate and perceived competence and negatively predicted by ego orientation. Finally more recently,

Ferrer-Caja and Weiss (2000) tested a model where task and ego goal orientations influenced intrinsic motivation through the mediation of perceived competence and autonomy in a sample of high school PE students. Results found strong positive direct paths that linked task orientation to intrinsic motivation and small direct negative paths that linked ego orientation with intrinsic motivation. Task orientation was also found to have very small indirect paths through perceived competence and self-determination.

Standage, Duda and Ntoumanis (2003) state in their study that both AGT and SDT frameworks speculate that IM is disillusioned in environments where social and normative comparison exist and rewards are contingent on performance outcomes. Both theories suggest that environments in which choice and self-mastery are promoted will result in situations where IM is fostered. Results of previous studies seem to suggest that there are consistent associations between a mastery climate and IM that has become known within the literature (Cury et al., 1996; Goudas and Biddle, 1994).

4.1 Links found between TEOSQ and SMS

Limited research has been conducted in sport (especially at the elite level) which examines the links between the AGT and the SDT using the TEOSQ and SMS as measurement tools. McNeill and Wang's (2005) conducted a study on psychological profiles in elite school sports in Singapore and found that task orientation was moderately correlated with intrinsic motivation, identified regulation and mastery. Similarly, the Ntoumanis (2001) study used regression analysis and found that task orientation positively predicted all three types of intrinsic motivation as well as identified regulation, although it did not predict introjected or external regulation. Ntoumanis (2001) explains this is because task orientation represents an adaptive achievement orientation that guides individuals to set controllable and achievable goals. The task goals encourage individuals to stay motivated and committed in sport.

On the other hand, ego orientations were linked to external regulation in both previous studies (Ntoumanis 2001; McNeill & Wang, 2005). Specifically in the Ntoumanis (2001) found that ego orientation positively predicted introjected regulation and external

regulation. Ego orientation did not predict the more autonomous forms of motivation with the only exception of ego orientation positively predicted intrinsic motivation to experience stimulation. The researcher explained that this was unexpected and may be due to the chance that athletes who have high ego orientation will report positive sensations and excitement when they are able to meet their standard for success (i.e. to win or outperform). Ego orientation did not predict amotivation; ego orientation motivates individuals to strive and achieve certain comparative goals, while amotivation is the lack of any motivation. The current study, is expecting similar results, with the more autonomous forms of motivations to be linked with task orientation and the more controlled and external types of motivation to be link with ego orientation, hopefully contributing to the bridging of the link between the achievement goal and self-determination theories.

5 LITERATURE REVIEW CONCLUSIONS

To conclude, IM has many positive benefits and seems to be linked with task orientation. The more autonomously motivated, and task orientated the individual is the more they should enjoy their sport. This has been previously suggested and studied in other sports (McNeill & Wang, 2005; Ntoumanis, 2001) but never in the sport of diving, for this reason the current study explored motivation in diving. External factors (rewards, feedback, pressure etc.) if perceived as controlling can be detrimental to IM. Furthermore, research has shown that individuals drop out of their sport for varied reasons; lack of motivation (Pelletier et al., 1995), as well as an ego oriented climate, or reduced perception of the satisfaction of the three needs (Sarrazin et al., 2002). Although, there seems to be a lack of studies that compare motivational levels of current and former athletes within the same sport, therefore the current study attempts to fill this void. Competitive level differences have also been previously researched (Deci & Ryan, 1985; Duda, 1998; Carpenter & Yates, 1997; Mallet & Hanrahan, 2004) but results have been varied between different sports, consequently differences in competitive level within the sport of diving will be investigated.

6 THE SPORT OF DIVING

Diving is an individual sport, except in the case of synchronized diving. The sport consists of performing acrobatic movements from either a springboard (which moves), or a platform (which remains still) into water. It is an internationally recognized sport that has been part of the Olympic Games since 1904 for men and 1912 for women (Wikipedia.com), and can take place both indoors and outdoors. There are internationally recommended standards for diving facilities such as a minimum required pool depth, height of diving boards, and placement of boards in regards to sun positioning (outdoor pools).

6.1 Training/Characteristics

Divers should possess the characteristics of strength, flexibility, total body control, gracefulness, kinesthetic judgment, air and visual awareness, and generally need to be in good physical shape. They tend to have both water and dry-land training sessions as part of their training regime. Dry-land training can consist of many different types of exercises and is dependent on the training facility and team, often a dry-board (a diving board set up over soft landing mats) is used for training, either with or without a support belt (a harness tied at the waist attached to a rope with a pulley system-controlled by another individual, or attached to sturdy bars with more elastic-type ropes) as well as a trampoline. Many additional dry-land training devices are often present (handstand aids, medicine balls, elastic training bands, and other gymnastic type devices) and this varies from team to team. Often divers will also participate in weight training a few times a week and take other classes such as ballet or yoga to help with balance, flexibility and strength. Water training is the actual 'diving' experience and usually includes flipping and/or twisting off a springboard or platform into the water into a head first position. Training is considerably repetitive as the diver usually has a certain number of specific dives in his/her competitive list which they practice at each session, therefore the same dives are often done hundreds of times weekly, to try and attempt to obtain the perfect execution.

6.2 Competition

In amateur diving athletes compete against members of their own sex. There are both junior and senior competitions; juniors are divided into various age categories, while senior competitions are open to all age groups, as long as a certain point standard is reached. As a rule, divers perform a list of dives which can include easier dives called compulsories (junior and synchronized divers) or more difficult dives called optionals. Divers who compete in events which include compulsory dives must comply with a limit of combined degree of difficulty and cover all groups of dives: forward, backward, hand stand (in platform events only), twister, reverse and inward. Optional dive programs must also cover all groups, but are not limited by degree of difficulty. According to the standards (depending on country and competition established requirements) a set number of dives, including somersaults and twists in various directions and from different starting positions are required. Divers are judged on whether and how well they completed all aspects of the dive, the conformance of their body to the requirements of the nominated dive, and the amount of splash created by their entry to the water. Theoretically, a score out of ten is supposed to be broken down into three points for the takeoff, three for the flight, and three for the entry, with one more available to give the judges flexibility. The raw score is multiplied by a difficulty factor, derived from the number and combination of movements attempted. The diver with the highest total score after a sequence of dives is declared the winner.

6.3 Springboard diving

More athletes seem to practice and compete in springboard diving (while platform is the more popular spectator event) this is often due to facilities, as there seems to be a limited amount of pools with platforms. The springboard is made out a *duraflex* material that bends, and the diver uses the bending properties of the board to gain height, somewhat similar to a trampoline. This is the type of diving board often found in a backyard pool. In competitive springboard diving there are only two different springboard events; the 1 meter and the 3 meter. The Olympics only has the 3m event, and the 1m event is only included in some international competitions, for example 1m is included in World Championships every second year, and not during an Olympic year.

6.4 Platform

There are three platform heights; 5m, 7.5m, and 10m. In major diving competitions, including most senior international meets diving is from the 10 meter height only. The platform is a stable surface that does not move, and can be made out of a variety of solid materials. Ex-Gymnasts seem to do well in this event, as it is very similar to floor events. A solid base of springboard diving is recommended before attempting platform diving, due to the height and impact factors.

6.5 Synchronized Diving

Synchronized diving is new in the world of diving and was adopted as an Olympic sport in the year 2000. The synchronized team consists of two divers and the goal is to attempt to perform dives simultaneously, and can be on springboard or platform. Usually the divers are each performing the same dive, although there are cases where the dives may be opposites, in what is called a pinwheel. In this event, the diving is judged both on the quality of execution and the synchronicity. Synchronized diving seems to draw the most spectators, out of all the events.

More specific information about the technical aspects of the sport of diving can be found in Appendix 14.

6.6 The Psychological Aspects of Diving

Diving is thrilling and somewhat dangerous. It is also a judged self-paced individual sport and is dissimilar to other sports in such that there is no direct opponent who the athlete is in contact with during their performance.

In a competition the diver has to do five (females) or six (males) dives during their event. The amount of time varies between each dive and is dependent on the number of divers who are in the competition; this means that the diving competition can last anywhere from 30 minutes to an upwards of 4 hours. For this reason the skills of anxiety and emotional regulation (to increase/decrease), as well as relaxation and pump up strategies are useful for divers during competition. They need to be aroused when they are about to perform and then have the ability to conserve their emotional energy during the down-times (time

between dives). The span of the competition can usually range from a few hours, days or up to a week; this includes the preliminary round, followed by the semi-finals and then the final round. One of the most important skills a diver can possess is resiliency, because if a mistake is made during a competition the diver needs to stay focused and move on to the next dive in their competitive list if they want to do well and not dwell on the mistake.

There is also a need for intrinsic motivation for the actual enjoyment of the sport. Practicing the sport tends to be very repetitive and does not reap very many external benefits which are often found in other sports. Divers need to like the sport in order to have the ability and motivation to do the same dives day in and day out.

Mental imagery is also a good skill to possess and divers often use it as a training tool in situations when training time or space is limited. It is also useful for practicing 'scary' or new dives before actually attempting them for the first time. This skill is often also used in competition during the down-times between dives.

Mental toughness is also an important skill to have in diving, one needs to be determined and understand the diving is 90 % mental. Self-confidence is also a good skill to have; both for one's own ability and one's physical appearance due to the requirement of wearing a bathing suit, to participate in the sport. Risk taking behavior along with self-confidence is also a preferred quality to have because many dives require that the diver is close to the diving board or platform, but not too close which makes it a very precise skill to master, but also takes confidence to attempt.

Physically training is demanding, and especially with platform divers the amount of times the impact occurs from 10m has to be closely monitored. Often divers limit their 10m training to one or two times per week. This is because the diver hits the water travelling at about 30 miles or 48 kilometers per hour (Kimball, 1999). Platform divers need to be strong, and have the ability to hold their arms tightly together above their head on impact with the water so they do not collapse. Strength is a good quality to have but courage, determination and desire are also important. In springboard and platform diving, the

takeoff methods and landing impacts are different, but once in the air the feelings and movements are done in the same ways. Thoughts of landing wrong, heights and being too close to the platform/board are all usual fears of divers, which allows them to have a respect for their sport.

Other psychological skills are also required for divers but these are dependent on competitive level, training background and individual differences. A main skill required for competitors is psychological monitoring both before and during performance. In instances where divers need to be paraded out before a final, or dealing with a loud crowd the diver needs to be able to have control over their thoughts and emotions to be able to perform to their best ability, even under pressure situations. Psychology plays a large role in the sport of diving, and for this reason divers were chosen as participants for the current study.

7 PURPOSE AND HYPOTHESES

As previously stated, there are currently no studies conducted in the sport of diving on motivation. For this reason the primary aim of the present study was to explore motivational profiles in current and former springboard and platform divers. Secondary aims include exploring the relationship between competitive level with autonomous motives and goal orientations, and third to discover if divers who have ceased participation, did so due to a lack of intrinsic motivation. Additional goals of the study included examining the relationship between the AGT and the SDT, and adapting the TEOSQ (Duda & Nicholls, 1992) and the SMS (Pelletier et al., 1995) to diving. Gender differences will also be taken into account, when exploring motivation in the diving sample.

The specific aims of the study were:

7.1 To describe motivational profiles in current and former springboard and platform divers, using the motivational indicators from the AGT (Task orientation and Ego orientation) and the SDT (IM to know, IM to accomplish, IM to experience stimulation, Identified Regulation, Introjected Regulation, External Regulation, Amotivation).

7.1.1 Based on results from previous studies (Wang & Biddle, 2001; Wang & Chian, 2008), the current study assumes that there will be some variation in achievement goal orientation and autonomous motives in divers, but it is predicted that the majority of divers will be high in autonomous motives and task orientation due to the nature of the diving experience.

7.2 To study if divers in the sample have ceased participation due to a lack of IM.

7.2.1 Sarrazin et al. (2002) studied a motivational model of sport dropout that incorporated both the self-determination and achievement goal theories. Results indicated that a motivational climate where task mastery was promoted increased the athletes' perceptions of competence, autonomy and relatedness while a "winning at all costs" and normative comparison climate (ego orientated) reduced the athletes' perception of satisfaction for the three basic psychological needs. These athletes felt

externally controlled, incompetent and unrelated to others which eventually undermined self-determined motivation and lead to the intention of ending participation, and/or eventually dropout. For these reasons, it was hypothesized that the divers who have ceased participation have done so because they were lacking in the more autonomous forms of motivation (IM and identified regulation), if it was not because of injury. I believe that if a diver is not autonomous towards their reasons for participation or otherwise has low motivation, they really have no other reason to pursue the sport, regardless of competitive level. Divers tend to dive because they really enjoy it and if they do not they will drop out.

7.3 To study the differences between competitive levels in the sport of diving for autonomous motives and goal orientations.

7.3.1 Based on the current research conducted in other sports (Deci & Ryan, 1985; Duda, 1998; Carpenter & Yates, 1997; Mallet & Hanrahan, 2004) it is hypothesized that the divers who are at lower levels of competition will have higher levels of the self-determined forms of motivation (IM and Identified) and task orientation, and have low levels of ego orientation. As the competitive level increases the divers will still have autonomous motives, but not necessarily as high as the beginners/lower level competitors. It is assumed that the highest level competitors (Olympic and Elite) will be high in both task and ego orientation, and be more externally motivated (introjection and external regulation).

7.4 To examine the relationships between the nine motivational variables (IM to know, IM to accomplish, IM to experience stimulation, Identified Regulation, Introjected Regulation, External Regulation, Amotivation, Task orientation and Ego orientation). More specifically, to try and discover relationships between the ego orientation and the less-autonomous forms of motivation (amotivation, external regulation, and introjected regulation) and task orientation and the autonomous motives (the three types of IM, and introjected regulation).

7.4.1 Based on previous work (Brunnel, 1999; Dorobantu & Biddle, 1997; Duda et al., 1995; McNeill & Wang, 2005; Ferrer-Caja & Weiss, 2000) the hypothesis is that there will be a strong positive significant relationship between task orientation and all of the three types of IM. It is also proposed that there will be a relationship between

task orientation and identified regulation, as well as ego orientation and external regulation.

7.5 To adapt the TEOSQ (Duda & Nicholls, 1992) and the SMS (Pelletier et al., 1995) to fit the diving population, and to check internal reliability of the 'diving versions' using α of Cronbach.

7.5.1 It is hypothesized that the internal reliability will remain high due to the language used (English) and the nature and validity of the scale, even with small adaptations made.

8 METHODS

8.1 Participants

The questionnaire was completed by 639 (229 males, 410 females) current (n=375; 216 females, 146 males) and former (n=264; 194 females, 83 males) divers representing 31 different countries. Initially the sample consisted of 641 participants, however two individuals appeared to be scuba divers consequently they were excluded from the study. The divers ranged in competitive background from recreational to Olympic level and were coded into the following seven groups ranked from highest to lowest level; Olympic (n=10), Elite (n=44), Semi-Elite (n=28), Highly Competitive (n=85), Competitive (n=160), Medium Competitive (n=137), and Low Level Competitive (n=175). The age of the participants ranged from 13 to 68 years of age, with a mean age of 21.45 ± 6.2 years. Current divers had a mean age of 18 ± 3.4 years and have been diving for an average of 6.6 ± 4 years, while former divers were on average 23.6 ± 7.5 years old and dove for an average of 8.5 ± 5.24 years. Former divers ceased participation at a mean age of 19.8 ± 3.7 years citing reasons of injury (n=59) or other (n=205). On average the sample spent 14.2 ± 13.8 hours per week of water training, and 6.9 ± 5.4 hours of dry-land training.

8.2 Data Collection

Social networking, diving websites and emailing were used to inform current and former divers of the study. The link to the questionnaire was delivered predominantly via the social networking utility *facebook*. The following *facebook* group administrators were contacted and requested to send out a *facebook* message that would send an email to all of their group members; “World Diving”, “I can’t I have diving”, “Diving is much better than swimming” and “For the last time...I’m not a swimmer, I’m a diver”. The survey contained a question which asked participants if they belonged to a facebook diving group and 94.4% (n=603) responded yes. An additional email with a link to the survey was sent out to the following diving federations; *Diving Australia*, *Diving Canada*, *LEN Diving* (European), and *USA Diving*. The link was also posted on the following website’s bulletin boards; *flipnrip.com* and *divingtube.com*.

The mysurvs.com internet site was used to collect all the data, this service was chosen because it allowed an unlimited amount of responses and had a setting that limited one survey per computer, this controlled for duplicate answers from the same participant in the case that they belonged to more than one *facebook* group.

Before taking part in the survey the divers were taken to an informational page (Appendix 1) which provided detailed information about the study, and my contact information along with the thesis supervisors' in the case that participants had further questions. Informed consent was collected by having participants click on a "start" button, this indicated that the participant was agreeing to the following terms; their participation was completely voluntary, they were granting their consent to participate in the survey and they were agreeing that they were at least 13 years of age. The age of 13 was used because a certain cognitive level of understanding is required to be able to answer questions, and according to Nicholls (1984) it is at this age that goal orientations are already present and rather stable within an individual. Participants were also informed that they could withdraw at any point of the questionnaire and that participation was completely voluntary.

Currently there is limited research that is done using online collection methods in the field of sports psychology. There is one other exploratory (Beaudoin, 2006) study that was conducted online that looked at sport motivation and relationships among competitive orientations and age. A main aim of the Beaudoin study was to examine the feasibility of conducting sport and exercise psychology research through the Internet. Results lead the researcher to suggest, "Sport and exercise psychologists are encouraged to consider the opportunities of Internet research". For this reason the current study collected data via online methods. Limitations to online collection are addressed in the discussion section (10.6).

8.3 Design and Procedure

The research design was exploratory, with self-report questionnaires being used to assess psychological variables for motivational states and achievement goal orientations. A cross-sectional design was implemented for data collection, using the online software program

mysurvs.com as the collection instrument, with the link being active for a period of one month (October 15th, 2008- November 15th, 2008). Respondents were informed that the questionnaire measured motivational states in divers. Additionally, it was also explained that there were no right or wrong answers, and that the survey would take about 20 minutes to complete. Three respondent questions were collected before the participant began to answer the official questionnaire, these included location, gender and age. All respondents answered 13 background questions and the divers no longer participating in the sport answered an additional three questions to explain why they have ceased participation. At the end of the questionnaire an opportunity to provide any additional information was also provided for each respondent.

Due to some technical inconveniences and/or misunderstanding, certain respondents skipped or miss-answered one of the questions in the study, in these cases the respondent was excluded from the relevant question. This will be further explained in the data analysis section.

8.4 Pilot Tests and Adapting Scales

Both the TEOSQ and SMS were modified and adapted to fit the diving population. In instances where the word *sport* was used, it was changed to *diving* (e.g., “I am the only one who can do the play or skill” was changed to “I am the only one who can do a certain dive or skill”). If the word *diving* did not fit a direct replacement, the question was then modified to suit the sport of diving, while attempting to keep the question as close to the original as possible. The originals (Appendixes 3 & 4) and the diving versions (Appendixes 2.1 & 2.2) can be found in the appendices.

The diving versions of the scales were pilot tested on a retired diver to check that the scales made sense to someone in the sport. The students and teachers of the University of Jyväskylä SEPPRO program 2007 also took part in pilot testing the scales and the mysurvs.com software program. Feedback was given, and the required minor changes were made.

8.5 Measures

8.5.1 The Sport Motivation Scale, SMS

The 28-item Sport Motivation Scale (SMS) developed by Pelletier, Fortier, Vallerand, Tuson, Briere, and Blais (1995) was used to measure the sources of diver's motivation. As explained in the 'Pilot Tests and Adapting Scales' section the SMS was adapted to fit the diving population. The SMS is based on the self-determination continuum and consists of seven sub-scales which are designed to measure various sources of motivation, ranging from intrinsic to amotivation. Each subscale includes four items, resulting in a total of 28 items, each of which is rated on a 7-point Likert-type scale. Divers were asked to indicate the extent to which the items corresponded to his or her reasons for participating in diving. (e.g. "Why do you participate in diving? For the pleasure it gives me to know more about diving"; 1 = does not correspond at all to 7 = corresponds exactly). Each subscale of the SMS measures various sources of intrinsic and extrinsic motivation in sport as well as amotivation. There are three intrinsic motivation subscales, which all measuring the most autonomous form of self-determination: (a) motivation to know (e.g. "for the pleasure of discovering new training techniques"), (b) to accomplish (e.g., "for the pleasure I feel while executing certain difficult movements"), and (c) to experience stimulation (e.g., "the pleasure I feel in living exciting experiences"). Also included are three extrinsic motivation subscales: (a) identified (e.g., "because, in my opinion, it is one of the best ways to meet people"), (b) introjected (e.g., "because it is absolutely necessary to dive if one wants to be in shape"), and (c) external regulation (e.g., "for the prestige of being an athlete"). The final subscale in the SMS measures amotivation (e.g., "I used to have good reasons for participating in diving, but now I am asking myself if I should continue"). Each subscale contains four items and has a score range of 4 to 28. The SMS has been shown to have strong psychometric properties (Pelletier et al., 1995). In the current study, principal axis factor analysis using the Direct Oblimin method (Appendix 10), for the diving SMS revealed 7 components extracted from the data. Cronbach's alpha revealed high internal consistency with the following values; .81 IM to know, .78 IM to accomplish, .75 IM to experience stimulation, .74 Identified Regulation, .67 Introjected Regulation, .71 External Regulation and .84 Amotivation.

8.5.2 The Task and Ego Orientation in Sport Questionnaire, TEOSQ

The 13 item Task and Ego Orientation in Sport Questionnaire, TEOSQ, created by Duda & Nicholls (1992) was used to measure dispositional goal orientations in the current and former divers, by asking the divers about the criteria that makes them successful in the diving situation. This questionnaire is unique because it focuses on a given situation or context rather than just noting an individual's general definition of competence.

Respondents were stemmed with, "I feel most successful in diving when...." and then required to respond on a 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree) for each question assessing task orientation (e.g., "...I learn something that is fun to do") and ego orientation (e.g., "...I score the most points"). Similarly to the SMS, the TEOSQ was adapted to fit the diving population, in instances where the questions did not fit to the sport of diving. Both original (Appendix 3) and the diving version (Appendix 2.2) can be found in the appendix section. According to Duda and Whitehead (1998) the TEOSQ has met the conceptual criteria of orthogonal achievement goals in sport.

In the current study principal axis component factor analysis, using the Direct Oblimin method, for the diving TEOSQ revealed 2 components extracted from the data (Appendix 11). Cronbach alphas revealed high internal consistency .80 and .85 for task and ego orientations respectively.

8.6 Data analysis

SPSS 15.0 was used for the statistical analysis. The reliability of the factors was examined with α of Cronbach for each different factor, and principal axis factoring using Direct Oblimin rotation was used to reveal components within the two modified scales. Independent T-test were used to compare means between divers participating and divers who ceased participation, and to check for gender differences, while a one way ANOVA was used to test for differences in competitive level. A two way ANOVA was used test for differences in competitive level and gender for each motivational variable. Finally,

correlations were calculated using Pearson product moment correlation to discover connections between the two theories of SDT and AGT.

8.7 Systematic Literature Search

The following databases were used: SportDiscuss, Ebscohost, Nelli, JYKDOT, Spolit, PsychArticles, Google scholar, PubMed, ISI Web of Knowledge

Keywords: Intrinsic Motivation, Self-Determination Theory, Achievement Goal Theory, Sport Motivation Scale, Task and Ego Orientation Questionnaire, Diving, External regulation in elite sport, Motivation in elite sport, Amotivation in sport, TEOSQ, SMS

9 RESULTS

When analyzing the motivational variables the three types of IM were all treated as individual sub-scales. Many studies choose to combine the three IM subscales to create one scale for a global score of IM, in order to reduce data or to measure relative autonomy. In the current study the subscales will be reported as separate variables so that IM levels can be examined more specifically in the divers that have ceased participation.

The following table (Table 2) includes mean-values and percentages of the competitive event and competitive level background questions asked in the questionnaire for current and former divers.

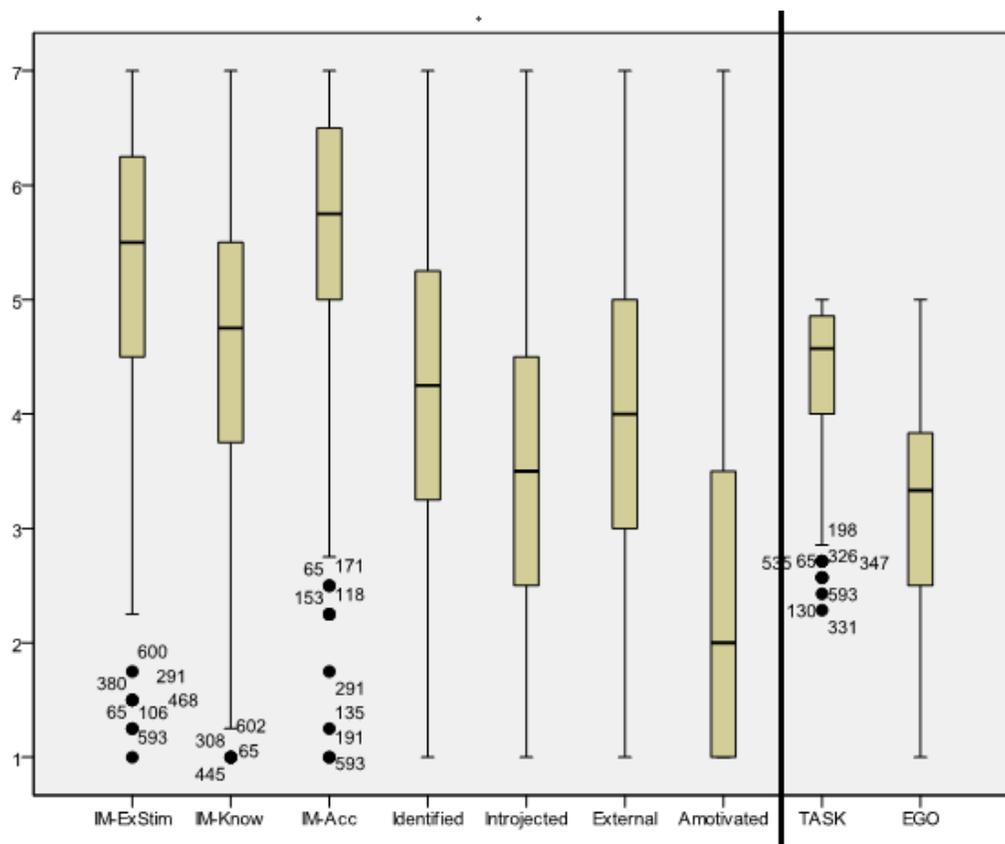
Table 2 Sample by Event and Competitive Level for Current or Former Divers

	Currently Diving		Ceased Participation		Total	
	N	%	N	%	N	%
Event						
Springboard	242	67	168	61	410	64
Platform	3	1	3	1	6	1
Both	117	32	106	38	223	35
Competitive Level						
Olympic	2	1	8	3	10	2
Elite	20	6	24	9	44	7
Semi-Elite	11	3	17	6	28	4
Highly Competitive	41	11	44	16	85	13
Competitive	96	27	64	23	160	25
Medium Competitive	75	21	62	22	137	21
Local	117	32	58	21	175	27

9.1 The Motivational Profile

The first research aim was to discover motivational profiles within the sample by using the SMS, TEOSQ and other responses provided by the divers. Means and standard deviations were calculated for each dependent variable (e.g., subscales of the SMS and TEOSQ) and are presented in table 3, with box plots for each variable found in graph 1. The motivational profile of the diver seems to be highly motivated. In general, the profile of the divers in the sample reported having higher task (mean= 4.39, \pm .55) than ego orientation (mean = 3.20, \pm .99). In addition, these athletes reported higher levels of IM than any other type of motivation (IM to accomplish was the highest with mean =5.62, \pm 1.1 followed by IM to experience stimulation mean = 5.36, \pm 1.15 and IM to know mean =4.59, \pm 1.23) and were very low in Amotivation (mean = 2.46, \pm 1.5). The divers had very high task orientation, with a mean of 4.39 on a 1 to 5 scale, and moderately high ego orientation of 3.2 on the same scale. The remaining research results will also aid to support and explain the profiles in a more thorough manner.

Graph 1. Box plots for each motivational variable, for the whole sample (n=639)



Note. Variables in the SMS were measured on a 7 point Likert type scale, while the TEOSQ variables were measured on a 5 point scale. Task and Ego are separated with a line and located on the right side of the graph.

Independent sample t-tests were conducted to check for gender differences for each motivational variable, with result in the following table (Table 3). Results reveal differences between genders, with moderate significant differences for two out of the three IM variables (IM to experience stimulation and IM to know) and highly significant differences for amotivation. Males had higher means of IM to know and IM to experience stimulation while females were higher in amotivation.

Table 3. Descriptive statistics and independent t-tests for motivational variables (whole sample)

Variables	Female		Male		Totals		t	P
	M	SD	M	SD	M	SD		
IM:ES	5.23	1.16	5.47	1.12	5.36	1.15	2.00	.046*
IM:K	4.5	1.27	4.75	1.32	4.59	1.29	2.37	.018*
IM:ACC	5.57	1.08	5.7	1.13	5.62	1.10	1.43	.152
IDENT.	4.19	1.31	4.20	1.41	4.20	1.34	.068	.946
INTRO.	3.54	1.33	3.54	1.36	3.54	1.34	.017	.987
EX.	3.95	1.32	3.93	1.34	3.94	1.32	-.152	.879
AMOT	2.65	1.57	2.12	1.32	2.46	1.50	-4.56	.000**
Task*	4.39	.55	4.35	.55	4.39	.55	-1.16	.249
Ego*	3.23	1.00	3.15	.97	3.20	1.15	-.93	.348

Note. Task and Ego variables were measured on a 5 point Likert type scale, while all others were measured on a 5 point Likert type scale. *IM:ES*; IM to experience stimulation, *IM:K*; IM to know, *IM: ACC*; IM to accomplish, *IDENT*; Identified regulation, *INTRO*; Introjected regulation, *EX*; External Regulation, *AMOT*; Amotivation.

9.1.1 Example Profiles

To gain a better understanding of the results, a randomly selected motivational profile of a male high level (Olympic) diver who has ceased participation along with a low level, female diver who is still participating will be presented in the following section. Hopefully this will help one to understand the data, the nature of the questionnaire, and to gain a better understanding that the differences in motivation across ‘types’ of divers (competitive level, amount of training time, participating vs. not participating, gender, experience, nationality, age, etc.) is limited.

Respondent 37:

The following is profile from a former diver in the sample (respondent 37) this diver is a 25 year old male who has competed at the Olympic level representing his home country. He started diving at the age of 5 and ended his career at the age of 25 due to injury. He competed in both springboard and platform diving, and spent an average of 25 hours per

week training in the water, and 18 hours on dry-land conditioning. This diver has never received any financial aid for his diving, and is a member of a facebook diving group.

When asked to “*Briefly explain your own best achievement in the sport of diving (for example: gold medal at ____, personal best score, qualifying for____ blank etc.)*”

Respondent 37 answered, “There are two: Qualifying for the Olympic Games, Winning Junior Nationals (Group B age group) on all three boards”.

The final question of the survey explained that the survey was now finished and space was provided to fill in any other information or comments. The following is how Respondent 37 responded:

My main motivating factor was definitely to be able to influence people through being a well rounded individual. I've always strived to be a role model for young people...especially in my country. Being from a small island where opportunity is limited, it's nice for them to see someone excelling in a sport that is not practiced on the island. I think I felt most successful when, not only was I diving well, but my school life was intact, my social life was good and, mentally, I was sound. Athletes, more than a lot of us realize, have the opportunity to shape social change and mold young minds. One doesn't have to be the Olympic champion to do so but one has to be the best athlete that he or she can be while continuing to maintain a healthy set of values. In short, all of us are role models...and isn't that one of the most rewarding motivational factors out there? I think so. :)

Respondent 150

This second example profile is of a 17 year old female diver who is currently still diving, and is at the lowest level of competition, she started diving at the age of 14 and has now been diving for 3 years. Respondent 150 is an American and trains about 7.5 hours in the water and 5 hours doing dry-land training per week. She has never received any sort of financial aid for her diving, and is also a member of a facebook diving group.

When asked “*Briefly explain your own best achievement in the sport of diving (for example: gold medal at ____, personal best score, qualifying for____ blank etc.)*”

Respondent 37 answered, “best score 220 on 1m as of last year I haven't had any meets since then”

When asked about training alone: “*Briefly explain the circumstances and the time you spent training alone (e.g. how long)*” the diver replied,

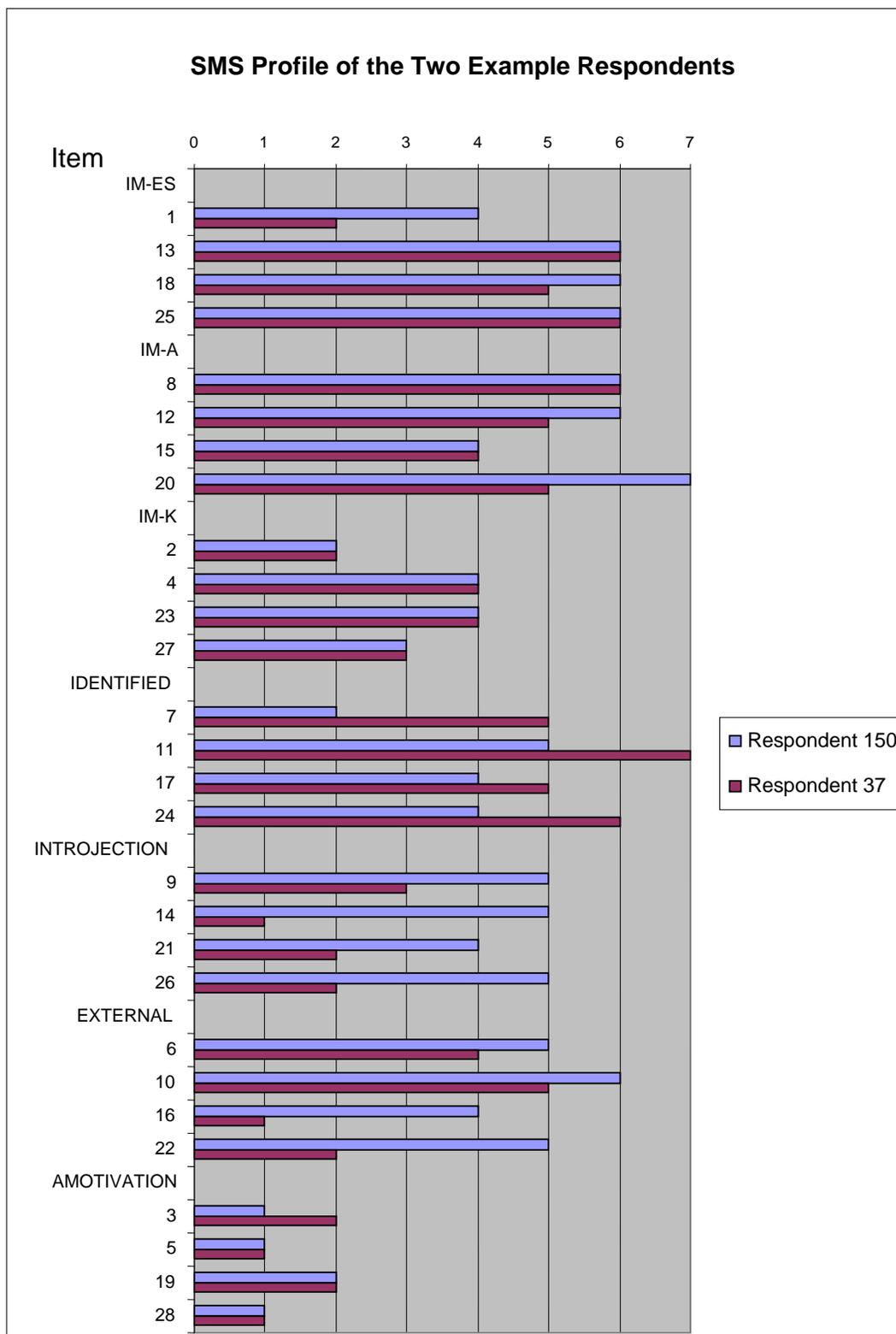
“I have a trampoline in my back yard so I practice skills on it, plus a weight set in my basement for training leg strength, as well as pike ups and other such exercises”.

For the last open ended question she replied:

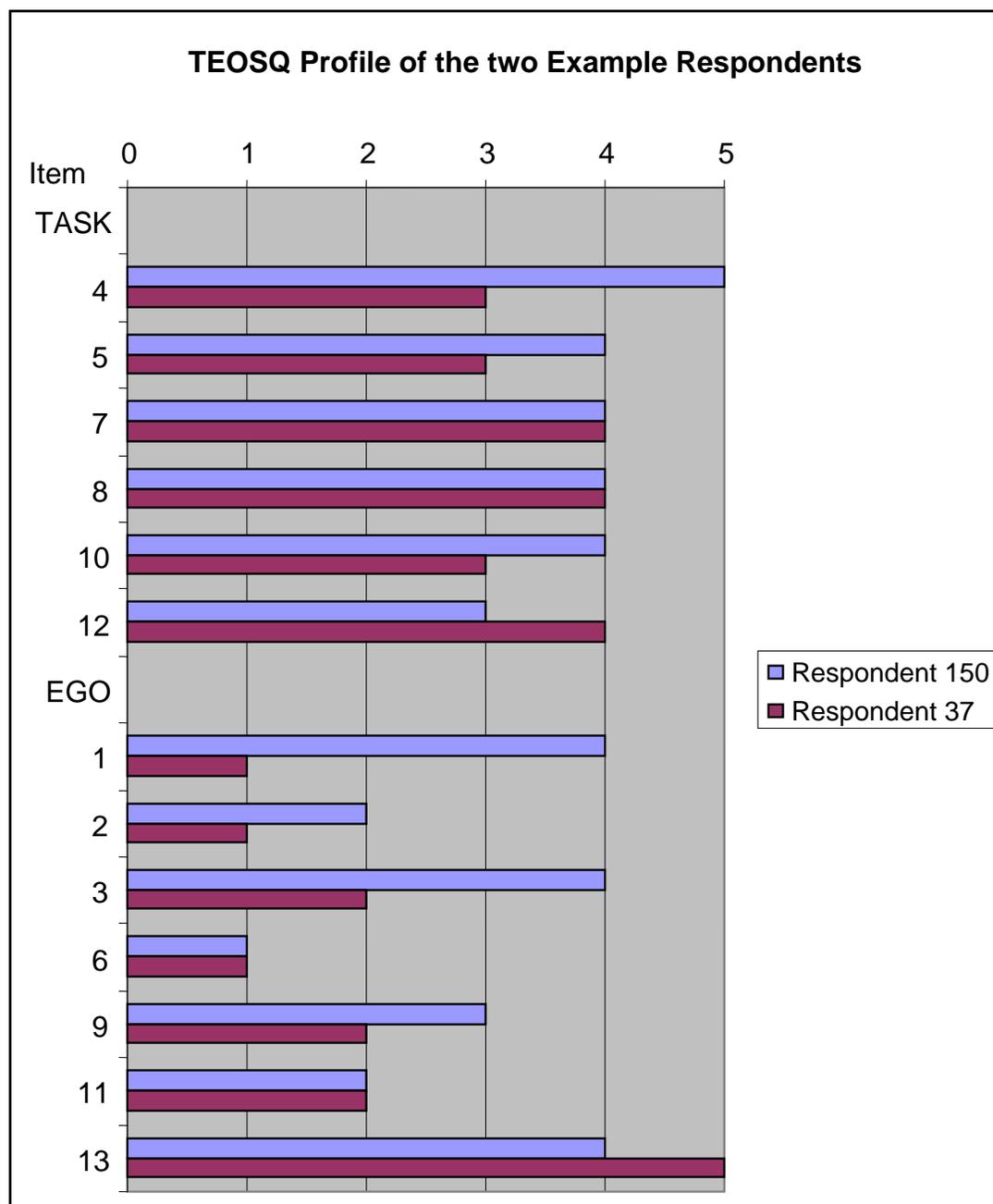
“I am motivated by the fact that diving is a rush. It’s scary and unsafe and I am not like that in other aspects of my life because they cause serious problems. With diving however being a daredevil is almost a good quality to have”

The following graphs will provide visual representations of the quantitative data collected from the two example divers using the SMS and TEOSQ. The numbers on the left hand side represent the numbers of each question, the full questions can be found in the original questionnaire found in the appendixes (Appendix 2).

Graph 2. Sport Motivation Scale (SMS) values for two selected divers



Graph 3. Values on the TEOSQ for two selected divers



As can be seen from the graphs, the two example profiles give a good representation of the sample as a whole. The more competitive athlete (respondent 37) has similar values (although slightly lower) as the low-level diver (respondent 150) for the IM values and higher values for Identified regulation, but much lower values for the more external forms of motivation. Both divers had similar amotivation scores. The Olympic athlete has also

ceased participation, and it seems that there was no lack in IM as one of the hypotheses suggested, this athlete is also high in task orientation and lower in ego orientation when compared to the low-level diver. Theory suggests that the highly competitive athletes should be high in both task and ego orientation (Duda 1988, 1997) but this does not seem to be the case for this individual. The low-level female diver seems to be more externally and ego orientated when compared to the higher-level athlete. Overall the hypothesis that was suggested was not supported and the results of the two examples are almost completely opposite in that the low-level diver was the one who was higher in the external motives.

The following quotes are from divers that were provided when the respondents were told that the questionnaire was finished, and were asked, "*Is there anything you would like to add?*" The objective of sharing the quotes is to help one gain an understanding of the overall diving experience, and consequently a better perspective of the diver's motivational profile.

"Diving lets me feel free, it allows me to be in charge of what I do, and it allows me to think and relax and get caught up and immerse myself into the sport" (Respondent 132)

"Doing an individual sport like diving is much more freeing to the mind and body. Unlike Football or Soccer, or Hockey, they have a specific outline in their games whereas we divers work as a team supporting each other. AND work individually towards your own goals and successes. The feeling of when you are in the air spinning, or when water is completely submersed around you is SO relaxing and satisfying. There is no other sport that allows me to put all my emotions into it and be beautiful doing it" (Respondent 159).

"For me, the sport of diving has allowed me a vehicle for self examination. It forces me to take a step back from routine life and make changes that will influence immediate results" (Respondent 190)

"Being a collegiate athlete or any athlete in general is one of the most rewarding things one can do for themselves... it helps you grow physically, mentally, socially, and spiritually. I truly believe that diving encompasses all of these aspects that helps makes a person grow" (Respondent 219).

"I truly love diving. Sure, it hurts when you flop, and there is always the fear that you have to overcome every time you are on the board, but this sport is truly an art form. You can't understand what it's like until you've actually done it" (Respondent 256).

“I love the sport of diving. It is both mentally and physically engaging. It keeps me motivated in life and makes me want to succeed to the sport. I love doing it, I can't imagine life without diving. Learning a new dive is one of the best feelings someone can achieve and I feel everyone should be able to overcome their fears and feel emotion such as that” (Respondent 286).

An additional finding, was that the word “love” was included in 59 quotes, “like” was found 72 times, and “enjoy” 15 times with more than half of the respondents (n=370) not answering at all to the last open ended question. This helps to illustrate the finding that divers tend to be intrinsically motivated and truly do have a love and enjoyment for their sport.

9.2 Former Divers Motivational Levels

The second research aim was to study if divers in the sample have ceased participation due to a lack of IM. An independent sample T-test was conducted to discover differences in current and former divers for the IM variables (IM to know, IM to experience stimulation, IM to accomplish) and found no significant difference, which was then followed by an additional t-test which included all nine motivational variables. Independent Sample T-Test (Appendix 6.1) were conducted on divers who were still diving vs. not diving with the nine variables of motivation.

Results revealed significant differences between the groups of divers (current/former) for the following variables; introjected regulation ($t=5.759$, $df=637$, $p=.000$) and task orientation (equal variances not assumed; $t=2.661$, $df=567$, $p=.008$), while moderately significant differences were found between external regulation ($t=2.07$, $df=637$, $p=.039$) and amotivation (equal variance not assumed; $t=-2.380$, $df=578$, $p=.018$). Means, standard deviation values and flagged significant differences for each variable can be found in table 4. No significant differences between IM levels in the current and former divers were found, which does not support the original hypothesis. Divers who are no longer participating had higher means for only 2 motives, amotivation and higher levels of IM to experience stimulation, although not significant ($p=.118$). This rejects the hypothesis that the divers who have ceased participation, if not because of injury, did so due to a lack of

IM. Results revealed that the divers who are no longer participating do not have significantly lower level of IM.

To check for gender differences, a two way between subjects ANOVA was conducted to check for differences using diving/not diving and gender as the independent variables, with each motivational subscale as the dependent variables. Results revealed significant gender differences only for the subscales of Amotivation ($p=.000$), IM to experience stimulation ($p=.035$) and IM to know ($p=.030$), with no significant interaction between gender and current diving status. Split sample means for females/males and current/former divers can be found in table 5.

Table 4. Independent sample t-tests for diving/not diving for all motivational variables

Variables	Still Diving		Not Diving		Totals		t	p
	M	SD	M	SD	M	SD		
IM:ES	5.29	1.22	5.44	1.06	5.36	1.15	-1.57	.118
IM:K	4.67	1.3	4.48	1.28	4.59	1.29	1.88	.061
IM:ACC	5.63	1.09	5.6	1.1	5.62	1.10	.240	.811
IDENT.	4.27	1.37	4.1	1.31	4.20	1.34	1.58	.115
INTRO.	3.8	1.31	3.2	1.3	3.54	1.34	5.76	.000**
EX.	4.04	1.32	3.82	1.32	3.94	1.32	2.07	.039*
AMOT	2.33	1.47	2.62	1.54	2.46	1.50	-2.38	.18*
Task*	4.44	.53	4.32	.58	4.39	.55	2.66	.008**
Ego*	3.25	1.0	3.14	.99	3.20	.99	1.34	.179

Note. * Task and Ego are measured on a 5 point Likert-type scale, while all other variable are measured using a 7 point scale

Table 5. Split sample means and subscale values for current/former (n=639)

Still diving?	Males				Females			
	Yes		No		Yes		No	
	M	SD	M	SD	M	SD	M	SD
IM:ES	5.42	1.15	5.42	1.15	5.20	1.26	5.38	1.04
IM:K	4.8	1.30	4.8	1.30	4.58	1.3	4.4	1.24
IM:ACC	5.7	1.09	5.7	1.09	5.58	1.09	5.56	1.06
IDENT.	4.21	1.40	4.21	1.40	4.31	1.34	4.06	1.26
INTRO.	3.76	1.33	3.76	1.33	3.83	1.29	3.22	1.29
EX.	4.06	1.33	4.06	1.33	4.03	1.32	3.86	1.31
AMOT	2.07	1.32	2.07	1.32	2.51	1.54	2.86	1.6
Task*	4.39	.52	4.39	.52	4.47	.54	4.34	.56
Ego*	3.19	.94	3.19	.94	3.29	1.03	3.17	.97

Note. Task and Ego (marked with *) were measured on a 5 point Likert type scale, while others were measured on a 7 point Likert type scale.

Current divers had a significantly higher levels of task orientation, and to aid with a more thorough understanding, the following are two quotes to help illustrate the high task orientation in current divers, “*I like the way diving makes you feel when you're scared to death to do something and then you do it and are really proud of yourself*” and “*diving isn't about looking good, getting girls, beating people or any of that...it's about bettering yourself and doing something you thought you were never going to be able to do. The character qualities that come from pursuing this sport to improve yourself carry on throughout your life...*”. As can be seen from the previous quotes, it seems divers really enjoy the rush, process, self-improvement and the challenge of the sport which leads them to have high task orientation

9.3 Variations in Motivation Among Different Competitive Levels

The third research aim was to compare IM and goal orientations across competitive level. Competitive level means for each motivational variable can be found in table 6. In order to gain a better understanding of the sample, all nine motivational variables (not just the three IM subscales and goal orientations) were used to study the relationship between competitive level and motivation. A one-way ANOVA (Appendix 7) was conducted and no significant differences were found between competitive levels in any of the nine motives. In order to control for the possibility of too many groups, and/or the possibility of some groups having limited (i.e. Olympic N=10) participants the data was re-grouped into 5 groups (Olympic/Elite N=54, Semi Elite N=113, Highly Competitive N= 160, Competitive N=137, and Low level competitive N=175) and a second one way ANOVA was conducted, still with no significant differences between groups.

An additional tamhane's t² pos hoc test was then carried out on the original groups of competitive level to check more specifically for further differences, but found no statistical significance between any of the competitive levels and motivation. Therefore the original hypothesis that divers who are at lower levels of competition will have higher levels of intrinsic motivation was not supported, neither were the secondary hypotheses (as competitive level increases divers will still have autonomous motives, but local level divers will have higher IM, and that the high level competitors will also be high in both task and ego orientation, while the lower level competitive divers will have high task and low ego goal orientations) due to the result of no significant differences found between competitive levels for any of the nine motivational variables.

To test for gender differences a two way ANOVA was conducted using gender and competitive level for all nine motivational variables, with significant differences found for the IM to know ($p=.045$) variable and a significant interaction between competitive level and gender for the subscale of IM to experience stimulation ($p=.032$), with no other differences found.

Table 6. Descriptive Statistics for Competitive Levels (whole sample)

Sub-scale	Olympic		Elite		Semi-Elite		Highly Competitive		Competitive		Medium Competitive		Local	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
IM:EX ST	5.45	1.05	5.57	1.10	5.41	1.11	5.57	1.09	5.33	1.14	5.38	1.09	5.19	1.25
IM:TK	4.90	1.07	4.49	1.31	4.58	1.07	4.74	1.33	4.55	1.33	4.64	1.30	4.51	1.29
IM:ACC	5.35	1.37	5.61	1.15	5.79	.87	5.72	.94	5.59	1.18	5.64	1.05	5.56	1.14
IDENT	4.13	1.97	4.40	1.36	4.43	1.37	4.38	1.38	4.28	1.33	4.10	1.25	4.02	1.36
INTRO	3.20	1.18	3.55	1.43	3.79	1.28	3.56	1.43	3.65	1.35	3.54	1.30	3.40	1.30
EX R	3.33	1.90	3.96	1.37	4.10	1.32	3.95	1.29	3.99	1.36	4.05	1.15	3.82	1.38
AM	2.55	1.41	2.40	1.55	2.26	1.22	2.13	1.35	2.47	1.53	2.49	1.57	2.62	1.54
TASK*	4.10	.80	4.29	.60	4.48	.45	4.46	.51	4.37	.58	4.39	.51	4.37	.56
EGO*	2.73	1.21	3.5	.88	3.42	.86	3.26	.93	3.18	1.0	3.2	.95	3.10	1.07
Total	n=10		n=44		n=28		n=85		n=160		n=137		n=175	

Note. Task and Ego (marked with *) were measured on a 5 point Likert type scale, while others were measured on a 7 point Likert type scale

9.4 Relationships between SMS and TEOSQ Variables

The fourth research aim was to study if there were relationships between each of the variables (IM to know, IM to accomplish, IM to experience stimulation, Identified Regulation, Introjected Regulation, External Regulation, Amotivation, Task orientation and Ego orientation) by using Pearson's product moment correlations. More specifically, the aim was to try and discover relationships between ego orientation and the less-autonomous forms of motivation (amotivation, external regulation, and introjected regulation) and task orientation with the autonomous motives (the three types of IM, and introjection). The hypothesis was that there would be a positive significant relationship between task orientation and all of the three types of IM. A Pearson's bi-variate correlation test was done, with results shown in table 7 (Full results found in Appendix 8). A significant positive correlation was found between task orientation and all three types of IM (IM to know; $r=.494$, IM to accomplish; $r=.533$, IM to experience stimulation; $r=.479$) and Identified Regulation ($r=.290$). It was also significantly correlated with Introjected Regulation ($r=.134$), and negatively with amotivation ($r=-.329$). External regulation and

ego orientation were uncorrelated to task orientation in the sample of divers. Ego orientation on the other hand was highly correlated to both introjected ($r=.209$) and external regulation ($r=.429$). Amotivation was not significantly related to ego orientation. While, task and ego orientations were found to be weakly related ($r=.074$) to each other, supporting the orthogonal nature of the two goals.

Therefore, the majority of results support the hypothesis that within the sample relationships exist between the nine motivation variables (IM to know, IM to accomplish, IM to experience stimulation, Identified Regulation, Introjected Regulation, External Regulation, Amotivation, Task orientation and Ego orientation) and that ego orientation is strongly related to the less-autonomous forms of motivation (external regulation, and introjected regulation) although no relationship was found between amotivation and ego orientation within the sample. Task orientation was found to be significantly related to all of the autonomous motives (the three types of IM, and introjected regulation) supporting the hypothesis, furthermore helping to solidify the relationship between self-determination and achievement goal theories.

Table 7. Pearson Moment Coefficients Correlation Matrix (whole sample)

Variable	1	2	3	4	5	6	7	8	9
1. IM exp. stimulation	1								
2. IM to know	.556**	1							
3. IM to accomplish	.643**	.594**	1						
4. Identified	.400**	.451**	.396**	1					
5. Introjected	.241**	.228**	.161**	.379**	1				
6. External regulation	.203**	.201**	.180**	.441**	.527**	1			
7. Amotivated	-.443**	-.299**	-.392**	-.141**	.105**	.065	1		
8. Task	.479**	.494**	.533**	.290**	.134**	.049	-.329**	1	
9. Ego	.052	-.043	.068	.044	.209**	.429**	.048	.074	1

** $p < 0.01$.

Pearson Moment correlations were also conducted separately for the following groups; males currently diving, males not currently diving, females currently diving and females

not currently diving. Results revealed many similarities with the whole sample, although the variability between groups seems to differ the most for the introjection variable, with high correlation in the whole sample and varied results throughout the groups. Ego and amotivation were slightly correlated in females currently diving, which was not found in any other group. For the males who were not currently diving amotivation was not negatively related to task, while it was for all other groups. For the males currently diving there was a moderate correlation between ego orientation and IM to experience stimulation which was not the case in any other group. Full results can be seen in the following tables (Tables 7a, 7b,7c,7d)

Table 7a. Males Currently Diving (n=146)

Variable	1	2	3	4	5	6	7	8	9
1. IM exp. Stimulation	1								
2. IM to know	.644**	1							
3. IM to accomplish	.690**	.540**	1						
4. Identified	.391**	.517**	.372**	1					
5. Introjected	.365**	.268**	.291**	.414**	1				
6. External regulation	.328**	.222**	.211*	.447**	.497**	1			
7. Amotivated	-.398**	-.316**	-.338**	-.219**	.009	.009	1		
8. Task	.476**	.460**	.539**	.365**	.085	.153	-.285**	1	
9. Ego	.166*	-.113	.088	.093	.194*	.521**	.046	.093	1

** p< 0.01.

Table 7b. Males not Currently Diving (n=83)

Variable	1.	2	3	4	5	6	7	8	9
1. IM exp. stimulation	1								
2. IM to know	.503**	1							
3. IM to accomplish	.530**	.550**	1						
4. Identified	.418**	.506**	.574**	1					
5. Introjected	.461**	.381**	.305**	.325**	1				
6. External regulation	.330**	.229*	.209	.426**	.560**	1			
7. Amotivated	-.401**	-.034	-.228*	-.068	.054	-.087	1		
8. Task	.616**	.622**	.622**	.503**	.434**	.151	-.114	1	
9. Ego	.128	.000	.198	-.013	.173	.415**	-.131	.177	1

** p< 0.01.

Table 7c. Females Currently Diving n=216

Variable	1	2	3	4	5	6	7	8	9
1. IM exp. Stimulation	1								
2. IM to know	.616**	1							
3. IM to accomplish	.702**	.686**	1						
4. Identified	.465**	.467**	.383**	1					
5. Introjected	.157*	.144*	.048	.360**	1				
6. External regulation	.175**	.207**	.162*	.472**	.538**	1			
7. Amotivated	-.579**	-.484**	-.555**	-.210**	.176**	.110	1		
8. Task	.568**	.556**	.551**	.253**	.033	-.049	-.514**	1	
9. Ego	-.030	-.075	-.038	-.031	.163*	.407**	.148*	-.059	1

** p< 0.01.

Table 7d. Females not Currently Diving (n=194)

Variable	1	2	3	4	5	6	7	8	9
1. IM exp. Stimulation	1								
2. IM to know	.442**	1							
3. IM to accomplish	.587**	.549**	1						
4. Identified	.340**	.342**	.338**	1					
5. Introjected	.241**	.195**	.130	.386**	1				
6. External regulation	.110	.155*	.167*	.404**	.513**	1			
7. Amotivated	-.332**	-.144*	-.310**	-.030	.181*	.127	1		
8. Task	.377**	.398**	.487**	.149*	.064	.005	-.276**	1	
9. Ego	.073	.027	.122	.117	.268**	.389**	.001	.138	1

** p< 0.01.

The following is quote from a former diver, the example seems to give more insight into the sport and perhaps provide better understanding as to why identified regulation and task orientation can be related in diving.

Diving is a really complicated sport that most people do not understand. There is so much more to it than meets the eye. It is a completely mental sport that you have to have utter confidence in yourself to go up there and do it after you have failed miserably a million times at a certain dive. But for some reason, I loved it. After all the pain it caused me, emotionally and physically, I could not have imagined my adolescent life without it. The people I met were amazing, and it did keep me in shape. There were many, many times I wanted to quit after the pain but I never did and I think that was a skill gained from the sport of diving.

The quote shares that the diver is both task oriented (“you have to have utter confidence in yourself to go up there and do it after you have failed miserably a million times at a certain dive”-she keeps aiming for self-improvement) and intrinsically motivated (“but for some reason I loved it”) while understanding and appreciating the external (“people I met”) and introjected (“it did keep me in shape”) aspects as well. Her example hopefully gives one a better idea as to why divers participate, and why these unrelated factors (task orientation and introjection) seem to be related in the sport of diving.

9.5 Adapting Scales to the Sport of Diving

The TEOSQ (Duda & Nicholls, 1992) and the SMS (Pelletier et al., 1995) scales both received KMO (Kaiser-Meyer-Olkin Measure of Sampling Adequacy) and Bartlett’s tests with results obtaining the suggested .6 minimum standard (SMS .89, TEOSQ .82; Appendix 9.1 & 9.2), followed by Skewness and Kurtosis calculations (Appendix 9), as suggested by the literature (Stewart, 2001) to check normality assumptions before factor analysis was conducted. Diving version scales were then checked for internal reliability, using α of Cronbach and Principal Axis Factoring (Appendix 11).

The Sport Motivation Scale (SMS)

The seven factors accounted for 62.9% of the total variance, Cronbach alpha’s for each subscale of the SMS are as follows; IM to experience stimulation ($\alpha=.74$), IM to know ($\alpha=.81$), IM to accomplish ($\alpha=.78$), Identified Regulation ($\alpha=.74$), Introjected Regulation ($\alpha=.67$), External Regulation ($\alpha=.71$), and Amotivation ($\alpha=.84$) and can be seen in the following table (Table 8). Introjected Regulation was the only subscale which did not meet the suggested .7 for internal reliability, although very close (.67) which has also been the case in other similar studies, in addition the α of Cronbach for the whole scale was calculated and found to be .83. For each question in the SMS the α score was computed if each item was deleted the SMS, as well as communalities, and can be found in the appendix (Appendix 12). It was found that removing any item from any subscale would not remarkably improve the reliability of the measure with the α scores ranging from .819-.842.

Task and Ego Orientation in Sport Questionnaire (TEOSQ)

Cronbach alpha's for the TEOSQ were also calculated for the task ($\alpha=.80$) and ego ($\alpha=.85$) subscales, the whole sample alpha was also computed ($\alpha=.78$) and all met the suggested requirement (.7). The two factors accounted for 51.5% of the total variance.

Results indicate that both scales suit the diving population and have internal reliability, excluding the subscale of introjected regulation. The principal axis Pattern Matrix, with Direct Oblimin rotation for both the SMS and the TEOSQ can be found in the appendixes (Appendix 10 & 11).

Table 8. Subscale Alpha Scores

Sub-scale	α
SMS	
IM to experience stimulation	.74
IM to know	.81
IM to accomplish	.78
Identified Regulation	.74
Introjected Regulation	.67
External Regulation	.71
Amotivation	.84
TEOSQ	
Task	.80
Ego	.85

10 DISCUSSION

The main aim of the current study was to study motivational states in an international sample of divers. This included studying if divers ceased participation due to a lack of IM and looking at differences between competitive levels and nine variables of motivation. Relationships between variables, and modifying the TEOSQ and SMS to the diving population were also studied. Motivation in the sport of diving has never been studied previously; consequently the results of the current study are rather fascinating and important.

The current study provided some interesting insight into the minds of divers in regards to motivational states. Divers tend to have similar motivational states across groups (competitive level and current participation) compared to other sports, contrary to what the theory and previous research seemed to suggest.

10.1 Motivational Profiles of Divers

The current study seems to have unique results, making comparisons with other studies somewhat difficult- due to the levels of IM and EM in the current study being greater than those reported in other sports (Beaudoin, 2006; Pelletier et al., 1995). Overall the divers had higher IM scores than EM scores, which has also been found in the Beaudoin (2006) study. Although, within the current study significant results were not found between levels of competition, the whole sample seemed to share one characteristic with another study (Sloan & Wiggins, 2001) which was conducted on elite athletes; IM to know was the highest for the highest level of competition, while no other similarities with previous studies were found. The motivational profile of the diver seems to be like no other athlete.

A similar study was conducted by Ntoumanis (2001) which used the same scales (SMS and TEOSQ) along with an additional subscale of the Intrinsic Motivation Inventory (IMI) attempting to discover empirical links between the AGT and SDT in sport. The sample was somewhat comparable to the current study in that it included 268 British university athletes in a variety of sports, and most were at a relatively high levels of competition (67% of the

sample had achieved their highest competitive standard competing at least at the level of district/county level). The Ntoutmanis (2001) study found that Identified regulation and Amotivation were higher than the current study, while the diving sample had higher mean values for task, ego, IM to accomplish, IM to experience stimulation and external regulation, while IM to know had the same means in both studies. Results seem to reveal that the divers seem to have highly motivated profiles and more autonomous motivation when compared to British University athletes from different sports.

Somewhat more similar to the current research than the Ntoutmanis (2001) study, a study conducted on Olympic Trial (OT) swimmers was done in the USA (Tuffey, n.d.), which also used both the SMS and TEOSQ. It was revealed that the more competitive and experienced (competed at Nationals 3+ times) athletes demonstrated significantly higher ego goal orientation than the less competitive swimmers. The swimmer study also shared some other characteristics with the current study in that the swimmers who competed at Olympic trials (OT) tended to have higher than average scores on IM and EM factors when compared to an average athletic population (although, the researcher does not state where the other information is obtained from), and that the OT swimmers had lower amotivation scores compared to the general athletic population, and that overall the swimmers were a highly motivated group of athletes. The divers in the current study had higher means of task orientation (swimmers 4.16, divers 4.39) while the swimmers had higher ego orientation values (swimmers 3.32, divers 3.2) both swimmers and divers had higher values for goal orientation scores compared to the British athletes from the Ntoutmanis (2001) study. When comparing the swimmers with the divers it can again be explained due to the different nature of the sports, swimming does not seem to be as thrilling during the actual involvement unless there is more of a competitive edge. Competitive swimmers tend to get their drive and motivation from competition (both with themselves and others), rather than the movement or pure pleasure they get from being in the water (personal communication with a swimmer, B.B, March, 23, 2009). Tuffey (n.d.) explains, "Olympic Trials athletes are higher in ego goal orientation than reported norms. But, note that task orientation scores are also somewhat higher. Elite level swimmers, it seems, focus on doing well relative to themselves as well as "producing" relative to competitors". It seems

that the diver's profile is more autonomous and highly motivated when compared to other athletes. Conceivably, this may be due to the acrobatic and thrill nature of the sport. There is a need for more research in individual acrobatic sports (gymnastics, trampolining, trapeze etc.) in order to come to more conclusive reasons as to why these individuals seem to be more motivated when compared with other types of athletes.

10.2 The Current versus Former Divers

Previous research which has incorporated AGT and SDT and sport dropout have indicated that environments which are not conducive to competence, autonomy and relatedness lead to intentions of ending participation and drop out (Sarrazin and et al., 2002). For these reasons the hypothesis for the current study was that the divers who have ceased participation have done so because they were lacking in the more autonomous forms of motivation (IM and identified), if it was not because of injury. The current study found no significant differences between the three variables of IM or for identified regulation between the two groups (diving/not diving) variables therefore the hypothesis was not supported. For this reason, an additional independent sample t-test was conducted on the current/former divers which included all of the nine variables of motivation. The second test found significant differences between the current and former groups for the more extrinsic types of motivation. High significant differences were revealed for introjected regulation and moderately significant differences for external regulation and amotivation.

There was also a significant difference between the current and retired divers for task orientation, which conceptually fits with the achievement goal theory. The divers who are still practicing their sport have higher levels of task orientation, perhaps giving reason to why they are still diving; they seem to truly enjoy the process and mastery of the sport. Divers really seem to enjoy the rush, process, self-improvement and the challenge of the sport which leads them to have high task orientation. This love for the sport and high task orientation is not as high in the former divers, maybe giving more insight as to why they have quit.

Although significant differences were found for the external types of motivation, it is interesting to note that the divers who have ceased participation had higher means of only two out of the nine motives, amotivation ($p = .018$) and higher levels of IM to experience stimulation [though not significant ($p = .118$)]. This latter finding, although not significant is rather interesting, perhaps it is due to the nature of the diving experience. The divers who have quit have higher level means of IM to experience stimulation ($n = 5.44$ vs. $n = 5.29$), one can assume these individuals ceased participation because they were no longer experiencing the thrill of the sport. The fact that they were significantly higher in amotivation goes hand in hand with the theory and previous research (Pelletier et al., 1995). If an individual is amotivated they are lacking any type of motivation and are not going to continue in the activity.

It was also interesting to discover that within the sample, the divers who were still participating had significantly higher external regulation and introjected regulation than the divers who had quit. This finding is not supported in the literature, and according to the SDT it should not happen. Additional research should be conducted in this area, perhaps more specifically in the sport of diving because to date there are not many of these findings (none in diving, and very little in other sports). According to the theory these divers who are high in external regulation and introjected regulation should eventually dropout (Sarrazin et al., 2002). Theory also seems to suggest that these athletes are burned-out or on the way to burnout (Pelletier et al., 1995). This is exceptionally interesting because there were no significant differences between competitive levels for the same variables, only differences between divers participating and not-participating, meaning that divers who are still practicing the sport have higher levels of non-autonomous forms of motivation. Results are completely opposite of the hypothesis - that divers still participating will have higher levels of IM. It is a very fascinating finding, and is difficult to explain why. Perhaps the divers who are still diving are more aware of all the types of motivation that they are experiencing and can more accurately reflect on their reasons for participation, while the former divers tend to only remember the really positive (IM, Identified and Task) motivating factors or the more negative (amotivation) rather than the factors that fall in the middle of the SDT continuum.

Gender differences were also controlled for when examining differences in the current and former divers, with significant differences found for amotivation, IM to experience stimulation and IM to know. These results are very unique, in that they are not often found in previous studies, although one study (Darvill, Macnamara, Moseley, Pelham and Quigley, n.d.) conducted on youth sport participants in Australia found males to be higher in IM to experience stimulation. Significant gender differences for IM to know variable have also been found in previous studies (Pelletier et al., 1995) although in earlier cases it was females with higher mean values, while the current study had males with higher values. Most other studies have found that a 'self-determined profile' is more commonly associated with females (Murcia, Gimeno, & Coll, 2007, Gillet & Rosnet, 2008). Although, this did not seem to be the case in the current study, females who were no longer diving had the highest levels of amotivation, and the lowest levels of IM, even if looking at the whole sample or just the current divers, the females had lower levels of IM, which is contradictory to much of previous research (Chantal et. al, 2006; Fortier *et al.*, 1995; Murcia et al., 2007; Pelletier et al., 1995). This unique finding of differences in amotivation between gender may be due to the high percentage of the sample that were female respondents (64.2%), or due to a high number of former female divers (70% of the former divers were female). More research should be conducted in the area of current vs. former athletes and gender differences with regards to motivational states.

Within the sample of current and former divers it is interesting to look at the background information provided by these individuals. Referring to the sample breakdown (Table 2; Results Section) one can see that at the highest levels of competition, Olympic, Elite and Semi-Elite a good majority of the respondents are not currently diving (Olympic 8/10 Elite 24/44 and Semi-Elite 17/28) and therefore the not-diving sample has higher mean values for amount of hours spent training because they were training at higher levels requiring more training hours. Suggesting that once the divers reach a certain level they quit because they have nothing else to strive for. This may help one to better understand why some of the results did not seem to fit the theory (for example the Integrated and task orientation relationship) leading one to assume that for these individuals the goal was to reach high level competition, and then once the achievement was met they ceased participation.

10.3 Comparing Competitive Levels

No significant differences were found between competitive levels but some interesting results were still discovered. The SDT suggests that athletes' who are involved in higher levels of competition, have less self-determined motivation and higher amotivation and introjected regulation when compared with athletes who are practicing sport at lower competitive levels (Deci and Ryan, 1985). Mallet and Hanrahan (2004) also stated that athletes' who compete at elevated levels, exhibit higher ego orientation values, while other researchers suggest that most elite athletes are high in both task and ego orientations (Duda 1998; White & Duda, 1994). Motivational differences in competitive level within the sports context are very under studied especially in regards to elite level. Currently there are only a few studies conducted on elite or professional level athletes that specifically look at motivational levels. Including a study conducted by Wartenburg and McCutcheon (1998) that found male minor league hockey players were higher in competitiveness, win, and goal orientation, and a study conducted on professional women's football (Beaudoin 2006) that looked at motivation in their sport.

Results of the current study, supported part of the hypothesis in that task orientation was high across all competitive levels (Olympic 4.10, Elite 4.29, Semi-Elite 4.48, Highly Competitive 4.46, Competitive 4.37, Medium Competitive 4.39, Low-Level Competitive 4.37; on a 1 to 5 scale) these findings were similar to the Carpenter and Yates (1997) soccer study, although findings in the current study were not significant. In the soccer study it was revealed amateurs scored significantly higher on task orientation than semi-professional players, while ego-orientation scores were higher for semi-professionals although not significant.

Ego orientation results in the current study were also very interesting, with the mean ego orientation score being the lowest (2.73) for the highest level of competition (Olympic). This may be due to the nature of the specific Olympic individuals; they may be truly participating for non-ego orientated reasons and do not feel the need to compare themselves to others, or it may be because at data collection time the Olympics just ended so they do not feel the need to think about normative comparison (with no international

competitions coming up in the near future). Although if the Olympic level is disregarded the trend seems to follow the theory (higher in the more competitive athletes) although no results were significant (Elite 3.5, Semi-Elite 3.42, Highly Competitive 3.26, Competitive 3.18, Medium Competitive 3.2, Low Level Competitive 3.10). The current results are also similar to the Portugal football study (Sarmento, Catita & Fonseca, 2008; Etnier et al. 2004) in that no significant differences were found in task and ego orientations as a function of competitive level of play.

The majority of previous studies (Fortier et al., 1995; Yves et al., 1996) have found motivational differences in competitive athletes when they were compared to recreational athletes. Previous research has revealed that competitive athletes demonstrate less autonomous forms of motivation, higher levels of identified regulation and more amotivation than recreational athletes (Fortier et al., 1995; Yves et al. 1996). While the current study found autonomous forms of motivation to be high across all levels of competition (Table 6. p. 65). Similar results were found in only one other study (Frederick-Recascino & Schuster-Smith, 2003) which used SDT and CET frameworks to examine relationships between competitive attitudes, physical activity, participation motivation, and adherence levels in two groups; bicycle racers and fitness exercisers. Results revealed that for both groups, sport-based competitiveness was positively related to higher levels of intrinsic motivation. With both non-competitive and competitive level individuals having high levels of autonomous forms of motivation. Similar to the current results, a study conducted by Gillet and Rosnet (2008) which looked at IM competitive level differences in recreational and competitive differences also found no significant differences for IM.

My personal belief is that divers require higher levels of intrinsic motivation and task orientation regardless of level due to the nature of the sport, and the lack of external opportunities. For divers there is really no reason to participate other than for enjoyment, in comparison to other sports with more external rewards. If a diver has low motivation to participate they really have no other reason to pursue the sport, regardless of competitive level. Divers tend to dive because they really enjoy it and if they do not they will drop out. Most sports tend to have variations in motivation because as competitive level so does the

external pressure and reward, while this does not tend to be as evident in the sport of springboard and platform diving.

The hypothesis for the current study was that divers who are at lower levels of competition will have higher levels of intrinsic motivation. As the competitive level increases the divers will still have autonomous motives, but not necessarily as high as the beginners/lower level competitors. The high level competitors will also be high in both task and ego orientation, while the lower level competitive divers will have high task and low ego goal orientations. Findings were not significant and generally did not support the hypothesis. Means for the autonomous motives did not tend to increase as competitive level decreased, in fact for IM to experience stimulation and IM to know the means were the highest for the highest level of competition (Olympic) and the lowest for the Low-level divers which is completely opposite to the hypothesis and theory. IM to accomplish was the highest for Elite athletes and again the lowest in the lowest level of competition. Again, I believe this is due to the nature of diving experience, for one to continue in sport and reach the highest level of competition it must be because you truly enjoy the sport, and not for external reasons. The divers at higher levels of competition (excluding Olympic) tended to be high in task and moderately high in ego orientation but so did the lower levels of competition, with no significant differences. The Olympic divers had high task and the lowest ego orientation, contrary to what the current literature suggests. As previously mentioned, across the levels of competition divers tend to be rather similar in motivational variables.

In the Beaudoin (2006) study conducted on professional women's football, the SMS was used and it was discovered that highly competitive women had high values of IM. Beaudoin's results are similar to the findings of the current study in that the highly competitive divers had high levels of IM, although it was the men in the study that had the highest, which is somewhat contradictory to the information presented in the literature review. Gender differences in competitive level in the current study were only found for the IM to know variable in the semi-elite group with males being higher, although the semi-elite group was only 21% male. This finding is not all that surprising, because the

semi-elite group lies in the middle of the competitive level continuum, so the individuals in this group should still have autonomous motives. Results of males being higher may be due to similar reasons as the scholarship studies (Ryan 1977, 1980 as cited in Frederick & Ryan, 1995) in that males do not participate in diving as often as females do, hence there is not as pressure and external controlling aspects for them leading them to keep their self-determination and autonomy more intact. There has been ample research conducted on IM levels and gender revealing that females tend to have higher values of IM and Identified regulation when compared to males (Frederick & Ryan, 1995; Fortier et al., 1995; Medic et al., 2007; Yves et al. 1996) but limited studies have been conducted on motivational differences in IM between different sports with regards to gender. This may be a new and interesting area of research and the results of the current study may prove to be valuable for future studies in the area.

10.4 AGT and SDT correlations

In the current study it was found that task orientation was highly correlated with the three types of IM, IM to know, IM to accomplish, IM to experience stimulation as well as Identified Regulation these results are somewhat more significant than previous studies have found. McNeil and Wang (2005) found that task orientation was moderately correlated with intrinsic motivation and identified regulation in an elite sports group in Singapore while the current study found the same relationship to be highly significant. Ntoumanis (2001) conducted a similar study and used regression analysis to discover that task orientation positively predicted all three types of intrinsic motivation as well as identified regulation, but not introjection or external regulation. It is explained by Ntoumanis (2001) that task orientation represents an adaptive achievement orientation that guides individuals to set controllable and achievable goals. The task goals encourage individuals to stay motivated and committed in sport. This is more than likely the case in the divers.

The current study also found that task orientation was moderately correlated with introjected regulation and negatively with Amotivation. The finding that task orientation and introjection are related is very unique, because the definition of introjected regulation

explains that the behaviour is controlled by self-imposed pressure, and it is not considered self-determined because of the controlling aspect. This type of regulation also seems to be reinforced by internal pressures such as guilt or anxiety (Pelletier et al., 1995). Therefore, it does not make conceptual sense that task orientation and introjection would be related. Although the questions in the SMS that measured this factor (Because I would feel bad if I was not taking time to do it, Because it is absolutely necessary to do sports if one wants to be in shape, Because I must dive to feel good about myself, and Because I must do sports regularly) seem to have a body image tone to them. It may be that the divers have internalized those values within themselves. Whether the divers are consciously aware of the fact or not, body image plays a large role in the sport, but is also part of the diving 'culture' from the beginning due to the fact that one is in a bathing suit while participating. In order to deal with this issue and not to view it as an external source of pressure or guilt perhaps the divers have accepted values as their own and made them more autonomous; they feel competent in achieving them, and are getting support from their team-mates who are engaged in the same things (relatedness) leading them to feel more motivated (congruent with the SDT). For the divers it may be that this traditional type of external motivation is more internal, and they view these factors as 'in their control' and more challenging, leading them to a more task orientated focus for these more external motives.

On the opposite side of the continuum it was found that the ego orientation was highly correlated to both introjection and external regulation as well as the autonomous motives (the three types of IM, and identified). With the hypothesis being that there will be a significant relationship between task orientation and all of the three types of IM, it was somewhat unexpected that ego-orientation would also be correlated to IM and identified regulation. This latter finding does make sense though, especially in competitive diving. Divers need to enjoy their sport due to the lack of external factors, which are more prevalent in other sports (a professional career, chance for advancement, opportunity after sport, sponsorship etc.), so even if divers are high in ego-orientation they still need to also have high levels of IM to continue participating. Previous studies have found that ego orientations were linked to external regulation and introjection (Ntoumanis 2001; McNeill and Wang's, 2005), although neither study found ego orientation to be linked with the

more autonomous forms of motivation, although there is one exception with the Ntoumanis (2001) study in that ego orientation positively predicted intrinsic motivation to experience stimulation. The researcher explained that this was un-expected and may have been due to the chance that athletes who have high ego orientation will report positive sensations and excitement when they are able to meet their standard for success (i.e. to win or outperform). As mentioned above, the sport of diving requires high IM therefore the correlation of the more autonomous forms of motivation with ego orientation is probably due to the nature of the diving experience.

In the current study ego orientation did not predict amotivation, this is easily understood due to the fact that ego orientation motivates individuals to strive and achieve certain comparative goals, while amotivation is the lack of any motivation.

Gender differences for relationships between variables were also correlated, with the most variability for the introjection variable, the whole sample had high correlations with introjection and all variables while for split samples, this was not the case. Ego orientation and amotivation were slightly correlated in females currently diving, which was not found in any other group. According to theory, these females should be dropping out soon due to lack of motivation and lack autonomy. There is a need for more research in this area, perhaps a longitudinal study that looks at individuals with these correlations and then following them through their career, attempting to discover if they can predict dropout.

For the sake of curiosity, and to try and gain a better understanding of the reasoning behind the strange outcome, separate correlations between the nine motivational variables were calculated for current and former divers (Appendix 13). In the current divers positive significant relationships were found between task orientation and the three types of IM, and identified regulation in addition to a negative significant relationship between task orientation and amotivation. Results are almost identical to the whole sample except that task orientation was not correlated with introjection. Interestingly task orientation in the formerly diving sample revealed significant relationships also with the three types of IM, Introjected regulation and with introjected regulation, the negative relationship with

amotivation was also present. This finding gives more insight into the possible relationship between introjected regulation and task orientation, which only seemed to be present in the divers who have quit. Perhaps this is because the divers who have quit reflected on their diving experience in a more external manner, because it is known that introjection leads to drop-out (Pelletier et. al., 1995) but were still highly task orientated. As presented in the results section, the following quote from a former diver, gives in insight into the sport and perhaps provide better understanding as to why identified regulation and task orientation can be related in diving.

Diving is a really complicated sport that most people do not understand. There is so much more to it than meets the eye. It is a completely mental sport that you have to have utter confidence in yourself to go up there and do it after you have failed miserably a million times at a certain dive. But for some reason, I loved it. After all the pain it caused me, emotionally and physically, I could not have imagined my adolescent life without it. The people I met were amazing, and it did keep me in shape. There were many, many times I wanted to quit after the pain but I never did and I think that was a skill gained from the sport of diving.

The diver expresses both task orientation (“you have to have utter confidence in yourself to go up there and do it after you have failed miserably a million times at a certain dive”-she keeps aiming for self-improvement) and IM (“but for some reason I loved it”) while understanding and appreciating the external (“people I met”) and introjected (“it did keep me in shape”) aspects as well. Hopefully, her example aids one to better understand as to why divers participate, and why these unrelated factors (task orientation and introjection) seem to be related in the sport of diving.

When looking at the SMS exclusively, results of the current study are similar to those found by Beau (2006) and Pelletier (1995) which found moderate to strong positive correlations among the three IM subscales and three EM scales. Although the current study differed from the previous research in that there were significant negative correlations between all three IM scales and amotivation, while previous studies have found only non-significant and negative correlations. The current study also had significant relations between amotivation and the EM scales of identified (negative) and introjected (positive) regulation, while other studies found all positive non-significant relationships between amotivation and the three EM scales.

One aim of the study was to discover results that would help to bridge the link between the achievement goal and self-determination theories. The results may help move the two theories in right direction, but there is need for more research. More specifically this research should be conducted in elite sport and focus on the explanation of why introjection was correlated positively with task orientation and if this is the case in any other sports.

10.5 Adapting scales to diving population

Cronbach alpha coefficients for the sample of data were similar to those found in previous studies conducted in other sports and were found to range from .67-.85. Previous studies had ranges of .63-.80 (Pelletier et al., 1995) and .70-.86 (Beaudoin, 2006) thus adequate internal consistency exists for both the SMS and the TEOSQ with this sample of springboard and platform divers.

10.6 Limitations

There are many limitations to the current study, first and probably the largest is the method of data collection. When collecting information online it is impossible to really know who is answering the questionnaire. Although some data scooping was conducted to try and remove 'fake' participants, it should be stated that the results cannot be guaranteed, and in no way can it be certain that all participants were completely honest about themselves. There is currently limited research that is done using online collection methods in the field of sports psychology. There is one other known exploratory (Beaudoin, 2006) study that was conducted online that compared the sport motivation relationships with competitive orientations and age. One aim of the study was to examine the feasibility of conducting sport and exercise psychology research through the Internet. The final key statement made in the Beaudoin study was, "sport and exercise psychologists are encouraged to consider the opportunities of Internet research". The internet provides many research advantages including; lower costs, speed, asynchronous communication, ease, wider sample, and emperherality (Kraut et al., 2004; Reips, 2002; Thach, 1995; as cited in Beaudoin 2006). But unfortunately limitations are also present within Internet research including sample bias, self-selection, limited control over data-collection setting, potential multiple

submissions, and drop-out (Kraut et al., 2004; Reips, 2002 as cited in Beaudoin, 2006). The current study attempted to reduce some of these limitations by allowing only one survey per computer, not allowing the any of the scale (SMS and TEOSQ) questions to be skipped, and manually checking each response to make sure respondents and responses were valid and pertinent to diving (this is how the two scuba divers were found).

The results of the current study cannot be generalized, and the sample is not representative of the whole diving population. The majority of the sample was North American (Americans n= 466, Canadians n=78) with much smaller samples from the rest of the 29 countries.

Group differences may also be a limitation, because they were categorized based on my own knowledge of the competitive situation in the sport of diving (being a former top level diver). It should also be said that the original idea was to compare the highly competitive level with recreational athletes, but after all data was collected there was only a very small percentage of athletes who were actually recreational (.5%), who were then placed into the low-level competitive category. This was more than likely due to the collection method, because it seems that the only divers who would identify themselves as ‘a diver’ are the ones who are active in competition. Hence they are also the ones who are members of website mailing lists, diving federations or *facebook* group members. In order for one to gain access to the recreational divers one would have to use other collection methods such as going to the local pool during public swimming times.

Furthermore gender differences were somewhat accounted for in the sample, but it should be stated that diving seems to be a female dominated sport especially at lower levels, but this does vary from country to country. The current study had a large percentage of female respondents (64.2%) and made up an even larger portion of the former divers (70% females), which should be kept in mind when looking at the results.

In addition, the overall results of the current study seem to suggest that all divers are highly motivated and have high levels of all the autonomous motivational variables, as well as

being exceptionally high in task orientation. Although this is the majority, it is not always the case, there are diver out there who are purely extrinsically motivated as can be seen in the following quote,

I dive now not because I like to dive, but because it will get me through school at half the price. Diving is so much a part of me now that it and I are pretty much one. It's just the routine that I've gotten into. I don't remember what it's like to not dive because I've been doing it for so long. I do get pleasure in winning competitions to a certain extent, but only if I'm the true winner. If there's someone else that would have beaten me in any other circumstance, then I don't feel right winning that event. I feel like if I quit diving, there would be no other sport that I would be good at and I hate working out, so I feel like I wouldn't work out at all. I would probably become fat, and that scares me, but honestly, I only do it now because it is required for me to; I only dive because it is required for me to, (Respondent 292).

It is important to keep in mind that the sample is large and that the results refer to mean values and not individuals.

Data for the present study was collected at the conclusion of the Beijing 2008 Olympics, consequently divers competing at high levels of competition, tend to have lower motivation at this time because of a few reasons; the season is finished for the year, it is another four years until the next Olympics and it is also a period of time when many divers quit the sport. This may produce a stronger orientation towards intrinsic forms of motivation; compared to if the data was collected a year earlier. For the sake of this study it is good to have higher IM levels, but it is important to state that these levels can vary depending upon the time of data collection.

The final large limitation to the study was that there was a huge amount of data collected (631 participants answering 60 questions each) with both quantitative and qualitative answers. For a master's thesis the duty of including all the data is both unrealistic and time consuming. I hope that by sharing a part of it, I can give people a better understanding of the motives behind the general diver. Initially the questions that I created were attempting to gain a very in-depth understanding of motivation in divers. The original goal was to ask questions that could provide a very individual and specific understanding about each individual, although the expectation was for a sample size of at least 30 respondents. In the

end, there was too much data (with 639 divers) to go into the depth that was the original goal. For example, each respondent was asked to briefly describe their own personal best achievement in their own words. This question was attempting to look at what types of goal orientations they have through the analysis of their responses. Respondents were also to explain what accomplishment they are most proud of; trying to gain a better outlook about their motivational type. The aim was to see if the diver explained about something more task orientated (breaking their own personal best, or being able to improve everyday) or ego orientated (winning competition X, beating opponent X). Unfortunately, these responses were never analyzed due to the vast amount of respondents. This issue should be addressed in future research.

In addition, there was a second question which never received the proper analysis, which asked respondents about financial aid. The goal was to try and discover if an external reward (any type of financial aid or scholarship) would affect IM as is suggested in the literature (Amorose & Horn, 2000; Fredrik & Ryan, 1995; Medic, Mack, Wilson & Starkes, 2007). Unfortunately there was a technical difficulty with the data collection survey program and 119 values were missing for this question, so data analysis was not conducted. Among the 520 divers who did answer the question, only 22.7% actually received any type of financial aid for their diving.

10.7 Implications for Practice

10.7.1 Increasing IM

Within the world of sport there is no such thing as the perfect athlete, but there are ways in which coaches, parents, and athletes themselves can try and get the most out of their athletic career. Increasing IM is one of these ways, the following section is based on research from the literature and will summarize the main theoretical factors suggested that can help to increase or maintain an athletes' level of IM.

The SDT assumes that IM will prosper in environments that are characterized by a sense of relatedness and security. According to Ryan and Deci (1985) it is important to give an individual choice, vary opportunities for direction and give them a chance to acknowledge

their feelings. These are all factors that can allow for more autonomy, which will lead to increases in IM. In an earlier study Ryan and Deci (1975) also stated that for something to be intrinsically motivating it has to be interesting, provide optimal challenge, involve feedback, and allow people to experiment with their own way of doing things. Feedback is also important for enhancing one's IM, but only if it is positive and increases one's self-efficacy or self-determination, and is perceived as informational, as discussed earlier in the CET section (Frederick & Ryan, 1995).

Perceptions of competence alone will not increase IM, the feelings of competence need to be accompanied by a sense of autonomy or an internal perceived locus of causality (PLOC) (deCharms, 1968). Feedback is important in the world of sport, it allows for a communication link between coach and athlete, and can provide evaluative information to their athletes so they can make changes in their performance. This type of communication is especially important in the sport of diving for one to be successful, a diver needs to know what technical things need to be fixed in addition to the way their body is angled, the distance from the diving board etcetera. Information such as this can only be provided via feedback from a coach.

Pelletier et al. (1995) explained that coaches, parents and teachers who provide feedback of competence, a clear structure or rationale for doing an activity, and provide autonomy supportive behaviors promote a self-determined form of motivation and undermine amotivation. Moreover, other studies in the field of teaching have also revealed that teachers who are autonomy supportive develop greater IM and desire for challenge and curiosity in their students. This finding has also been replicated in autonomy supportive parents. (Deci, Nezlek, & Sheinman, 1981; Flink, Boggiano, & Barrett, 1990; Ryan & Grolnick, 1986 as cited in Deci & Ryan, 2000). The role of teacher and coach are very comparable, with results transferring to the world of sport. Furthermore, one should also keep in mind that the motivational climate can also play a part in the athlete's motivation as discussed in the literature review section. The coach should encourage a mastery climate to increase the chances of having the athlete integrate the same type of motivation (Reinboth & Duda, 2006).

An individual who is task-involved is focused on exhibiting mastery of the skill, and not on showing normative high ability. This results in perceived ability to be self referenced and the athlete feels confident while learning, mastering a skill, and personally improving while also expending high effort. Task involved athletes are more self-determined when compared to ego involved athletes (Brunel, 1996). In contrast, ego-involved individuals have outcomes which involve improvement, understanding and learning as only means to an end, and not outcomes in their own right. Athletes who are occupied in an ego context will be more concerned about their comparison with others, and to try and demonstrate superiority (Nicholls, 1989). For this reason it is recommended that the coach focuses on the task or mastery environment for their athletes.

As equally important to know what increases an athlete's level of IM, it is also significant to look at what can undermine or decrease an athlete's IM in order to avoid losing the more autonomous form of motivation.

10.7.2 Undermining IM

A great deal of research has looked at the idea that extrinsic rewards can and do weaken IM, but the results seem to be rather controversial. However, a rather recent meta-analysis conducted on 128 lab experiments established that all expected tangible rewards that were dependent on task performance; engaging in an activity, completing an activity, or reaching a certain level of performance all reliably undermine IM (Deci, Koestner, & Ryan 1999, 2001). Although it seems to be more apparent in school-aged children, when compared to college aged participants, this is due to the fact that adults can decide about their choice to participate in an activity because they are more developed. The current finding is that rewards are detrimental to motivation only if they are perceived as controlling. Rewards can maintain or even facilitate motivation if they are informational and can increase perceived competence, additionally if the reward is not expected and is task-non-contingent it does not decrease IM (Deci, Koestner, & Ryan 1999).

Similarly, in accordance with the CET, feedback has been found to have parallel results towards motivation as rewards. Feedback statements that are perceived to be controlling undermine IM, while autonomy supportive statements can preserve or even enhance IM (Deci, Koester, & Ryan 1999).

Investigations have also revealed the following factors can also be damaging to IM these include; threats, deadlines, directives, pressured evaluations, and imposed goals (Deci & Ryan, 1985), due to an external perceived locus of control. In addition, things such as money, food, good player awards, prizes, and surveillance have also been shown to lead decreases in IM (Deci, Koester, & Ryan 1999).

In classroom situations (comparable to coaching circumstances) it has been discovered that students who are taught with a controlling approach lose initiative and learn less effectively, when the learning requires creativity and conceptual processes. Likewise, controlling parents, relative to autonomy supportive parents have children who are less intrinsically motivated. (Amabile, 1996; Grolnich & Ryan, 1987; Utman 1997 as cited in Deci & Ryan, 2000). Coaches who show punishment-orientated, ignoring and autocratic behaviors also tend to have athletes who are less intrinsically motivated (Amorose & Horn, 2000). Therefore, in any situation where the athlete loses autonomy the IM is likely to decrease.

Ego-involved athletes compared to task involved athletes have also been found to have lower levels of IM. Ego-involvement is where an individual feels pressure to accomplish specific goals or outcomes in order to protect or preserve their self-esteem, leading to feelings of being internally controlled and consequently lowers the athletes IM level (Frederick & Ryan, 1995).

Finally, there is also the theory of the 'over-justification effect', in the case of rewarding an individual for an intrinsically interesting task, and then subsequent task involvement with no reward will result in a decrease of IM. This is due to the perceptual shift from internal to external. The behavior would have occurred anyway, so the reward merely over-justified

the behavior, resulting in decreased IM (Treasure, Lemyre, Kuczka, & Standage, 2007). To conclude, most feedback, rewards and other communications that are perceived by the athlete as controlling or amotivating will decrease an athlete's level of IM.

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APPENDIXES

Appendix 1

Pre-information to survey

<http://www.mysurvs.com/survey/202242826/>

Survey "Motivation in the Sport of Diving"

Hi and welcome to participate in this study!

The aim of the following questionnaire is to collect information about motivational states in divers from around the world. You have been selected for the study on the basis of your experience as a diver. Your answers will further scientific knowledge and understanding about motivation in your sport of diving. Remember that you can fill in the questionnaire even if you have already retired from the sport.

By answering the following questions, you may gain a deeper and more specific understanding of why you participate in diving, if you have never thought about it. There are no risks associated with being part of this research study.

If you have any questions about this research study, please do not hesitate to contact me at saara.a.haapanen@jyu.fi or my thesis advisor Professor Taru Lintunen at taru.lintunen@jyu.fi.

Filling in the questionnaire takes about 20 minutes. All information you provide is 100% confidential, your answers will only be used for academic purposes and may be published later on. Your identity or any other kind of information that would identify you will not be disclosed. Please answer the questions from your own personal diving experience, and keep in mind that there are no correct answers.

Thank you for your participation

Saara Haapanen
Sports and Exercise Psychology
Master's Degree Student
University of Jyväskylä
Finland

If you are at least 13 years of age you may proceed with the questionnaire. By clicking on start, you are giving your consent to take part in the study

Appendix 2 Full Survey

Respondent Questions

1. Gender:
2. Age:
3. Location:

Background Questions

1. Please fill in your date of birth
2. Which event do you compete? (*Springboard/Platform/Both*)
3. How old were you when you started diving?
4. What is your nationality?
5. What is the country you dive/dove for, if different from nationality?
6. Highest level of competition you have reached (for example: Provincials/State, Regional, Nationals, Worlds, Olympics...etc)
7. Briefly explain your own best achievement in the sport of diving (for example: gold medal at ____, personal best score, qualifying for ____ blank etc.)
8. Estimate the average number of training hours per week you spend/spent in the water.
9. Estimate the average number of training hours per week you spend/spent in other training (for example: dryland, weights).
10. Are you still currently diving? (*Yes/No*)

If the respondent answered *No* to “Are you still currently diving?”, the following questions were asked

- Why are you no longer diving? If other, please briefly explain (*Injury/Other*)
 - At what age did you end your diving career?
 - Do you, or have you ever trained alone? (*Yes/No*)
11. Briefly explain the circumstances and the time you spent training alone (e.g. how long)
 12. Have you ever received financial aid for your diving (for example: scholarship or money from your federation) (*Yes/No*)
 13. Are you a member of a *facebook* diving group? (*Yes/No*)

Appendix 2.1
The Diving SMS

Why Do You Participate in Diving?...

(1 = does not correspond at all to 7 = corresponds exactly)

For the pleasure I feel in living exciting experiences	1	2	3	4	5	6	7
For the pleasure it gives me to know more about the sport of diving	1	2	3	4	5	6	7
I used to have good reasons for participating in diving, but now I am asking myself if I should continue.	1	2	3	4	5	6	7
For the pleasure of discovering new training techniques.	1	2	3	4	5	6	7
I don t know anymore; I have the impression that I am incapable of succeeding in diving.	1	2	3	4	5	6	7
Because it allows me to be well regarded by people that I know.	1	2	3	4	5	6	7
Because, in my opinion, it is one of the best ways to meet people.	1	2	3	4	5	6	7
Because I feel a lot of personal satisfaction while mastering certain difficult training techniques.	1	2	3	4	5	6	7
Because it is absolutely necessary to do sports if one wants to be in shape.	1	2	3	4	5	6	7
For the prestige of being an athlete.	1	2	3	4	5	6	7
Because it is one of the best ways I have chosen to develop other aspects of myself.	1	2	3	4	5	6	7
For the pleasure I feel while improving some of my weak points.	1	2	3	4	5	6	7
For the excitement I feel when I am really involved in the activity.	1	2	3	4	5	6	7
Because I must dive to feel good about myself.	1	2	3	4	5	6	7
For the satisfaction I experience while I am perfecting my abilities.	1	2	3	4	5	6	7
Because people around me think it is important to be in shape.	1	2	3	4	5	6	7
Because it is a good way to learn lots of things which could be useful to me in other areas of my life.	1	2	3	4	5	6	7
For the intense emotions that I feel while I am doing a sport that I like.	1	2	3	4	5	6	7
It is not clear to me anymore; I don t really think my place is in diving.	1	2	3	4	5	6	7
For the pleasure that I feel while executing certain difficult movements.	1	2	3	4	5	6	7
Because I would feel bad if I was not taking time to do it.	1	2	3	4	5	6	7
To show others how good I am at diving.	1	2	3	4	5	6	7
For the pleasure that I feel while learning training techniques that I have never tried before.	1	2	3	4	5	6	7

Because it is one of the best ways to maintain good relationships with my friends.	1	2	3	4	5	6	7
Because I like the feeling of being totally immersed in the sport.	1	2	3	4	5	6	7
Because I must do sports regularly	1	2	3	4	5	6	7
For the pleasure of discovering new performance strategies.	1	2	3	4	5	6	7
I often ask myself why I am doing this; I can't seem to achieve the goals that I set for myself	1	2	3	4	5	6	7

Appendix 2.2
The Diving TEOSQ

I feel most successful in diving when...(1 = *strongly disagree* to 5 =*strongly agree*)

I am the only one who can a certain dive or skill	1	2	3	4	5
The others cannot do as well as me	1	2	3	4	5
I can do better than my team mates or competitors	1	2	3	4	5
I learn a new dive (or skill, technique) and it makes me want to practice more	1	2	3	4	5
I learn something that is fun to do	1	2	3	4	5
Others “mess up and I do not	1	2	3	4	5
I learn a new dive or skill by trying hard	1	2	3	4	5
I work really hard	1	2	3	4	5
I score the most points	1	2	3	4	5
Something I learn makes me want to practice more	1	2	3	4	5
I am the best	1	2	3	4	5
A skill I learn really feels right	1	2	3	4	5
I do my very best	1	2	3	4	5

Final open-ended question

The questionnaire is finished. Is there any information you would like to add? (*Open question*)

Appendix 3
The Original TEOSQ

I feel most successful in sport when...(*1 = strongly disagree to 5 =strongly agree*)

I am the only one who can do the play or skill	1	2	3	4	5
The others cannot do as well as me	1	2	3	4	5
I can do better than my friends	1	2	3	4	5
I learn a new skill and it makes me want to practice more	1	2	3	4	5
Others “mess up” and I do not	1	2	3	4	5
I learn something that is fun to do	1	2	3	4	5
I learn a new skill by trying hard	1	2	3	4	5
I work really hard	1	2	3	4	5
I score the most points/goals/hits, etc.	1	2	3	4	5
Something I learn makes me want to go practice more	1	2	3	4	5
I am the best	1	2	3	4	5
A skill I learn really feels right	1	2	3	4	5
I do my very best	1	2	3	4	5

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Appendix 4
The SMS Original

THE SPORT MOTIVATION SCALE (SMS-28)
*Luc G. Pelletier, Michelle Fortier, Robert J. Vallerand,
Nathalie M. Brière, Kim M. Tuson and Marc R. Blais, 1995*
Journal of Sport & Exercise Psychology, 17, 35-53

WHY DO YOU PRACTICE YOUR SPORT ?

Using the scale below, please indicate to what extent each of the following items corresponds to one of the reasons for which you are presently practicing your sport.

Does not correspond at all	Corresponds a little	Corresponds moderately	Corresponds a lot	Corresponds exactly		
1	2	3	4	5	6	7

WHY DO YOU PRACTICE YOUR SPORT ?...

- | | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1. For the pleasure I feel in living exciting experiences. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. For the pleasure it gives me to know more about the sport that I practice. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. I used to have good reasons for doing sport, but now I am asking myself if I should continue doing it. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. For the pleasure of discovering new training techniques. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. I don't know anymore; I have the impression of being incapable of succeeding in this sport. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. Because it allows me to be well regarded by people that I know. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7. Because, in my opinion, it is one of the best ways to meet people. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8. Because I feel a lot of personal satisfaction while mastering certain difficult training techniques. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 9. Because it is absolutely necessary to do sports if one wants to be in shape. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10. For the prestige of being an athlete. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 11. Because it is one of the best ways I have chosen to develop other aspects of myself. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 12. For the pleasure I feel while improving some of my weak points. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 13. For the excitement I feel when I am really involved in the activity. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

14. Because I must do sports to feel good myself.	1	2	3	4	5	6	7
15. For the satisfaction I experience while I am perfecting my abilities.	1	2	3	4	5	6	7
16. Because people around me think it is important to be in shape.	1	2	3	4	5	6	7
17. Because it is a good way to learn lots of things which could be useful to me in other areas of my life.	1	2	3	4	5	6	7
18. For the intense emotions I feel doing a sport that I like.	1	2	3	4	5	6	7
19. It is not clear to me anymore; I don't really think my place is in sport.	1	2	3	4	5	6	7
20. For the pleasure that I feel while executing certain difficult movements.	1	2	3	4	5	6	7
21. Because I would feel bad if I was not taking time to do it.	1	2	3	4	5	6	7
22. To show others how good I am good at my sport.	1	2	3	4	5	6	7
23. For the pleasure that I feel while learning training techniques that I have never tried before.	1	2	3	4	5	6	7
24. Because it is one of the best ways to maintain good relationships with my friends.	1	2	3	4	5	6	7
25. Because I like the feeling of being totally immersed in the activity.	1	2	3	4	5	6	7
26. Because I must do sports regularly.	1	2	3	4	5	6	7
27. For the pleasure of discovering new performance strategies.	1	2	3	4	5	6	7
28. I often ask myself; I can't seem to achieve the goals that I set for myself.	1	2	3	4	5	6	7

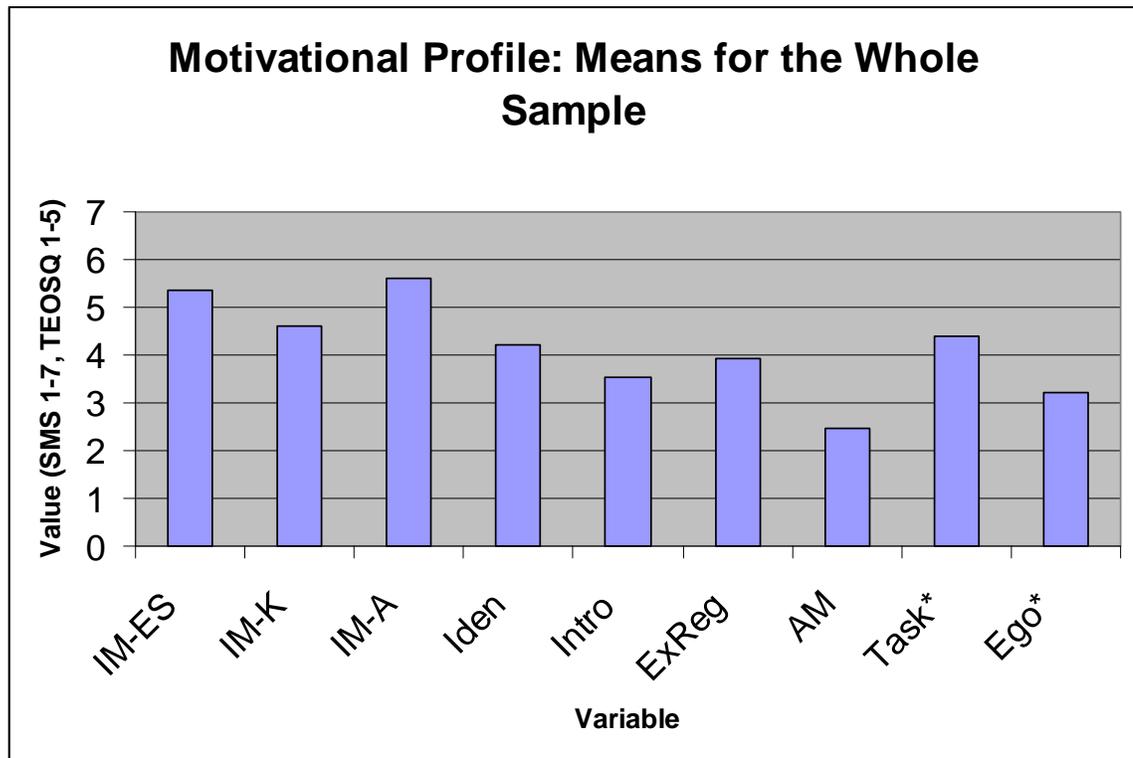
© *Luc G. Pelletier, Michelle Fortier, Robert J. Vallerand, Nathalie M. Brière, Kim M. Tuson and Marc R. Blais, 1995*

KEY FOR SMS-28

# 2, 4, 23, 27	Intrinsic motivation -	# 7, 11, 17, 24	Extrinsic motivation -
to	know	# 9, 14, 21, 26	identified
# 8, 12, 15, 20	Intrinsic motivation -	# 6, 10, 16, 22	Extrinsic motivation -
	to accomplish		introjected
# 1, 13, 18, 25	Intrinsic motivation -	# 3, 5, 19, 28	Extrinsic motivation - external
	to experience		regulation
	stimulation		Amotivation

Pelletier, L. G., Fortier, M. S., Vallerand, R. J., Tuson, K. M., Brière, N. M., & Blais, M. R. (1995). Toward a new measure of intrinsic motivation, extrinsic motivation, and amotivation in sports: The Sport Motivation Scale (SMS). *Journal of Sport & Exercise Psychology, 17*, 35-53.

Appendix 5
Whole Sample Motivation Means (n=639)



Appendix 6
Diving vs. Not Diving

6.1 Independent sample T-Tests conducted on the divers currently diving and not diving.

Variables	Levene's Test for Equality of Variances		T-tests for equity of means			
		F	Sig.	T	Df	Sig. (2-tailed)
IM: Experience Stimulation	EVA	2.829	.093	-1.567	637	.118
	EVNA			-1.597	626.809	.111
IM to know	EVA	.329	.567	1.880	637	.061
	EVNA			1.885	598.974	.060
IM to accomplish	EVA	.273	.601	.240	637	.811
	EVNA			.239	591.250	.811
Identified	EVA	.161	.689	1.579	637	.115
	EVNA			1.589	606.004	.113
Introjected	EVA	.053	.817	5.759	637	.000
	EVNA			5.763	595.596	.000
External Regulation	EVA	.050	.824	2.070	637	.039
	EVNA			2.072	596.119	.039
Amotivated	EVA	4.372	.037	-2.396	637	.017
	EVNA			-2.380	578.056	.018
TASK	EVA	4.162	.042	2.690	637	.007
	EVNA			2.661	567.394	.008
EGO	EVA	.018	.893	1.346	637	.179
	EVNA			1.347	596.486	.178

Note. EVA=Equal Variances Assumed, EVNA= Equal Variances Not Assumed

6.2 Split sample (diving vs. not diving); Means, SD, and flagged significant differences for each variable.

10. Are you still currently diving?		N	M	SD
IM to experience	Yes	362	5.29	1.22
Stimulation	No-	277	5.44	1.06
IM to know	Yes-	362	4.67	1.30
	No	277	4.48	1.28
IM to accomplish	Yes-	362	5.63	1.09
	No	277	5.60	1.1
Identified	Yes-	362	4.27	1.37
	No	277	4.10	1.31
Introjected**	Yes-	362	3.80	1.31
	No	277	3.20	1.3
External	Yes-	362	4.04	1.32
Regulation**	No	277	3.82	1.32
Amotivated**	Yes	362	2.33	1.47
	No-	277	2.62	1.54
TASK	Yes-	362	4.44	.53
	No	277	4.32	.58
EGO	Yes-	362	3.25	1.0
	No	277	3.14	.99

**Indicates significance (- Indicates that the mean was higher for that group of divers)

Appendix 7
One –Way ANOVA for Competitive Levels

Variables		Sum of Squares	Df	Mean Square	F	Sig.
IM Experience Stimulation	Between Groups	10.92	6	1.820	1.375	.222
	Within Groups	836.07	632	1.323		
	Total	846.99	638			
IM To Know	Between Groups	4.864	6	.811	.482	.822
	Within Groups	1063.33	632	1.682		
	Total	1068.20	638			
IM To Accomplish Identified	Between Groups	3.253	6	.542	.448	.846
	Within Groups	764.31	632	1.209		
	Total	767.56	638			
Introjected	Between Groups	14.10	6	2.349	1.306	.252
	Within Groups	1136.92	632	1.799		
	Total	1151.01	638			
External Regulation	Between Groups	8.24	6	1.374	.766	.597
	Within Groups	1133.41	632	1.793		
	Total	1141.65	638			
Amotivated	Between Groups	9.176	6	1.529	.871	.516
	Within Groups	1109.51	632	1.756		
	Total	1118.69	638			
Task	Between Groups	15.234	6	2.539	1.119	.349
	Within Groups	1433.67	632	2.268		
	Total	1448.90	638			
Ego	Between Groups	1.98	6	.330	1.081	.372
	Within Groups	192.69	632	.305		
	Total	194.67	638			
Ego	Between Groups	9.89	6	1.648	1.676	.124
	Within Groups	621.46	632	.983		
	Total	631.35	638			

Appendix 8

Pearson Correlations between all nine of the motivational variables for the whole sample

Variable		1	2	3	4	5	6	7	8	9
1. IM Experience stimulation	Pearson Correlation	1	.556**	.643**	.400**	.241**	.203**	-.443**	.479**	.052
	Sig.		.000	.000	.000	.000	.000	.000	.000	.185
2. IM To know	Pearson Correlation	.556**	1	.594**	.451**	.228**	.201**	-.299**	.494**	-.043
	Sig.	.000		.000	.000	.000	.000	.000	.000	.282
3. IM To accomplish	Pearson Correlation	.643**	.594**	1	.396**	.161**	.180**	-.392**	.533**	.068
	Sig.	.000	.000		.000	.000	.000	.000	.000	.087
4. Identified	Pearson Correlation	.400**	.451**	.396**	1	.379**	.441**	-.141**	.290**	.044
	Sig.	.000	.000	.000		.000	.000	.000	.000	.266
5. Introjected	Pearson Correlation	.241**	.228**	.161**	.379**	1	.527**	.105**	.134**	.209**
	Sig.	.000	.000	.000	.000		.000	.008	.001	.000
6. External regulation	Pearson Correlation	.203**	.201**	.180**	.441**	.527**	1	.065	.049	.429**
	Sig.	.000	.000	.000	.000	.000		.098	.213	.000
7. Amotivated	Pearson Correlation	-.443**	-.299**	-.392**	-.141**	.105**	.065	1	-.329**	.048
	Sig.	.000	.000	.000	.000	.008	.098		.000	.225
8. TASK	Pearson Correlation	.479**	.494**	.533**	.290**	.134**	.049	-.329**	1	.074
	Sig.	.000	.000	.000	.000	.001	.213	.000		.060
9. EGO	Pearson Correlation	.052	-.043	.068	.044	.209**	.429**	.048	.074	1
	Sig.	.185	.282	.087	.266	.000	.000	.225	.060	

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

Appendix 9

Sport Motivation Scale: Pattern matrix Factoring, with labeled factors.

	1(IMA)	2(IN)	3 (A)	4 (ID)	5 (IMK)	6(EX)	7(IME)
IME13.1	.197	-.128	-.156	.055	-.272	.020	<u>.373</u>
IMK13.2	-.076	.008	.004	.026	<u>-.705</u>	.007	.125
A13.3	-.040	-.047	<u>.738</u>	-.015	-.023	.050	-.018
IMK13.4	.153	.028	-.006	-.118	<u>-.682</u>	-.017	-.152
A13.5	.007	-.031	<u>.765</u>	.066	-.017	-.027	.122
EX13.6	-.014	-.022	-.006	-.160	-.138	<u>.630</u>	-.030
ID13.7	-.098	-.076	-.100	<u>-.630</u>	-.112	.266	.016
IMA13.8	<u>.610</u>	-.067	-.049	.010	-.092	.137	-.033
IN13.9.	-.065	<u>.729</u>	-.036	.030	-.061	.060	-.069
EX13.10	.087	.340	-.035	-.056	-.012	.381	-.059
ID13.11	<u>.322</u>	.114	-.074	<u>-.493</u>	.030	-.113	.038
IMA13.12	<u>.670</u>	-.032	.049	-.232	-.002	-.078	-.020
IME13.13	<u>.411</u>	-.003	-.163	.044	-.149	-.009	.280
IN13.14	.089	.123	.056	-.090	-.041	.143	.371
IMA13.15	<u>.710</u>	.045	-.079	.067	-.014	.021	.071
EX13.16	.002	<u>.417</u>	.184	-.113	.036	.276	-.010
ID13.17	.191	.117	.055	<u>-.559</u>	-.096	-.140	-.061
IME13.18	<u>.364</u>	-.029	-.118	-.093	-.036	-.019	.328
A13.19	.020	-.001	.756	-.009	.085	.043	-.105
IMA13. 20	<u>.681</u>	-.019	-.072	.048	.014	.085	.100
IN13.21	-.141	.337	.161	-.153	-.078	.021	<u>.355</u>
EX13.22	.144	.129	.038	.023	.134	<u>.584</u>	.125
IMK13.23	<u>.490</u>	.044	-.044	-.028	<u>-.357</u>	.052	-.089
ID13.24	-.116	-.005	-.026	<u>-.630</u>	.015	.184	.117
IME13.25	.272	.102	-.207	-.133	.005	.053	<u>.324</u>
IN13.26	.022	<u>.732</u>	-.028	.012	.034	-.052	.093
IMK13.27	<u>.444</u>	.155	-.065	-.092	<u>-.328</u>	-.021	-.005
A13.28	.039	.036	<u>.788</u>	.001	-.041	-.038	.010

Extraction Method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalization. (Rotation converged in 15 iterations)

Appendix 10
TEOSQ: Pattern Matrix for Principal Axis Factoring

I feel most successful in diving when....	Factor	
	1 (EGO)	2 (TASK)
E14. I am the only one who can a certain dive or skill"	.586	-.028
E 14.2 The others cannot do as well as me	.811	-.026
E 14.3 I can do better than my teammates or competitors	.796	.018
T 14.4 I learn a new dive (or skill, technique) and it makes me want to practice more	-.037	.626
T 14.5 I learn something that is fun to do	-.064	.519
E 14.6 Others "mess up and I do not	.548	-.054
T 14.7 I learn a new dive or skill by trying hard	-.019	.636
T 14.8 I work really hard	-.034	.643
E 14.9 I score the most points	.742	.088
T 14.10 Something I learn makes me want to practice more	-.026	.742
E 14.11 I am the best	.718	.020
T 14.12 A skill I learn really feels right	.176	.503
T 14.13 I do my very best	.033	.524

Extraction Method: Principal Axis Factoring. Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 3 iterations.

Appendix 11

The SMS-Cronbach alpha scores, alpha if deleted, communalities (h^2) and alphas for each subscale

	α	α if Item Deleted	h^2
IME.1 For the pleasure I feel in living exciting experiences.	.827		.547
IME.13 For the excitement I feel when I am really involved in the activity.	.825		.545
IME.18 For the intense emotions that I feel while I am doing a sport that I like.	.842		.509
IME.25 Because I like the feeling of being totally immersed in the sport.	.822		.527
Subscale IM to experience stimulation α	.74		
IMK.2 For the pleasure it gives me to know more about the sport of diving	.841		.742
IMK.4 For the pleasure of discovering new training techniques.	.822		.695
IMK.23 For the pleasure that I feel while learning training techniques that I have never tried before.	.820		.597
IMK.27 For the pleasure of discovering new performance strategies.	.824		.617
Subscale IM to know α	.81		
IMA.8 Because I feel a lot of personal satisfaction while mastering certain difficult training techniques.	.824		.568
IMA.12 For the pleasure I feel while improving some of my weak points.	.821		.631
IMA.15 For the satisfaction I experience while I am perfecting my abilities.	.819		.646
IMA. 20 For the pleasure that I feel while executing certain difficult movements.	.822		.619
Subscale IM to accomplish α	.78		
ID.7 Because, in my opinion, it is one of the best ways to meet people.	.824		.687
ID.11 Because it is one of the best ways I have chosen to develop other aspects of myself.	.822		.605
ID.17 Because it is a good way to learn lots of things which could be useful to me in other areas of my life.	.823		.639
ID.24 Because it is one of the best ways to maintain good relationships with my friends.	.822		.657
Subscale Identified Regulation α	.74		
IN.9 Because it is absolutely necessary to do sports if one wants to be in shape.	.820		.695
IN.14 Because I must dive to feel good about myself.	.823		.561
IN.21 Because I would feel bad if I was not taking time to do it.	.841		.626
IN.26 Because I must do sports regularly	.823		.693
Subscale Introjected Regulation α	.67		
EX.6 Because it allows me to be well regarded by people that I know.	.823		.693
EX.10 For the prestige of being an athlete.	.823		.578
EX.16 Because people around me think it is important to be in shape.	.820		.549
EX.22 To show others how good I am at diving.	.821		.651
Subscale IM External Regulation α	.71		

A.3 I used to have good reasons for participating in diving, but now I am asking myself if I should continue.	.821	.662
A.5 I don't know anymore; I have the impression that I am incapable of succeeding in diving.	.822	.667
A.19 It is not clear to me anymore; I don't really think my place is in diving.	.818	.703
A.28 I often ask myself why I am doing this; I can't seem to achieve the goals that I set for myself	.837	.692
Subscale Amotivaiton α		.84

Appendix 12

The second set of Pearson Correlations test done with the sample split, looking at correlations separately including alpha scores and internal consistency.

Currently Diving: Descriptive Statistics, Internal Consistency, and Coefficients Correlation Matrix for all Variables

	M	SD	α	1	2	3	4	5	6	7	8	9
1. IM: ES	5.29	1.22	.783	1								
2. IM: TK	4.67	1.30	.806	.629**	1							
3. IM: ACC	5.63	1.09	.818	.698**	.628**	1						
4. IDEN	4.27	1.37	.768	.430**	.483**	.376**	1					
5. INTRO	3.80	1.31	.644	.233**	.192**	.145**	.383**	1				
6. EX R	4.04	1.32	.729	.234**	.213**	.182**	.461**	.520**	1			
7. AM	2.33	1.47	.871	-.522**	-.427**	-.476**	-.204**	.117*	.070	1		
8. TASK	4.44	.53	.839	.524**	.509**	.540**	.299**	.056	.030	-.415**	1	
9. EGO	3.25	1.0	.787	.036	-.092	.007	.019	.176**	.449**	.118*	.001	1

** . Correlation is significant at the 0.01 level (2-tailed). * . Correlation is significant at the 0.05 level (2-tailed).

Not Diving: Descriptive Statistics, Internal Consistency, and Coefficients Correlation Matrix for all Variables

	M	SD	α	1	2	3	4	5	6	7	8	9
1. IM: ES	5.44	1.06	.677	1								
2. IM: TK	4.48	1.28	.751	.466**	1							
3. IM: ACC	5.60	1.10	.795	.570**	.552**	1						
4. IDEN	4.10	1.31	.709	.368**	.401**	.423**	1					
5. INTRO	3.20	1.30	.678	.307**	.252**	.186**	.364**	1				
6. EX R	3.82	1.32	.690	.173**	.173**	.177**	.408**	.528**	1			
7. AM	2.62	1.55	.804	-.357**	-.127*	-.289**	-.048	.147*	.078	1		
8. TASK	4.32	.58	.859	.450**	.468**	.529**	.270**	.185**	.054	-.218**	1	
9. EGO	3.14	.99	.798	.087	.014	.146*	.071	.238**	.398**	-.028	.152*	1

** . Correlation is significant at the 0.01 level (2-tailed). * . Correlation is significant at the 0.05 level (2-tailed).

Appendix 13

Explanation of the aspects of diving

The following is taken from “DIVING PLONGEON CANADA, A Spectator Guide”

1. Starting Position on Board

Body straight, head erect, arms straight and to the sides, or above the head

2. The Run

Should be smooth, straight and without hesitation

3. The Take-off

Should be bold, reasonably high and confident, and may be performed either standing or running

4. The Flight

Evaluation of the quality of positions, somersaults and twists

5. The Entry

Should be vertical, without splashes, body straight and legs and feet together

6. In Synchronized Diving

- 2 Judges are judging individual execution of each diver
- 5 Judges are judging the synchronization of both divers
 - Timing of approach
 - Take off; similarity in height
 - Coordinated timing of the movements during the flight
 - Similarity of the angles of the entries
 - Comparative distance from the board on entry
 - Coordinated timing of the entries

There are 3 major parts to look at:

1. Starting Position, Approach and the Take Off

- a. Smooth; well balanced
- b. High jump off board or platform
- c. Close distance from the board

2. Execution in the Air

- a. Speed of rotation
- b. Proper position
 - i. Tuck – bent at the knees and hips in a compact position, hands on lower leg, knees -and feet together with the toes pointed
 - ii. Pike – bent at the hips, legs straight and together with the toes pointed
 - iii. Straight – the body is held straight without bending at either the knees or hips with the feet together and the toes pointed

3. Entry to the Water

- a. Angle of entry – should be vertical
- b. Distance from the board – including being off to the side of the board
- c. Body, head and arm alignment
- d. Amount of splash

What differentiates good diving from exceptional diving?

1. Strength & Power

- a. Exceptional height off springboard or platform

- b. Fast somersaulting and twisting
- 2. Economy of Movement
 - a. Most complex dives done with fewest movements necessary
 - b. A difficult dive looks simple
- 3. Tight Positions & Good Body Line
 - a. Close position
 - b. Toes pointed
 - c. Legs close together
 - d. No form breaks
- 4. Precision
 - a. The best divers will be more precise and consistent
 - b. It's important to make the fewest and smallest errors

1 Meter, 3 Meter and 10 Meter:

- Consists of preliminaries, semi-finals and finals
- The top 18 ranked divers from the preliminaries advance to the semi-finals
- The top 12 ranked divers from the semi-finals advance to the finals
- Semi-finals – ranking will be based on the combined scores of preliminaries and semi-final competition
- Finals – ranking will be based on the total score of the semi-final and final competition (preliminary scores are dropped)

Synchronized Diving:

- Consist of preliminaries and finals
- The top 12 ranked teams from the preliminary competition participate in finals.
- Points scored in the finals determine the rankings
- In the 5 rounds of dives the following must be performed:
 - At least one round consisting of forward facing take-off by both divers
 - At least one round consisting of backward facing take-off by both divers
 - At least one round with a combination of forward and backward facing take-off

General:

- In semi-final and final competitions, divers will compete in reverse order from their ranking in the previous competition
- During each phase the divers must perform one dive from each group; *forward, backward, reverse, inward and twist*

Number of Dives

Women's 1m/3m 5 dives

Men's 1m/3m 6 dives

Men's 10m 6 dives

Women's 10m 5 dives

Synchro 3m/10m 5 (compulsories) +5 (optionals)

Points up to 10 can be awarded by each judge on the panel

- A panel for individual events consists of 7 judges
- 9 judges assess synchronized diving; 4 judge the execution of individual dives, and 5 assess synchronization

- The highest and lowest marks awarded are disregarded (in synchronized events the highest and lowest of both the execution and the synchronization scores are dropped)
- The remaining scores are added together
- This score is then multiplied by the degree of difficulty of the dive
- Then multiplied by 0.6 (A weighing factor; equates competition with 5 judges to those competitions with 7 judges)

Example:

7 Judges' Award:

8, 7, 7, 7, 7, 7, 6.5 = 35

Total X DD = Score

35 X DD 2.0 = 70 X 0.6 = 42.0