

**AN INVESTIGATION INTO THE EFFECTIVENESS OF  
AN EXTENDED THEORY OF PLANNED BEHAVIOUR  
IN AN IRISH EXERCISE CONTEXT**

**by**

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## **Abstract**

In modern society, regular engagement in physical activity and exercise are becoming ever more important. Frequent participation in physical activities can greatly improve an individual's physiological and psychological well-being (World Health Organisation, 2010).

A key factor in exercise participation is the individual's motivation to participate. Ajzen's (1985) Theory of Planned Behaviour (TPB) acts as a useful predictor of intention to engage in certain health-behaviours (e.g. exercise participation). The TPB claims that peoples' behavioural intentions are influenced by three factors – attitude toward the behaviour, subjective norms and perceived behavioural control. Ajzen (1985) also claims that behavioural intention and perceived behavioural control are the key drivers of actual behaviour. Hagger and Chatzisarantis (2008) believe that more factors affect behavioural intentions. As a result, they created an Extended TPB model that includes additional constructs (i.e. attitude strength, anticipated regret, social support and self-identity) as predictors of intention. They also argue that conscientiousness and the activity facet of extraversion contribute significantly to actual behaviour.

This quantitative study tested the effectiveness of the Extended TPB in an exercise context. In a convenience sample, respondents (n=108) completed two questionnaires. The first measured participants' underlying beliefs regarding intentions to exercise. The second measured participants' actual exercise behaviour over a two-week period. Analysis of the primary research led to the following conclusions:

The Extended TPB acts as a more accurate predictor of behavioural intentions than the Original TPB. Anticipated Regret (AR) and Self-Identity (SI) are extremely significant predictors of intentions to engage in physical activity, while Attitude Strength (AS) and Social Support (SS) are not. Conscientiousness (CONS) is significant driver of exercise behaviour, while the Activity Facet of Extraversion (AFE) is not. The author also hypothesises that the significance of social support decreases as one gets older. The author recommends that further study is necessary in the areas of attitude strength and social support.

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## **Ethical Declaration**

I declare that this dissertation is wholly my own work except where I have made explicit reference to the work of others. I have read the Structured Masters Programs Research Policy, Procedures and Guidelines (October, 2009) and hereby declare that this dissertation is in line with these requirements. I have discussed, agreed and complied with whatever confidentiality or anonymity terms of reference were deemed appropriate by those participating in the research.

I have uploaded the entire dissertation as one file to Turnitin®, examined my 'Originality Report' by viewing the detail behind the overall 'Similarity Index', and have addressed any matches that exceed 3% when quotations and bibliography are excluded. Any unaddressed matches in excess of 3% are explained by way of additional note submitted separately with the dissertation. I have made every effort to minimise my overall 'Similarity Index' score and the number of matches occurring.

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## List of Abbreviations

<b>AFE</b>	-	Activity Facet of Extraversion
<b>AR</b>	-	Anticipated Regret
<b>AS</b>	-	Attitude Strength
<b>ATB</b>	-	Attitude Toward the Behaviour
<b>BI</b>	-	Behavioural Intention
<b>CONS</b>	-	Conscientiousness
<b>CONT</b>	-	Perceived Controllability
<b>ECA</b>	-	Everyday Commuting Activity
<b>OAE</b>	-	Outdoor Aerobic Exercise
<b>PBC</b>	-	Perceived Behavioural Control
<b>PC</b>	-	Perceived Controllability
<b>SE</b>	-	Self-Efficacy
<b>SI</b>	-	Self-Identity
<b>SN</b>	-	Subjective Norm
<b>SND</b>	-	Subjective Norm (descriptive)
<b>SNI</b>	-	Subjective Norm (injunctive)
<b>SPSS</b>	-	Statistical Package for Social Sciences
<b>SS</b>	-	Social Support
<b>TPB</b>	-	Theory of Planned Behaviour
<b>WHO</b>	-	World Health Organisation

## Chapter 1: Introduction

### 1.1 Introduction

In modern society, more and more people are becoming increasingly conscious of their physical health and fitness. As a result, regular engagement in physical activity and exercise are becoming ever more important. Casperson et al. (1985) define physical activity as *"any bodily movement produced by skeletal muscles that results in energy expenditure"*. They regard exercise as *"a subset of physical activity that is planned, structured, and repetitive and has a final or an immediate objective the improvement or maintenance of physical fitness"*. But why do individuals engage in exercise/physical activity behaviours?

The main reasons that people engage in exercise are health-related. The Mayo Clinic (2009) highlights some of the benefits of regular engagement in exercise. These include; a reduction in the risk of developing chronic illness, loss of weight, and increases in one's energy levels. As well as health-related motives, researchers have also pinpointed other factors that explain people's intentions to engage in exercise/physical activity. For example, Wiersma (1992) claims that individuals may participate in such behaviours because of the challenging nature of the activity or to improve their skill levels associated with the activity.

Motivational research has shown that Ajzen's Theory of Planned Behaviour (1985) is one of the most accurate predictors of behavioural intentions. Palmer et al. (2005) defines the Theory of Planned Behaviour (TPB) as *"a motivational model, designed to predict behaviours at a single point in time"*. The TPB model is grounded in the belief that one's intentions to behave in a particular manner is a better means of gauging his/her attempted behaviour, rather than his/her actual behaviour (i.e. a person may intend to behave in a certain way because he/she feels that it is the right thing to do, however he/she may not actually engage in the behaviour despite having the utmost intentions to do so) (Ajzen, 1985). In terms of exercise and physical activity behaviour, the TPB proves a great predictor of intentions.

The TPB Model is broken into three sub-sections. The first relates to behavioural beliefs (i.e. the beliefs that people have about the probable results of the behaviour and the assessments that they have about the outcomes of their behaviour). The second relates to normative beliefs (i.e. the beliefs that people have regarding the expectations of social influences, such as friends and family members and what motivates them to conform to expected behaviours set by peers. The final sub-section is referred to as perceived behavioural control and relates to beliefs that people have regarding the external dynamics, beyond their control that can act as facilitators or barriers to the specific behaviour, thus positively or negatively affecting their ability to behave in a certain way, and the apparent power of these dynamics. (Ajzen, 2006a)

Over time the TPB model was adapted to facilitate other factors that were believed to influence people's intentions to behave in certain ways. Hagger and Chatzisarantis (2008) created an extended version of the model which includes such additional factors (i.e. attitude strength, anticipated regret, social support, conscientiousness, the activity facet of extraversion, and self-identity).

The author of this study seeks to examine whether or not these added factors can provide greater insight into people's intentions to engage in physical activity than the traditional TPB variables, and also whether or not Hagger and Chatzisarantis' Extended TPB Model (2008) acts as a greater predictor of intentions to behave in an exercise/physical activity context than Ajzen's original TPB model (1985). The author hopes to explore how the Extended TPB can enhance marketers' understanding of consumers' motivations regarding exercise which will subsequently enhance the influential power of marketing communications aimed toward increasing exercise participation by creating greater knowledge of the benefits of exercise.

## **1.2 Research Question**

The key research question of this study is:

*Does Hagger and Chatzisarantis' (2008) Extended Theory of Planned Behaviour act as a greater predictor of intention to behave in a leisure-time physical activity context than Ajzen's Theory of Planned Behaviour?*



### **1.3 Objectives of the Study**

The overall objective of the study is:

1. To examine whether Hagger and Chatzisarantis' (2008) Extended Theory of Planned Behaviour acts as a greater predictor of intention to behave than Ajzen's Theory of Planned Behaviour

The following is a list of the subsequent research objectives stemming from the research question:

2. To measure peoples' intended physical activity behaviour against their actual behaviour
3. To determine the effect of attitude strength on intentions to engage in regular leisure-time physical activity
4. To determine the effect of anticipated regret on intentions to engage in regular leisure-time physical activity
5. To determine the effect of social support on intentions to engage in regular leisure-time physical activity
6. To determine the effect of self-identity on intentions to engage in regular leisure-time physical activity
7. To determine the effect of conscientiousness on leisure-time physical activity behaviour
8. To determine the effect of the activity facet of extraversion on leisure-time physical activity behaviour

### **1.4 Literature Review**

During the study, the author reviewed literature relative to multiple topics such as the definitions and benefits of exercise and physical activity, extrinsic and intrinsic motivation, and motivational theories and models. The author examined in detail, the literature surrounding Ajzen's (1985) Theory of Planned Behaviour and its uses in terms of predicting people's intentions to perform healthy and/or potentially harmful or risky behaviours. Literature corresponding to Hagger and Chatzisarantis' (2008) Extended

Theory of Planned Behaviour was also reviewed, especially in terms of its significance in an exercise/physical activity context.

## **1.5 Research Methods**

The majority of secondary data was collected from academic and trade journal articles. Such literature was primarily sourced using the library databases at Waterford Institute of Technology (WIT). Textbooks located at the WIT library also helped to inform the author, and thus were also regarded as important sources of secondary data. News articles and industry reports were also fundamental to the study. Online sources also proved vital as they provided a large proportion of the secondary data.

Collection of secondary information enabled the author to gain a greater appreciation of the research topic. Consequently, the secondary data accumulated by the author aided the development of the primary research.

Due to the quantitative nature of the study, primary research was conducted via a series of questionnaires designed to determine modal salient beliefs (Pilot Study), intentions to participate in physical activity behaviours (Final Study Part 1), and finally, actual behaviour (Final Study Part 2). One hundred and eight individuals participated in the final study.

## **1.6 Contribution of the Study**

This research will help to determine the major factors that influence behavioural intentions in a physical activity context. It is hoped that the information collected during the course of this study will contribute to the formulation of future intervention studies to encourage leisure-time physical activity in order to improve the health and well-being of society. The author hopes to provide marketers with an insight into how to utilise the Extended TPB to its full potential in order to increase exercise participation.

It is hoped that this study will also contribute to future academic research as it provides new insight, while simultaneously validating the plethora of literature that currently exists in the area of exercise motivation.

## **1.7 Justification of the Study**

Many authors have looked at individual elements of the Extended TPB as extensions of the TPB. This study however looks at the entire Extended TPB and how it can contribute to the prediction of exercise behaviour.

## **1.8 Structure of the Report**

The dissertation will be structured as follows:

Chapter One provides a background to the literature currently available relative to the research topic. Chapter One also presents the reader with a concise outline of the author's research objectives and the research methods implemented, and the academic contribution of the study. Finally, the introduction provides the reader with a breakdown of the structure of the dissertation.

Chapter Two provides a detailed review of the relevant literature currently available in the area of exercise participation and motivation.

Chapter Three provides a detailed review of the current literature relevant to the Theory of Planned Behaviour (TPB) and Extended TPB and their application to exercise participation.

Chapter Four highlights the author's research objectives and the research methods employed by the author. Sampling, data collection and data analysis techniques are also discussed in this section. Finally, the author draws attention to the limitations associated with the methodology.

Chapter Five contains the findings of the primary data collection. The significant results of the primary research are presented during this chapter.

Chapter Six contains a discussion relative to the key findings of the research. During this chapter the author will compare the key findings of the study with results of previous studies contained in the literature review.

Chapter Seven will highlight the conclusions of the research. The author will also provide a list of recommendations for academics/industry representatives wishing to use the data and

discuss areas for future research. The author will also provide a list of limitations to the study.

## **Chapter 2: Literature Review – Exercise & Participation Motivation**

### **2.1 Introduction**

The World Health Organisation (WHO) highlights the importance of regular engagement in exercise and physical activity, stating that frequent participation in physical activities can greatly improve an individual's physiological and psychological well-being in a plethora of different ways (World Health Organisation, 2010). Physical activity can be subdivided into two categories – Individual-Based and Group-Based (thinkquest.org, 2010).

People engage in different types of physical activity for different reasons, which depend on their motivations. There are two types of motivation – intrinsic motivation (Wiersma, 1992; Deci and Ryan, 2000) and extrinsic motivation (Zahariadis and Biddle, 2000; Wilson et al., 2008).

### **2.2 Definitions of Physical Activity**

Physical activity can be defined as *"any bodily movement produced by skeletal muscles that results in energy expenditure"* (Casperson et al., 1985). Bouchard et al. (2007) explains that physical activity, as a broad term, can be broken down into sub-sections which include exercise, leisure-time physical activity and sport.

Exercise is referred to as *"a subset of physical activity that is planned, structured, and repetitive and has a final or an immediate objective the improvement or maintenance of physical fitness."* (Casperson et al., 1985) Bouchard et al. (2007) claim that exercise *"is usually performed repeatedly over an extended period of time (exercise training)"*, and that the participant will often have an external purpose (e.g. health improvement, fitness development).

Bouchard et al. (2007) explain that the term leisure-time physical activity refers to an activity that an individual participates in during his/her free time that boosts his/her *"total daily energy expenditure"*. The main difference that distinguishes sport from exercise & leisure-time physical activity is that, in general sport involves competition and rules which are pre-determined by a governing body. *"Organised sport can be broadly classed into two categories – individual sport versus team sport."* (familyfitnessexpert.co.uk, 2010)

For the purpose of this study, the author will refer to the above terms interchangeably.

### **2.3 Benefits of Physical Activity**

In order to maintain a healthy lifestyle, it is recommended that people engage regularly in some sort of moderate-to-vigorous physical activity. For example, youths are encouraged to engage in a minimum one hour of moderate-to-vigorous activity per day. (Australian Government Department of Health and Ageing 2004, cited by Hamilton and White 2008).

Since ancient times, man has forged a link between physical activity and health and longevity (Jones 1967, cited by Hardman and Stensel 2003). Many experts in the fields of medicine and exercise have since highlighted the benefits of exercise in terms of improving one's physical health and well being. The main benefits of exercise are as follows: exercise can help to combat chronic illness, exercise aids in the management and reduction of one's weight, exercise can enhance one's level of energy (The Mayo Clinic, 2009). In terms of weight loss, McArdle et al. (1991) point out that a combination of frequent aerobic exercise and maintenance of a healthy diet can greatly help children and adults who are suffering from moderate obesity, to achieve a negative caloric balance, and a loss in levels of body fat. By combining both diet and exercise, people can lose weight much quicker than if they were to simply diet alone. Frequent engagement in physical activity has also been proven to greatly reduce the possibility of individuals developing diabetes in later life (Manson et al., 1991).

Armitage (2005) highlights the fact that regular physical activity can help to reduce the risk of more severe illnesses, notably cancer and heart disease. Bouchard et al. (2007) highlight the importance of regular physical activity explaining that a lack of engagement in physical activity can have a negative effect on one's health. Bailey et al. (2004) claim that in the developed world, lack of engagement in physical activity is strongly linked to disability, and lessens one's quality of life. Physical inactivity has also been recognized as one of the noteworthy reasons for death.

Kilpatrick et al. (2005) make the point that as well as improving the physiological health of an individual, regular engagement in physical activity and exercise can also have psychological benefits. Such psychological benefits include improvements in one's mood,

self-esteem, confidence and body image. Exercise can also be a contributing factor in the reduction of stress symptoms (Association for Applied Sport Psychology, 2010).

Regular participation in sport has been known to help increase one's self-esteem and perceived self-worth, because it improves his/her body esteem and physical ability (Jackson and Marsh 1986, cited by Bowker et al. 2003). Morris et al. (2003) also noted that sports can be beneficial to the development of youths as they offer reprieve from high levels of boredom, which in turn reduces the probability of adolescents engaging in forms of anti-social behaviour.

## **2.4 Motivation to Exercise**

The word motivation is derived from the Latin word *move*, which translated means "to move" (Willis and Campbell, 1992). Motivation is defined as "*the internal processes that activate, guide, and maintain behaviour (especially goal-directed behaviour)*" (Baron 1991, cited by Hollyforde and Whiddett 2002). There are two categories of motivation:

### *1. Intrinsic Motivation*

Intrinsically motivated individuals engage in activities with no intention of seeking a reward (Deci, 1972 cited by Wiersma, 1992). Wiersma (1992) claims that in terms of motivation to engage in physical activity, intrinsically motivated individuals will be more likely to participate in physical activities because they view them as being enjoyable, interesting and challenging, and regular engagement in such activities can help to enhance one's skill level at that activity. Deci and Ryan (2000) say that people that are intrinsically motivated to participate in physical activity, do so because they take pleasure in doing so. Zahariadis and Biddle (2000) refer to intrinsically motivated people as being task-oriented and tend to participate in physical activity for the purposes of self-mastery and learning. These types of participants do not seek to achieve a particular outcome as a result of participation. Many also tend to participate in sport to achieve feelings of team membership and affiliation (White and Duda 1994, cited by Zahariadis and Biddle 2000).

## *2. Extrinsic Motivation*

Extrinsically motivated people engage in physical activities to avoid negative outcomes of non-engagement or because they see it as having beneficial results. Wilson et al. (2008) notes that extrinsic motivation provides an insight into reasons why people voluntarily engage in physical activity without ever giving the impression that they enjoy doing so. Markland and Ingledew (1997) highlight the following examples as being some of the main reasons why extrinsically motivated people participate in physical activities; to gain improvement in their physical appearance, to maintain a good level of fitness, and to lose weight. Zahariadis and Biddle (2000) refer to extrinsically motivated people as being more ego-oriented than task-oriented. They are more likely to engage in competitive sports, and they are motivated by achieving status or recognition within their chosen sport (White and Duda 1994, cited by Zahariadis and Biddle 2000). A study by Maltby and Day (2001) showed that generally, those whose engagement in physical activity is extrinsically motivated, are more likely to suffer from lesser levels of psychological health than those who are intrinsically motivated to participate.

From the above information one can deduce that intrinsically motivated people are more likely to engage in team-based sports and exercise groups, and extrinsically motivated people are more likely to exercise alone and participate in individual sports.

### **2.5 Conclusion**

It is evident from the information provided above that exercise and regular engagement in physical activity is paramount to one's health and well-being. The benefits of physical activity can be both physiological and psychological. In order to achieve these benefits however, one must be motivated. Whether one participates for the enjoyment factor or for the good of his/her physical and mental health and fitness depends on whether he/she is intrinsically or extrinsically motivated.



## Chapter 3: Literature Review – The Theory of Planned Behaviour

### 3.1 The Theory of Planned Behaviour (TPB)

*"The Theory of Planned Behaviour is a motivational model, designed to predict behaviours at a single point in time."* (Palmer et al., 2005)

The TPB is based on a belief that a person's intention to behave in a certain manner is a better means of gauging his/her attempted behaviour, rather than his/her actual behaviour (i.e. a person may intend to behave in a certain way because he/she feels that it is the right thing to do, however he/she may not actually engage in the behaviour despite having the utmost intentions to do so) (Ajzen, 1985). Behavioural intentions are defined as *"representations of people's plans of action."* It is believed that the greater one's motivation to perform a behaviour, the greater the chance that he/she will successfully carry out the behaviour (Armitage, 2005).

Ajzen (1985) claims that an individual's underlying beliefs about a certain behaviour can assist in determining his/her attempts to behave in that way. He also claims that the individual's intention to act in a certain way might be altered if the individual feels that the behavioural goal is not under his/her own will (e.g. an external factor beyond the control of the individual, could deter an individual from behaving in a certain way).

According to Blanchard et al. (2008), the basis of the theory of planned behaviour lies in the assumption that one's intention to behave in a certain way is the most accurate forecaster of his/her willingness to exert effort (i.e. to carry out a behaviour). This is known as behavioural intention. The TPB Model (See Appendix B) suggests that behavioural intention is affected by three forms of beliefs:

#### *1. Behavioural Beliefs*

These are the beliefs that people have about the probable results of the behaviour and the assessments that they have about the outcomes of their behaviour (Ajzen, 2006a). Rhodes et al. (2006) maintain that one's intention to perform a specific behaviour depends on the attitudes that he/she has toward that behaviour. *"Attitude*

*is arguably the most fundamental construct in social psychology and is a strong determinant of behaviour"* (Ajzen, 1991 cited by Courneya and Bobick, 2000). There are two types of attitudes that determine behaviour – affective attitudes and instrumental attitudes.

Hagger and Chatzisarantis (2008) state that one's affective attitudes are a reflection of the emotional beliefs that he/she feels relative to engaging in a specific behaviour. For instance, an individual may believe that he/she will experience a sense of enjoyment, happiness, sadness, etc. as a result of participation in a physical activity. According to Ekkekakis and Lind (2006) the affective element of attitude *"exerts an important influence on the intention to remain physically active and, by so doing, could increase or decrease the likelihood of future participation."* From this statement one can conclude that the greater one's positive emotive belief toward physical activity, the more likely he/she will be to engage in some form of physical activity.

Another factor that can determine one's behavioural beliefs are instrumental attitudes. According to Hagger and Chatzisarantis (2008), instrumental or "cognitive" attitudes represent the internal beliefs that one possesses relative to the outcomes of participating in a particular behaviour - *"Cognitive attitudes reflect beliefs regarding the instrumentality or usefulness of the behaviour to produce positive outcomes."* For instance, an individual may believe that regular engagement in physical activity will give rise to an increase in his/her level of fitness. If the behaviour is perceived as being of benefit to the person, then his/her intentions to perform the behaviour will be more likely than if he/she saw the behaviour as having harmful effects. (Rhodes et al., 2006)

## 2. Normative Beliefs

Normative beliefs are the beliefs that people have regarding the expectations of social influences, such as friends and family members (injunctive norms), and what motivates them to conform to expected behaviours set by peers (descriptive norms).

Injunctive norms relate to people's perceptions that they feel *"pressure from significant others to engage in the target behaviour"* (Rivis and Sheeran 2003, cited by Hagger and Chatzisarantis 2008). According to Smith and Lewis (2008), injunctive norms are a reflection of the perceptions that the majority of one's influential peers regard as being acceptable or unacceptable. As a result, it is claimed that people tend to engage in behaviours due to *"the social rewards and punishments associated with engaging or not engaging in the desired behaviour"*

Descriptive norms relate to the degree to which one's influential peers participate in the target behaviour (Rivis and Sheeran 2003, cited by Hagger and Chatzisarantis 2008). Family members and friends can act as role models to individuals (particularly young people). Such influential peers can promote healthy lifestyles and beneficial behaviour through their actions. Hagger and Chatzisarantis (2008) explain that some individuals engage in healthy behaviours such as exercise etc., not just because of encouragement from important reference groups (friends, family etc.), but also because they view these people as habitual exercisers themselves.

Smith and Lewis (2008) explain that if an individual observes his/her peers frequently engaging in a particular behaviour, then he/she will show a greater level of intention to perform the behaviour himself/herself. The feeling that is generated within the individual's psyche is *"If everybody else is doing it, then it must be a good/sensible thing to do."*

Smith and Terry (2003) explain that normative beliefs are affected by social influence. That is *"the extent of perceived pressure from significant others to perform a target behaviour"*. Individuals may feel under pressure to perform behaviours (good or bad) that are in line with the normative attitude of a group in an attempt gain social approval (i.e. to validate their status as a member of the group). In concurrence with this people will often forge positive or negative opinions and attitudes about a particular behaviour that are congruent with the norms of the group with which they want to feel a part of.

In an exercise context many studies have found that normative beliefs do not explain intentions to behave as well as behavioural beliefs. Jackson et al. (2003)

found that of the three elements of the TPB model, only behavioural beliefs had a significant impact on intentions to exercise. Finlay et al. (2002) discovered that subjective norms are more influential in the health domain than the exercise domain, and concluded that individuals would be more likely to worry about what their loved ones think of their health behaviours than their exercise behaviours. Finally, Hagger et al. (2001) conducted a study on the physical activity intentions of young people and found that *"attitude and self-efficacy were strong predictors of physical activity intention, but perceived behavioural control and subjective norms were not"*.

### 3. Control Beliefs

These are beliefs that people have regarding the external dynamics, beyond their control that can act as facilitators or barriers to the specific behaviour, thus positively or negatively affecting their ability to behave in a certain way, and the apparent power of these dynamics (Ajzen, 2006a).

Li and Chan (2008) highlight the fact that an individual may intend to perform a particular task but that the actual execution of the task may be hindered by an unforeseen obstacle. People may intend to carry out a particular behaviour but may run into barriers such as not having the opportunity to do so, not having the necessary resources or equipment that are essential to performing the behaviour, or not having the perceived skills or confidence in their own ability to perform the behaviour. Those who perceive the task as being difficult may be less likely to undertake the task (Rhodes and Courneya, 2004).

Ajzen and Driver (1991) claim that the overall intention to perform a behaviour will be greatly leveraged by the three types of beliefs listed above. If the individual in question believes that; the behaviour will be beneficial or enjoyable, he/she will be looked upon more favourably by friends/family for performing the behaviour, there are no barriers to performing the behaviour, then he/she will be more likely to intend to perform the behaviour - *"As a general rule, the more favourable the attitude and subjective norm with*

*respect to a behaviour, and the greater the perceived behavioural control, the stronger should be an individual's inclination to perform the behaviour under consideration."*

### **3.2 TPB and its Uses**

The TPB Model can be used to measure people's intentions to behave in a number of ways. Many researchers have used the TPB model to measure people's intentions to perform numerous health and social behaviours. For example, Godin et al. (1992) found that in regard to smoking subjective norms and behavioural beliefs were the primary indicators of intention to smoke, while perceived behavioural control had a direct link with cessation failure in habitual smokers. Other harmful behaviours have also been studied using the TPB model. Social influence and group norms have been reported as having a huge influence on individuals' decisions to avoid risky health behaviours. Giles et al. (2005) reported that African adolescents showed a higher willingness to engage in safer sex behaviour if they felt that they had support from family members. Family and friends have also proven to be significant referents in measuring intention to perform risky behaviours. For example Newnam, et al. (2004) found that group norms affected a lack of compliance with speed limits. Evans and Norman (1998) proved that perceived behavioural control can have a negative impact of pedestrians' intention to engage in hazardous or risky behaviour. Their evidence found that if there was little traffic on the road, pedestrians would be more likely to cross the road because they perceived it as being "easy".

### **3.3 TPB and Exercise**

The theory of planned behaviour has often been used by researchers to predict people's intentions to engage in exercise and physical activity. Ajzen and Driver (1991) found that individuals often participated in physical activities because they believed that by participating in such activities, they would achieve favourable outcomes (behavioural belief). They also concluded that those who took part in physical activity did so because they believed that their friends/family showed support for their participation (normative belief), and that they possessed the necessary resources to engage in the activity.

Behavioural beliefs have been noted as being important determinants in measuring intentions to participate in physical activity. Marttila and Nupponen (2000) found that people who engage in regular forms of outdoor aerobic exercise (OAE) and everyday

commuting activity (ECA) have much more positive attitudinal beliefs toward such activities. In terms of OAE, individuals who seldom engaged, referred to such behaviour as being "*sensible*" while those who engaged in OAE more frequently used words such as "*pleasant, nice and fun*" to describe the activity. Marttila and Nupponen (2000) also noted that those who regularly engaged in physical activity associated the activities with positive outcomes.

Behavioural beliefs also influence people's intentions to participate in physical activity because they are aware of the negative consequences of non-participation. This is particularly true in a team-based sports context, whereby individuals will be motivated to train in order to be selected to participate in competition. In professional sports, failure to participate in training may result in a player not being paid (Palmer and Burwitz 2003, cited by Palmer et al. 2005). From this, one can deduce that intention to engage in physical activity may be determined by the consequences of non-participation.

In many cases, subjective norms have proven to be a major influencing factor for adolescents and university students to participate in physical activity. Influential peer groups have been found to enhance the ability to forecast the intention of university students, who significantly relate to the norms of the group, to participate in physical activity on a regular basis. (Terry and Hogg 1996, cited by Hamilton and White 2008)

In terms of adolescent engagement in physical activity, studies have shown that the other factors can influence the prediction of adolescents' intentions to engage in physical activity. These factors include association with groups of other physically active individuals and support and assistance from peer groups such as friends and family in carrying out the activity itself (Smith, 2003; Voorhees et al., 2005 cited by Hamilton and White, 2008).

Research conducted in Australia reported that college students who received little support from significant others were 23-55% less likely to engage in physical activity for the benefit of their personal health, than those who claimed that they received a high level of support (Leslie et al. 1999, cited by Trost et al. 2002).

Hamilton and White (2008) claim that influential groups and friends that adolescents regularly engage with are extremely important figures in terms of determining adolescent's

intentions to engage in regular physical activity. Oftentimes, adolescents will make behavioural decisions regarding leisure participation based on what they hear from significant others.

Perceived behavioural control can also be an influential factor in predicting individuals' intentions to engage in physical activity. Trost et al. (2002) found that people's intentions to participate in exercise were hindered by their perceived barriers to physical activity. Examples of perceived barriers listed include; lack of access to exercise amenities and lack of access to necessary apparatus and dissatisfaction with recreational amenities in the surrounding area. It is also claimed that a sudden change in an individual's intention to engage in physical activity could be the result of goal conflict, whereby the goal of exercise clashes with another goal (i.e. a career or academic goal). If the intention to achieve the second goal surpasses the intention to engage in physical activity, then the actual behaviour (i.e. performing the physical activity) may be put on hold in favour of achieving the other primary objective, which may have been unforeseen and thus out of the control of the individual himself/herself (Károly et al. 2005, cited by Li and Chan 2008).

Other barriers to participation include illness, tiredness/lack of energy and time constraints (Brownson et al., 2001). Zahariadis and Biddle (2000) claim that many children and adolescents participate in "structured physical activity" in the form of physical education modules in school. From this one can deduct that one reason for lack of exercise participation among adults is a lack of structure.

### **3.4 Modifications of the TPB Model**

Hagger and Chatzisarantis (2008) question the validity of the Theory of Planned Behaviour in accurately predicting people's intentions to engage in physical activity – *"Despite its success, the theory of planned behaviour does not account for all of the variance in physical activity behaviour."* According to Hagger and Chatzisarantis (2008) some research using the TPB has resulted in seventy-seven percent unexplained variance in behaviour. They suggest that in order to gain a more precise forecast of intentions to part-take in physical activity behaviours, other constructs must be attached to the TPB model (see Appendix C).

### 3.4.1 Attitude Based

The attitude component of the Extended Theory of Planned Behaviour can be sub-divided into two distinct sub-facets (Hagger and Chatzisarantis, 2008):

#### *Attitude Strength*

Krosnick and Smith (1994) define attitude strength as "*the degree to which an attitude is resistant to change and influences cognition and behaviour.*" The greater the extremity and intensity of one's positive attitude toward a behaviour the more likely he/she will be to engage in the behaviour. Other factors that influence attitudinal strength are certainty and importance. Attitude certainty relates to one's confidence that his/her attitudes toward a particular behaviour are accurate. The surer one is that performing a behaviour is beneficial, the greater the likelihood that he/she will perform the behaviour. Similarly, if the person believes that his/her attitudinal belief regarding a particular behaviour bears a personal importance then he/she will be more likely to engage in that behaviour. (Krosnick and Smith, 1994) Theodorakis (1994) tested the concept of attitude strength as a predictor of women's participation in fitness programmes over the course of two months. The study showed that the participants levels of certainty towards their intentions to engage in the programmes correlated directly with the regularity of their participation.

#### *Anticipated Regret*

Caffray and Schneider (2000) found that anticipated regret can act as a predictor of people's intentions to avoid engaging in risky or harmful behaviours. Their study of adolescent behaviour showed that those who displayed a strong determination to avoid a feeling of regret showed a much higher willingness to steer clear of potentially harmful behaviours (e.g. smoking, alcohol consumption, drug use etc.). Anticipated regret can also act as a predictor of intentions to engage in positive/healthy behaviours. Certain individuals engage in specific behaviours because they fear that they will experience a feeling of regret if they opt not to participate (Loomes and Sugden 1982, cited by Hagger and Chatzisarantis 2008). Hagger and Chatzisarantis (2008) claim that an individual who frequently feels regretful for failing to engage in a specific behaviour (e.g. physical activity) will be more likely to fulfil his/her intention to perform the behaviour – "*people familiar*



*with postbehavioral feelings of regret and guilt are likely to reject alternatives that will make them feel regretful because they are motivated to avoid such feelings."*

Abraham and Sheeran (2004) found that anticipated regret is a useful indicator of people's intentions to exercise. Their study of university students' intentions to exercise showed that participants showed greater levels of intention to exercise once they considered the possibility of anticipated regret – *"contemplating anticipated regret after not exercising in the future, before reporting one's exercise intention, resulted in stronger intentions to exercise"*.

### **3.4.2 Social Based**

Social influences can have a major impact on individuals' intentions to participate in specific behaviours, particularly physical activity (Hagger and Chatzisarantis, 2008). The social element of the Revised Theory of Planned Behaviour plays a significant role in determining peoples' intentions to engage in exercise. As well as subjective norms, the Extended TPB contains an extra component:

#### *Social Support*

Social support relates to the level of support that an individual will receive from influential peer groups for engaging in the target behaviour. Brownson et al. (2001) explain that social support can come in both tangible forms and intangible forms. An example of tangible social support would be a family member or friend offering the individual a lift to a gym, sports club etc. An intangible example would be a friend/family member discussing the benefits of participation with the individual and recommending that he/she perform the behaviour himself/herself.

Smith and Terry (2003) claim that an individual will be more likely to engage in a specific behaviour if he/she feels that he/she has got the backing and/or encouragement of his/her family or friends to do so – *"normative support from an important group would influence attitude-behaviour and attitude consistency.....normative support for one's attitudes should strengthen attitude-behaviour consistency (and minimise attitude change) because it validates the attitudes and behaviours appropriate for group members."*

Robbins et al., (2008) conducted a study on middle-school students and found that support from parents is a significant indicator of intention to engage in physical activity for that particular demographic, with support from students' fathers being the most important predictor. Other significant correlates included transportation and encouragement to participate.

### **3.4.3 Personality**

McMartin (1995) explains that there are five common personality traits – extroversion, agreeableness, conscientiousness, neuroticism and openness to experience. Rhodes et al., (2002) explain the distinct facets of each of the "Big 5" traits – *"neuroticism (N; anxiety, depression, self-consciousness, vulnerability); extraversion (E; positive affect, gregariousness, activity, assertiveness, excitement-seeking), openness to experience (O; openness to fantasy, feelings, ideas, values, aesthetics, and action); agreeableness (A; trust, straightforwardness, altruism, compliance, tender-mindedness); and conscientiousness (C; order, dutifulness, achievement striving, self-discipline)."*

A person's personality can act as a significant indicator of his/her intentions to behave in a certain way. In terms of physical activity and exercise behaviour, the following traits are highlighted as being important predictors of continuation of behaviour (Chatzisarantis and Hagger, 2008; Hagger and Chatzisarantis, 2008):

#### *Conscientiousness*

People who are highly conscientious have a great determination to achieve pre-determined goals. As a result they are highly self-disciplined and will persist until they can achieve the goals that they have set for themselves (Costa & McCrae 1992, cited by Chatzisarantis and Hagger 2008). In a study of 180 third level students, Chatzisarantis and Hagger (2008) found that individuals who showed high levels of conscientiousness were more likely to continue participating in regular exercise behaviours than those who displayed low levels of conscientiousness. This was because *"continuation intentions of failure predicted physical activity participation among conscientious individuals."*

### *The Activity Facet of Extroversion*

BusinessDictionary.com (2010) defines extroversion as a *"personal quality of being comfortable with social relationships."* Hagger and Chatzisarantis (2008) explain that in the context of physical activity, an individual who displays characteristics of the activity facet of extroversion may participate in *"spontaneous behavioural engagement"*. An example of such spontaneous behaviour would occur whereby the individual in question becomes involved in an informal football match with his/her friends in a park. A study of 300 undergraduate students conducted by Rhodes et al., (2002) found that the activity facet of extroversion is a significant indicator of physical activity behaviour.

#### **3.4.4 Self Identity**

Self-identity (also known as role identity) is defined as *"a person's identification of her- or himself as the type of person who typically engages in the target behaviour."* (Hagger and Chatzisarantis, 2008)

Hagger and Chatzisarantis (2008) explain that in terms of exercise participation, an individual may consider himself/herself as "sporty", and would categorise himself/herself as a person who engages in physical activity on a regular basis. People who are "self-identity-oriented" would consider themselves to be passionate about exercise participation, and this in turn would positively leverage their future intentions to participate.

Jackson et al., (2003) conducted a study to determine whether or not the extended theory of planned behaviour could act as a predictor of physical activity on a group of UK college employees. The results of the study found that for the self-identity component, it was better to discourage a "sporty type" self-identity, and instead encourage individuals *"to see themselves as the type who build physical activity into their lives."* This type of self-identity would be more appealing and easier to promote among people who may not consider themselves "sporty", but may consider themselves as people who want to become more physically active, and thus would be more inclined to increase their intentions to engage in physical activities.

### **3.5 Conclusion**

Ajzen's (1985) TPB proposes that one's underlying beliefs regarding a particular behaviour can assist in determining his/her attempts to behave in that way. The TPB is based on the premise that intentions to behave are influenced by three factors; Behavioural Beliefs, Normative Beliefs and Perceived Behavioural Control.

From viewing the information provided above, one can conclude that indeed these factors do play a massive role in determining people's intentions to perform certain behaviours (smoking, safe sex, adherence to speed limits and physical activity).

Hagger and Chatzisarantis (2008) provide a unique extension of the TPB Model which they believe can act as a greater predictor of intention to engage in behaviours. From reviewing the literature in the field of exercise behaviour, one can deduce that indeed the Extended Model of the TPB can aid in the prediction of intentions to exercise. Each of the extended variables (i.e. attitude strength, anticipated regret, social support, conscientiousness, the activity facet of extraversion, and self-identity) have all proven to be accurate predictors of individuals' intentions to engage in exercise and physical activity.

## **Chapter 4: Methodology**

### **4.1 Introduction**

The methodology chapter aims to explain the processes that the researcher has utilised in order to collect and analyse the data. This chapter will look at the overall objectives of the research, the sampling procedure employed, data collection methods and details of the data analysis tools used in the study.

### **4.2 Market Research**

Malhotra and Birks (1999) define marketing research as *"the systematic and objective identification, collection, analysis, and dissemination of information for improving decision-making related to the identification and solution of problems and opportunities in marketing."*

### **4.3 Research Problem/Gap in Literature**

Brannick and Roche (1997) explain that the basis of one's research lies primarily in the research problem. Hagger and Chatzisarantis' (2008) Extended Theory of Planned Behaviour is a relatively new concept. Although many authors and researchers have looked the effects of individual elements of the Extended TPB on intended behaviour, few, if any have explored how the overall Extended TPB affects intentions to behave. Hence, the overall research question is - *Does Hagger and Chatzisarantis' (2008) Extended Theory of Planned Behaviour act as a greater predictor of intention to behave in a leisure-time physical activity context than Ajzen's Theory of Planned Behaviour?*

### **4.4 Research Objectives**

The overall research objective is:

1. To examine whether Hagger and Chatzisarantis' (2008) Extended Theory of Planned Behaviour acts as a greater predictor of intention to behave than Ajzen's Theory of Planned Behaviour

The following is a list of the subsequent research objectives stemming from the research question:

2. To measure peoples' intended physical activity behaviour against their actual behaviour
3. To determine the effect of attitude strength on intentions to engage in regular leisure-time physical activity
4. To determine the effect of anticipated regret on intentions to engage in regular leisure-time physical activity
5. To determine the effect of social support on intentions to engage in regular leisure-time physical activity
6. To determine the effect of self-identity on intentions to engage in regular leisure-time physical activity
7. To determine the effect of conscientiousness on leisure-time physical activity behaviour
8. To determine the effect of the activity facet of extraversion on leisure-time physical activity behaviour

#### **4.5 Research Design**

The research design is defined as *"a master plan specifying the methods and procedures for collecting and analysing needed information"* (Zikmund, 1997). Cooper and Schindler (1998) explain that the purpose of the research design is to aid the researcher in formulating a blueprint of each of the processes involved in the research, from the review of literature to the primary data collection and analysis.

Taking into consideration the objectives of the research listed above, a quantitative research approach is required for this study. Ajzen (2006b) maintains that quantitative research (in the form of questionnaires) is excellent in measuring individuals' behavioural intentions. According to de Vaus (2002) quantitative research is extremely useful to research that requires accurate and descriptive results.

## **4.6 Data Collection Methods**

The term data collection refers to *"data gathered from surveys, or input from several independent or networked locations via data capture, data entry, or data logging"* (BusinessDictionary.com, 2010)

According to Sapsford and Jupp (2006), the methods by which data are collected depend mainly on the answers sought from the research questions. The purpose of the research method used is to acquire data that is both valid and reliable. By collecting credible data, the researcher can form a foundation, on which to develop plausible conclusions.

There are two main approaches to data collection – Secondary Research and Primary Research.

### **4.6.1 Secondary Research**

The term "secondary data" refers to "information that has already been collected for other purposes and is thus readily available" (Onkvisit and Shaw, 2004). It is recommended that primary research should never be undertaken without searching for sources of secondary data first. Stewart and Kamins (1993) argue that secondary data can be used to identify a list of objectives for primary research, by highlighting gaps in previous research in the form of unanswered questions.

For the purpose of this research the major sources of secondary data used in the literature review were academic and trade journal articles. These were primarily sourced from databases such as ABI Inform, Academic Search Premier, Business Source Premier, Emerald Fulltext and ScienceDirect, all of which are located on the Waterford Institute of Technology library website. The researcher also made use of the following types of publications as sources of information: books, news articles, industry reports and websites.

#### **4.6.2 Primary Research**

Onkvisit and Shaw (2004) define primary data as *"information that is collected firsthand, generated by original research tailor-made to answer specific, current research questions."* Primary research is said to be of use when the researcher believes that secondary data sources are *"unavailable, irrelevant, or obsolete."*

Primary research can be divided into two categories – Qualitative Research and Quantitative Research. Gray et al. (2007) explain that qualitative research is highly dependent on *"words, especially nouns and adjectives that convey what exists"*. Researchers conducting qualitative studies must interpret the words of respondents in order to form conclusions.

Quantitative research however, makes use of numerical evidence to convey the beliefs that are most common to the sample population featured in the study. Gray et al. (2007) believe that quantitative data is more likely to produce accurate and reliable results than qualitative data.

For the purpose of research based on the Theory of Planned Behaviour, Ajzen (2006b) and others recommend that quantitative studies, in the form of TPB questionnaires are carried out in order to discover peoples' behavioural intentions.

In accordance with Ajzen's (2006b) guidelines for constructing questionnaires based on the Theory of Planned Behaviour, the research was broken into three component phases:

##### ***4.6.2.1 Phase One - Pilot Study***

A pilot study was undertaken during the month of April 2010. This study comprised of a sample population of 25 participants. The pilot study participants were a representation of the overall final study. Hence it was important to ensure that each participant was aged between eighteen and forty years. It was also important to ensure that the sample reflects the researcher's target gender breakdown (50% male, 50% female). Pilot studies can be of assistance to researchers that are looking to uncover the modal salient beliefs of a sample population. It is essential to carry out a pilot study prior to distribution of the actual research– *"Pilot work is required to identify accessible behavioural, normative, and control*



*beliefs*" (Ajzen, 2006b). The pilot study questionnaire contained a series of questions and statements relating to the research topic (i.e. leisure-time physical activity and exercise behaviour). Participants were required to respond to the questions/statements using a seven-point Likert scale. Using the data accumulated in the pilot study, the researcher was capable of creating a final study based on the modal salient beliefs of the pilot sample. Modal salient beliefs are a representation of the personal salient beliefs most common to the research population (Ajzen, 2006b).

The pilot study was also used by the researcher to determine the reliability and validity of the variables used and to ensure that the respondents interpret and understand the questions correctly. Francis et al. (2004) claim that a pilot study can also be useful in terms of shortening the length of the questionnaire by eliminating variables that are less reliable.

Once the pilot study was complete, the researcher amended any faults within the questionnaire and clarified areas of confusion where necessary. The actual research took place over two phases.

#### ***4.6.2.2 Phase Two - Final Study - Questionnaire 1***

The first phase of the final study took place during the period 21 to 25 June 2010. During this stage of the research process, the researcher sought to uncover the participants' behavioural intentions in regard to participation in leisure-time physical activity and exercise over a period of two weeks (beginning immediately after the questionnaire has been administered). Similar to the pilot study, the participants were required to respond to a series of questions and statements using a seven-point Likert scale.

#### ***4.6.2.3 Phase Three - Final Study – Questionnaire 2***

The final stage of the study took place a fortnight after the distribution of the first final study (i.e. during the period 5 to 9 July 2010). This questionnaire had a similar structure to the first final study, and focused on participants' leisure-time physical activity and exercise behaviour over the duration of the previous two weeks. This phase of the research sought to uncover differences and/or similarities between the participants' intended behaviour (i.e. their responses to the questions and statements in the first final study questionnaire) and

their actual behaviour (i.e. their responses to the questions and statements in the second final study questionnaire).

#### **4.6.2.4 Advantages of Questionnaires in Research**

Questionnaires are a very valuable and reliable source of information to researchers. According to McNabb (2002), questionnaires are seen as the paramount sources of primary data for many researchers – *"it has been estimated that questionnaires are used in 85 percent or more of all quantitative research projects"*.

Bechhofer and Paterson (2000) explain the advantages of using structured questionnaires as a primary data collection source. Firstly, in a structured questionnaire, each respondent receives a standardised list of questions. This means that each participant in the study should interpret each of the questions similarly, allowing for similarities in responses among individuals who have similar characteristics and/or beliefs. Secondly, questionnaires offer researchers easy access to hard facts (i.e. they offer statistical information which can be easily analysed).

McNabb (2002) highlights some of the other benefits of questionnaires that make them valuable to quantitative research. Firstly, questionnaires can be tailored to suit the research objectives of any study that requires primary data collection. Secondly, questionnaire designs can vary in length and complexity depending on how little or how much information is required from respondents. Another advantage of questionnaires is the flexibility that they offer the researcher in terms of acquiring responses – *"They can be administered face to face, over the telephone, by mail, and over computer networks"*. Finally, McNabb (2002) also claims that questionnaires can be structured in ways that specifically seek to establish participants' knowledge, thoughts and feelings on issues or their current and/or intended future behavioural patterns.

#### **4.6.3 Analysis of Data**

The data collected during each phase of the study was entered into Statistical Package for Social Sciences (SPSS) Version 15.0 for Windows. The SPSS software allowed the researcher to individually code each variable using a pre-determined numerical coding system. In order to simplify the analysis process, a "variable name" was assigned to each

question/statement in each questionnaire. By assigning variable names, the questions/statements were easier to recognise during the analysis stage. This allowed the researcher to easily identify key factors and variables that are common to many respondents. It also helped to highlight any "problem questions" or difficulties that arose. This was especially important during the pilot study.

The researcher manually fed the data into the SPSS package, which gave support to the formation of results. The results of the research will be presented later in the "Research Findings" chapter.

#### **4.7 Sampling Procedure**

Due to the nature of this study, the researcher's preferred sampling technique would be random sampling. In cases whereby all of the individuals in a target population have similar characteristics, simple random sampling is advised. Walliman (2005) likens simple random sampling to drawing names out of a hat or safety-testing a new brand of car. When it is inconvenient to test the entire population, a select few are chosen at random to act as representative of the population. However, due to time constraints and the inability to obtain a full list of the targeted population, the researcher will be forced to employ a convenience sampling technique rather than random sampling. Convenience sampling is defined as *"a non-random sampling technique that involves selecting what is immediately available"* (Walliman, 2005). For the purpose of this study, the researcher will select individuals that are easily accessible.

The recommended sample size for the pilot study is approximately 25 people (Godin and Kok, 1996 cited by Francis et al., 2004). For this phase of the study, the researcher randomly selected twenty-five individuals to act as a sample of the overall population. The sample size of the final study (Questionnaires 1 and 2) would depend on the amount of TPB variables contained within the questionnaire. It is recommended that, for each TPB variable being analysed, there should be at least 5-10 respondents. However due to certain participants' inability to commit to the second phase of research, the author only used four respondents for each variable.

#### **4.8 Justification of Methods**

The author believes that the research methods proposed above are in line with the aforementioned research objectives. As stated previously, Ajzen (2006b) and others recommend the use of quantitative research in the form of questionnaires in TPB studies.

In line with McNabb's (2002) proposed benefits of questionnaires, the author also believes that a quantitative research approach, rather than qualitative research approach would be a better option for this study due to the fact that the objective of the research is to gain an insight into the modal salient beliefs of the sample population. The author feels that the more structured the survey is, the easier it will be to establish the respondents' beliefs and intentions.

#### **4.9 Limitations of the Study**

As is the case with most research projects, there are several limitations to the study. Such restrictions can prevent the researcher from investigating the subject to its full potential. The paramount limitation in this study was time. Had it not been for time restrictions, the researcher could have surveyed a much larger sample population which would have allowed for much greater scope. Unforeseen cost factors also hindered the researcher's ability to further examine the topic. Another limitation was the wording of the questionnaires which confused certain respondents leading to incompleteness of many questionnaires. Finally, due to the convenience sampling approach taken by the researcher, there may be some bias relating to the majority of respondents' behavioural patterns which may not reflect the beliefs of the wider population.

#### **4.10 Ethical Issues**

Due to the sensitive nature of the study, the researcher ensured that each participant in the study was aged over 18 years. At each stage of the research, a cover letter was provided to respondents ensuring complete anonymity and confidentiality. Each completed questionnaire was stored safely under lock and key to guarantee complete confidentiality.

#### **4.11 Conclusion**

During this chapter the author has highlighted the research objectives of the study. The proposed research methods have also been discussed and a rationale has been provided for the use of such methods. The author has also provided a breakdown of the timeframe in which each stage of the research and analysis will be completed and has discussed the advantages, limitations and ethical considerations involved in using the proposed research methods.

In the next chapter, the analysis of primary data will be discussed. This will uncover the major themes materialising from the data that has been gathered.

## **Chapter 5: Research Findings**

### **5.1 Introduction**

The aim of the Research Findings chapter of the dissertation is to present the significant findings of the primary research. During the course of this chapter the author will present the facts, figures and key issues pertaining to the research objectives outlined in the Methodology chapter. The research findings will be illustrated using tables and graphs generated by the Statistical Package for Social Sciences (SPSS) software.

Due to the complex nature of the study, the author has chosen to divide the research findings into four distinct sections.

*Section A: Preliminary Findings – Pilot Study*

*Section B: General Information*

*Section C: Final Study – Questionnaire 1 (Intentions to Behave)*

*Section D: Final Study – Questionnaire 2 (Actual Behaviour)*

### **5.2 Section A: Preliminary Findings – Pilot Study**

This section will present the findings of the pilot study. During this section the author will present the results of the reliability and factor validity tests for the Extended TPB variables utilised in the pilot study. Firstly, the analysis of the traditional TPB variables will be presented. Following this, the results relating to the Behavioural Intention variables will be presented. Finally, the results of each of the variables relating to the extended constructs will be presented in the order that they appear in the research objectives section of the methodology chapter. The analysis at this stage was mainly undertaken for the purpose of data reduction. By eliminating the unreliable and invalid variables from the pilot study the author could develop the final study questionnaires to a greater standard.

### 5.2.1 Traditional TPB Variables

For the purpose of this study the following will be referred to as the traditional TPB variables: Attitude Toward the Behaviour, Subjective Norm and Perceived Behavioural Control.

#### 5.2.1.1 Attitude Toward the Behaviour

The Attitude Toward the Behaviour (ATB) variables represented a balance of both affective/experiential attitudes (atb2, atb4, atb7) and instrumental attitudes (atb1, atb3, atb6) as well as one general variable (atb5).

**Figure 5.1** List of ATB Variables used in Pilot Study

atb1 → For me to participate in regular leisure time physical activity in the coming month is								
Harmful	1	2	3	4	5	6	7	Beneficial
atb2 → For me to participate in regular leisure time physical activity in the coming month is								
Unenjoyable	1	2	3	4	5	6	7	Enjoyable
atb3 → For me to participate in regular leisure time physical activity in the coming month is								
Worthless	1	2	3	4	5	6	7	Valuable
atb4 → For me to participate in regular leisure time physical activity in the coming month is								
Unpleasant	1	2	3	4	5	6	7	Pleasant
atb5 → For me to participate in regular leisure time physical activity in the coming month is								
Bad	1	2	3	4	5	6	7	Good
atb6 → For me to participate in regular leisure time physical activity in the coming month is								
Useless	1	2	3	4	5	6	7	Useful
atb7 → For me to participate in regular leisure time physical activity in the coming month is								
Dissatisfying	1	2	3	4	5	6	7	Satisfying

The initial factor analysis showed that each of the ATB variables were valid (all above 0.500 in Component Matrix). The variable, atb1 (0.691) to be the least valid of the affective ATB variables while atb2 (0.845) was the least valid instrumental variable.

According to the Component Matrix, atb5 (0.641) was the least valid of all of the ATB variables. However, the author felt that it would be important to leave this factor in the final study. When the other items were removed from the analysis following the reliability analysis, the scorings of the other variables rose (see Table 5.1).

**Table 5.1 Pilot Study Factor Analysis – ATB Variables**

Component Matrix		Component Matrix	
	Component 1		Component 1
atb1	.691	atb3	.831
atb2	.845	atb4	.912
atb3	.882	atb5	.713
atb4	.926	atb6	.817
atb5	.641	atb7	.867
atb6	.749		
atb7	.849		

Extraction Method: Principal Component Analysis.  
a. 1 components extracted.

Extraction Method: Principal Component Analysis.  
a. 1 components extracted.

**The first component matrix shows the scores for all 7 variables**  
**The second component matrix shows the scores with atb1 and atb2 removed**

The initial reliability analysis showed the Cronbach's Alpha to be 0.892. It is recommended that this figure should be above 0.700 in order to prove reliable. Although this figure decreased when the items atb1 and atb2 were removed, the level of reliability was still significantly high (0.869). Table 5.2 shows the results of the reliability analysis.

**Table 5.2 Pilot Study Reliability Analysis – ATB Variables**

Reliability Statistics		Reliability Statistics	
Cronbach's Alpha	N of Items	Cronbach's Alpha	N of Items
.892	7	.869	5

**The first Cronbach's Alpha score represents all 7 items**  
**The second Cronbach's Alpha score shows the result with atb1 and atb2 removed**



### 5.2.1.2 Subjective Norm

The Subjective Norm (SN) variables represented a balance of both injunctive (SNI) and descriptive (SND) items.

**Figure 5.2 List of SN Variables used in Pilot Study**

sni1 → It is expected of me that I engage in regular leisure time physical activity over the coming month	Extremely False	1	2	3	4	5	6	7	Ext.True
sni2 → The majority of people whose opinions I value would	Disapprove	1	2	3	4	5	6	7	Approve
of my participation in regular leisure time physical activity over the coming month									
sni3 → The important people in my life think that	I should not	1	2	3	4	5	6	7	I should
engage in regular leisure time physical activity over the coming month									
snd 1 → Many individuals like me engage regularly in leisure time physical activity	Strongly Disagree	1	2	3	4	5	6	7	Str. Agree
snd 2 → The majority of people whose opinions I value actively engage in leisure time physical activity	Extremely False	1	2	3	4	5	6	7	Ext. True
snd3 → The people in my life who are important to me	seldom	1	2	3	4	5	6	7	regularly
participate in leisure time physical activity									

The initial factor analysis produced two components in the Component Matrix. This would normally suggest that there would be one component for the injunctive variables and one for the descriptive items. Hence it was imperative that the author looked at the loadings in the Rotated Component Matrix. The results showed that sni2, sni3, snd2 and snd3 all had loadings of above the required 0.500 in Component 1. Following data reduction, sni2, sni3, snd2 and snd3 appeared together as one overall Subjective Norm component (see Table 5.3).

**Table 5.3 Pilot Study Factor Analysis – SN Variables**

Component Matrix			Rotated Component Matrix		
	Component			Component	
	1	2		1	2
sni1	.625	.603	sni1	.233	.837
sni2	.643	-.551	sni2	.833	-.148
sni3	.549	-.183	sni3	.566	.121
snd1	.481	.766	snd1	.025	.904
snd2	.780	-.192	snd2	.770	.232
snd3	.786	-.180	snd3	.769	.244

Extraction Method: Principal Component Analysis.  
a. 2 components extracted.

Extraction Method: Principal Component Analysis.  
Rotation Method: Varimax with Kaiser Normalization.  
a. Rotation converged in 3 iterations.

Component Matrix	
	Component
	1
sni2	.779
sni3	.586
snd2	.808
snd3	.804

Extraction Method: Principal Component Analysis.  
a. 1 components extracted.

**Rotated Component Matrix**  
a. Only one component was extracted.  
The solution cannot be rotated.

**The results in the top half of the table represent the loadings of all 6 Subj. Norm variables**  
**The results in the bottom half of the table show the scores with the items sni1 & snd1 removed**

The initial reliability analysis showed all of the factors to be reliable with the Cronbach's Alpha scoring above the recommended 0.700 (0.714). Following the elimination of variables (sni1 and snd1) the Cronbach's Alpha rose to 0.734 (see Table 5.4).

**Table 5.4 Pilot Study Reliability Analysis – SN Variables**

Reliability Statistics		Reliability Statistics	
Cronbach's Alpha	N of Items	Cronbach's Alpha	N of Items
.714	6	.734	4

**The first box shows the Cronbach's Alpha score for all 6 variables**  
**The second box shows the Cronbach's Alpha with the items sni1 & snd1 removed**

### 5.2.1.3 Perceived Behavioural Control

The Perceived Behavioural Control (PBC) variables - Self-Efficacy (SE – also referred to as CONT during pilot) and Perceived Controllability (PC) – were examined separately. These are the items under the PBC umbrella as proposed by Hagger and Chatzisarantis (2008).

**Figure 5.3** List of PBC Variables used in Pilot Study

cont1 → What level of control do you feel that you have over regularly engaging in leisure time physical activity during the coming month?								
Zero	1	2	3	4	5	6	7	Absolute Control
cont2 → If I do not participate in regular leisure time physical activity in the coming month, it will be entirely my own fault.								
Extremely False	1	2	3	4	5	6	7	Ext. True
cont3 → It is mainly up to me whether or not I engage in regular leisure time physical activity over the coming month								
Strongly Disagree	1	2	3	4	5	6	7	Str. Agree
pc1 → If I wanted to I could engage in regular leisure time physical activity over the coming month								
Strongly Disagree	1	2	3	4	5	6	7	Str. Agree
pc2 → I would consider myself								
extremely incapable	1	2	3	4	5	6	7	extremely capable
of participating in regular leisure time physical activity over the coming month								
pc3 → For me to participate in regular leisure time physical activity over the coming month would be								
Extremely Impossible	1	2	3	4	5	6	7	Extremely Possible

The factor analysis showed each of the Self Efficacy variables to be valid. The reliability analysis produced a Cronbach's Alpha of 0.731. Following the reliability analysis, the item cont1 was removed. This resulted in higher loadings in the factor analysis (cont2 = 0.904,

cont3 = 0.904) and a higher Cronbach's Alpha (0.765). Table 5.5 below illustrates the results of the factor analyses, while Table 5.6 illustrates the results of the reliability analyses.

**Table 5.5 Pilot Study Factor Analysis – Self Efficacy Variables**

Component Matrix		Component Matrix	
	Component 1		Component 1
cont1	.724	cont2	.904
cont2	.819	cont3	.904
cont3	.890		

Extraction Method: Principal Component Analysis.  
a. 1 components extracted.

Extraction Method: Principal Component Analysis.  
a. 1 components extracted.

**The first Component Matrix represents the loadings of all 3 Self-Efficacy variables**  
**The second Component Matrix represents the loadings with the item cont1 removed**

**Table 5.6 Pilot Study Reliability Analysis – Self Efficacy Variables**

Reliability Statistics		Reliability Statistics	
Cronbach's Alpha	N of Items	Cronbach's Alpha	N of Items
.731	3	.765	2

**The first reliability stats show the scoring for all 3 Self-Efficacy items**  
**The second stats represent the scoring with the item cont1 removed**

In terms of Perceived Controllability (PC), the factor analysis showed each of the variables to be valid. The reliability analysis produced a Cronbach's Alpha of 0.760. Following the reliability analysis, the item pc3 was removed. This resulted in higher loadings in the factor analysis (pc1 = 0.908, pc2 = 0.908) although the Cronbach's Alpha score dropped to 0.743. Table 5.7 below illustrates the results of the factor analyses, while Table 5.8 illustrates the results of the reliability analyses.

**Table 5.7 Pilot Study Factor Analysis – Perceived Controllability Variables**

<b>Component Matrix</b>		<b>Component Matrix</b>	
	Component 1		Component 1
pc1	.842	pc1	.908
pc2	.881	pc2	.908
pc3	.779		

Extraction Method: Principal Component Analysis  
a. 1 components extracted.

**The first Component Matrix represents the loadings of all 3 PC variables**  
**The second Component Matrix represents the loadings with the item pc3 removed**

**Table 5.8 Pilot Study Reliability Analysis – Perceived Controllability Variables**

<b>Reliability Statistics</b>		<b>Reliability Statistics</b>	
Cronbach's Alpha	N of Items	Cronbach's Alpha	N of Items
.760	3	.743	2

**The first box represents the Cronbach's Alpha for all 3 items**  
**The second box represents the Cronbach's Alpha with the item pc3 removed**

### 5.2.2 Behavioural Intention

This section will look at the reliability and factor validity of the Behavioural Intention (BI) variables. The pilot study contained four variables relating to Behavioural Intention.

**Figure 5.4 List of BI Variables used in Pilot Study**

bi1 → Over the coming month, I intend to engage in leisure time physical activity on a regular basis								
Strongly Disagree	1	2	3	4	5	6	7	Str. Agree
bi2 → I will attempt to regularly engage in leisure time physical activity in the coming month								
Strongly Disagree	1	2	3	4	5	6	7	Str. Agree
bi3 → I plan on taking part in leisure time physical activity on a regular basis during the coming month								
Strongly Disagree	1	2	3	4	5	6	7	Str. Agree
bi4 → I am determined to engage in regular leisure time physical activity in the coming month								
Strongly Disagree	1	2	3	4	5	6	7	Str. Agree

The factor analysis showed each of the Behavioural Intention variables to be valid. The reliability analysis produced a Cronbach's Alpha of 0.909. Following the reliability analysis, the item bi3 was removed. After further tests the item bi4 was also removed. This resulted in a lower Cronbach's Alpha (0.908). The results of the factor analysis rose significantly. Table 5.9 below illustrates the results of the factor analyses, while Table 5.10 illustrates the results of the reliability analyses.

**Table 5.9 Pilot Study Factor Analysis – Behavioural Intention Variables**

<b>Component Matrix</b>		<b>Component Matrix</b>	
	Component 1		Component 1
bi1	.913	bi1	.961
bi2	.942	bi2	.961
bi3	.826		
bi4	.878		

Extraction Method: Principal Component Analysis.  
a. 1 components extracted.

Extraction Method: Principal Component Analysis.  
a. 1 components extracted.

**The first Component Matrix represents the loadings for all 4 BI variables  
The second Component Matrix represents the loadings with the items bi3 & bi4 removed**

**Table 5.10 Pilot Study Reliability Analysis – Behavioural Intention Variables**

<b>Reliability Statistics</b>		<b>Reliability Statistics</b>	
Cronbach's Alpha	N of Items	Cronbach's Alpha	N of Items
.909	4	.908	2

**The first box represents the Cronbach's Alpha for all 4 items  
The second box represents the Cronbach's Alpha with the items bi3 & bi4 removed**

### 5.2.3 Extended TPB Variables

For the purpose of this study the following will be referred to as the Extended TPB variables: Activity Facet of Extraversion, Attitude Strength, Self Identity, Conscientiousness, Anticipated Regret and Social Support.

#### 5.2.3.1 Activity Facet of Extraversion

The Activity Facet of Extraversion (AFE) variables were examined using the following statements:

**Figure 5.5** List of AFE Variables used in Pilot Study

afe1 → I like to take it easy									
Strongly Disagree	1	2	3	4	5	6	7	Str. Agree	
afe2 → I am determined to engage in regular leisure time physical activity in the coming month									
Strongly Disagree	1	2	3	4	5	6	7	Str. Agree	
afe3 → I am always busy									
Strongly Disagree	1	2	3	4	5	6	7	Str. Agree	

The initial factor analysis produced two components in the Component Matrix. Hence it was imperative to look at the results of the Rotated Component Matrix. The results showed that the loadings were similar for afe2 and afe3. The reliability analysis produced a low Cronbach's Alpha of 0.313. However, the results of the reliability analysis showed that the Cronbach's Alpha would rise to a significant 0.761 if the item afe1 was removed. As predicted, this resulted in a higher Cronbach's Alpha (0.761). The results of the factor analysis showed one component with validity for both afe2 and afe3. Table 5.11 below illustrates the results of the factor analyses, while Table 5.12 illustrates the results of the reliability analyses.

**Table 5.11 Pilot Study Factor Analysis – Activity Facet of Extraversion**

Component Matrix		
	Component	
	1	2
afe1	-.173	.965
afe2	.925	-.195
afe3	.860	.404

Extraction Method: Principal Component Analysis.

a. 2 components extracted.

Rotated Component Matrix		
	Component	
	1	2
afe1	-.010	.980
afe2	.879	-.346
afe3	.915	.255

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

**Component Matrix**

	Component
	1
afe2	.898
afe3	.898

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

**Rotated Component Matrix**

a. Only one component was extracted.

The solution cannot be rotated.

**The results in the top half of the table represent the loadings for all 3 AFE variables**  
**The results in the bottom half of the table represent the loadings with the item afe1 removed**

**Table 5.12 Pilot Study Factor Analysis – Activity Facet of Extraversion**

Reliability Statistics		Reliability Statistics	
Cronbach's Alpha	N of Items	Cronbach's Alpha	N of Items
.313	3	.761	2

The first box represents the Cronbach's Alpha for all 3 items  
The second box represents the Cronbach's Alpha with the item afe1 removed



### 5.2.3.2 Attitude Strength

The Attitude Strength (AS) variables were examined using the following statements:

**Figure 5.6 List of AS Variables used in Pilot Study**

as1 → I am unconcerned about the benefits of regular engagement in leisure time physical activity								
Strongly Disagree	1	2	3	4	5	6	7	Str. Agree
as2 → How important is regular engagement in leisure time physical activity to you?								
Extremely	1	2	3	4	5	6	7	Extremely
Unimportant								Important
as3 → I feel very strongly about the benefits of regular engagement in leisure time physical activity								
Strongly Disagree	1	2	3	4	5	6	7	Str. Agree

The initial factor analysis showed as2 (0.877) and as3 (0.791) to be valid while as1 received a negative scoring of -0.653. The initial reliability analysis produced a Cronbach's Alpha of -0.444. Following the reliability analysis, the item as1 was removed. This resulted in a significant Cronbach's Alpha (0.724). The results of the factor analysis rose significantly. Table 5.13 below illustrates the results of the factor analyses, while Table 5.14 illustrates the results of the reliability analyses.

**Table 5.13 Pilot Study Factor Analysis – Attitude Strength**

Component Matrix <sup>a</sup>		Component Matrix <sup>a</sup>	
	Component 1		Component 1
as1	-.653	as2	.887
as2	.877	as3	.887
as3	.791		

Extraction Method: Principal Component Analysis.  
a. 1 components extracted.

**The first box represents the loadings for all 3 AS variables**  
**The second box represents the loadings with the item as1 removed**

**Table 5.14 Pilot Study Reliability Analysis – Attitude Strength**

Reliability Statistics		Reliability Statistics	
Cronbach's Alpha <sup>a</sup>	N of Items	Cronbach's Alpha	N of Items
-.444	3	.724	2

a. The value is negative due to a negative average covariance among items. This violates reliability model assumptions. You may want to check item codings.

**The first box represents the Cronbach's Alpha for all 3 items**  
**The second box represents the Cronbach's Alpha with the item as1 removed**

### 5.2.3.3 Self-Identity

The Self-Identity (SI) variables were examined using the following statements:

**Figure 5.7** List of SI Variables used in Pilot Study

si1 → Regular participation in leisure time physical activity over the coming month is an important part of who I am
Strongly Disagree      1      2      3      4      5      6      7      Str. Agree
si2 → I consider myself to be the kind of individual that would participate in leisure time physical activity on a regular basis over the coming month
Strongly Disagree      1      2      3      4      5      6      7      Str. Agree
si3 → I think of myself as one who takes pleasure in participating in regular leisure time physical activity
Strongly Disagree      1      2      3      4      5      6      7      Str. Agree
si4 → I consider myself to be someone who is concerned with the advantages of regular engagement in leisure time physical activity
Strongly Disagree      1      2      3      4      5      6      7      Str. Agree

The initial factor analysis showed each factor to be valid. The initial reliability analysis produced a Cronbach's Alpha of 0.765. Following data reduction, the items si3 and si4 were removed. This resulted in a Cronbach's Alpha of 0.909. The results of the factor analysis rose significantly. Table 5.15 below illustrates the results of the factor analyses, while Table 5.16 illustrates the results of the reliability analyses.

**Table 5.15 Pilot Study Factor Analysis – Self-Identity**

Component Matrix		Component Matrix	
	Component 1		Component 1
si1	.890	si1	.959
si2	.843	si2	.959
si3	.551		
si4	.754		

Extraction Method: Principal Component Analysis.  
a. 1 components extracted.

Extraction Method: Principal Component Analysis.  
a. 1 components extracted.

**The first box shows the loadings for all 4 SI items**  
**The second box shows the loadings with the items si3 and si4 removed**

**Table 5.16 Pilot Study Reliability Analysis – Self-Identity**

Reliability Statistics		Reliability Statistics	
Cronbach's Alpha	N of Items	Cronbach's Alpha	N of Items
.765	4	.909	2

**The first box shows the Cronbach's Alpha for all 4 items**  
**The second box shows the Cronbach's Alpha with the items si3 & si4 removed**

### 5.2.3.4 Conscientiousness

The Conscientiousness (CONS) variables were examined using the following statements:

**Figure 5.8** List of CONS Variables used in Pilot Study

cons1 → I am always prepared for activities									
Strongly Disagree	1	2	3	4	5	6	7	Str. Agree	
cons2 → When I make plans, I stick to them									
Strongly Disagree	1	2	3	4	5	6	7	Str. Agree	
cons3 → I find it hard to get down to work									
Strongly Disagree	1	2	3	4	5	6	7	Str. Agree	
cons4 → I don't see things through									
Strongly Disagree	1	2	3	4	5	6	7	Str. Agree	

The initial factor analysis produced two components in the Component Matrix. Hence it was imperative to look at the results of the Rotated Component Matrix. The results showed that the loadings were similar for cons1 and cons2 (positively worded statements) and cons3 and cons4 (negatively worded questions). The reliability analysis produced a low Cronbach's Alpha of 0.290. A decision was made by the researcher to remove the negatively worded statements. The results of the factor analysis showed one component with validity for both cons1 and cons2. The Cronbach's Alpha also rose to 0.726. Table 5.17 below illustrates the results of the factor analyses, while Table 5.18 illustrates the results of the reliability analyses.

**Table 5.17 Pilot Study Factor Analysis – Conscientiousness**

Component Matrix		
	Component	
	1	2
cons1	.848	.173
cons2	.852	.130
cons3	.076	.867
cons4	-.514	.630

Extraction Method: Principal Component Analysis.  
a. 2 components extracted.

Rotated Component Matrix		
	Component	
	1	2
cons1	.865	.007
cons2	.861	-.035
cons3	.241	.836
cons4	-.383	.717

Extraction Method: Principal Component Analysis.  
Rotation Method: Varimax with Kaiser Normalization.  
a. Rotation converged in 3 iterations.

Component Matrix		
	Component	
	1	
cons1	.886	
cons2	.886	

Extraction Method: Principal Component Analysis.  
a. 1 components extracted.

Rotated Component Matrix		
a. Only one component was extracted. The solution cannot be rotated.		

**The results in the top half of the table represent the loadings for all 4 CONS variables**  
**The results in the bottom half of the table represent the loadings with the items cons3 & cons4 removed**

**Table 5.18 Pilot Study Reliability Analysis – Conscientiousness**

Reliability Statistics		Reliability Statistics	
Cronbach's Alpha	N of Items	Cronbach's Alpha	N of Items
.290	4	.726	2

The first box represents the Cronbach's Alpha for all 4 items  
The second box represents the Cronbach's Alpha with the items cons3 & cons 4 removed

### 5.2.3.5 Anticipated Regret

The Anticipated Regret (AR) variables were examined using the following statements:

**Figure 5.9 List of AR Variables used in Pilot Study**

ar1 → If I did not participate in regular leisure time physical activity over the coming month, I would worry in the days afterwards								
Strongly Disagree	1	2	3	4	5	6	7	Str. Agree
ar2 → If I did not participate in regular leisure time physical activity over the coming month, I would feel regret.								
Strongly Disagree	1	2	3	4	5	6	7	Str. Agree
ar3 → If I did not participate in regular leisure time physical activity over the coming month, I would be disappointed in myself.								
Strongly Disagree	1	2	3	4	5	6	7	Str. Agree

The factor analysis showed each of the Anticipated Regret variables to be valid. The reliability analysis produced a Cronbach's Alpha of 0.883. Following the reliability analysis, the item ar2 was removed. This resulted in a lower Cronbach's Alpha (0.845). However, this was still regarded as highly significant. The results of the factor analysis rose significantly. Table 5.19 below illustrates the results of the factor analyses, while Table 5.20 illustrates the results of the reliability analyses.

**Table 5.19 Pilot Study Factor Analysis – Anticipated Regret**

Component Matrix		Component Matrix	
	Component 1		Component 1
ar1	.921	ar1	.938
ar2	.892	ar3	.938
ar3	.901		

Extraction Method: Principal Component Analysis.  
a. 1 components extracted.

**The first box represents the loadings for all 3 AR variables**  
**The second box represents the loadings with the item ar2 removed**

**Table 5.20 Pilot Study Factor Analysis – Anticipated Regret**

Reliability Statistics		Reliability Statistics	
Cronbach's Alpha	N of Items	Cronbach's Alpha	N of Items
.883	3	.845	2

The first box represents the Cronbach's Alpha for all 3 items  
The second box represents the Cronbach's Alpha with the item ar2 removed

### 5.2.3.6 Social Support

The Social Support (SS) variables were examined using the following statements:

**Figure 5.10 List of SS Variables used in Pilot Study**

ss1 → How much support do you receive for participating regularly in leisure time physical activity from your friends?									
No Support	1	2	3	4	5	6	7	Very	
								Regular Support	
ss2 → I can count on certain people to participate in leisure time physical activity with me									
Strongly Disagree	1	2	3	4	5	6	7	Str. Agree	
ss3 → How much support do you receive for participating regularly in leisure time physical activity from your family?									
No Support	1	2	3	4	5	6	7	Very	
								Regular Support	

The factor analysis showed each of the variables ss1 and ss3 to be valid while ss2 received a low loading of 0.290. The Cronbach's Alpha was also low scoring just 0.381. Following the reliability analysis, the item ss2 was removed. This resulted in a significant Cronbach's Alpha (0.729). The results of the factor analysis also rose significantly. Table 5.21 below illustrates the results of the factor analyses, while Table 5.22 illustrates the results of the reliability analyses.



**Table 5.21 Pilot Study Factor Analysis – Social Support**

Component Matrix		Component Matrix	
	Component 1		Component 1
ss1	.874	ss1	.889
ss2	.290	ss3	.889
ss3	.877		

Extraction Method: Principal Component Analysis.  
a. 1 components extracted.

**The first box represents the loadings for all 3 SS variables**  
**The second box represents the loadings with the item ss2 removed**

**Table 5.22 Pilot Study Reliability Analysis – Social Support**

Reliability Statistics		Reliability Statistics	
Cronbach's Alpha	N of Items	Cronbach's Alpha	N of Items
.381	3	.729	2

**The first box represents the Cronbach's Alpha for all 3 items**  
**The second box represents the Cronbach's Alpha with the item ss2 removed**

### **5.3 Section B: General Information**

This section will relate to Sections A & B of the first final study questionnaire (Questionnaire 1). The information presented in this section will represent the age and gender profiles of the participants, as well as the general exercise patterns of the sample population. By analysing the age and gender classifications of the participants, the author was able to highlight differences in opinions and behavioural patterns among differing gender groups.

#### **5.3.1 Age & Gender Profiles**

The respondents in the sample were aged between eighteen and forty. Fifty-nine of the participants in the study were male. There were forty-nine female participants.

#### **5.3.2 Exercise Patterns**

Current exercise patterns were measured using the following statements:

- 1. At present, I do not engage in physical activity, nor do I plan to start engaging in physical activity over the next six months*
- 2. At present, I do not engage in physical activity, however I am considering starting to engage in physical activity over the next six months*
- 3. At present, I engage in physical activity a little, but not frequently*
- 4. At present, I engage in physical activity frequently, but I have only started to do so within the last six months*
- 5. At present, I exercise frequently, and have done so for over six months*

None of the participants claimed that the first statement was a true reflection of their own current status in terms of participation in physical activity. The results showed that Statement 2 was true for 3.7% of respondents, Statement 3 was true for 16.7% of respondents, and Statement 4 was true for 17.6% of respondents. The majority of respondents (62%) claimed that they exercise frequently and had done for over six months prior to distribution of the questionnaire. These results are presented in Table 5.23 below.

**Table 5.23      Exercise Patterns of Respondents**

Current Exercise					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not exercising, Planning to	4	3.7	3.7	3.7
	Engage a little	18	16.7	16.7	20.4
	Only started in past 6 mths	19	17.6	17.6	38.0
	Over 6 mths	67	62.0	62.0	100.0
	Total	108	100.0	100.0	

In terms of individual behaviours, soccer was the most popular form of physical activity with 43.5% of respondents claiming that they play soccer. Soccer was found to be the most popular form of physical activity among men with thirty-two male respondents claiming it to be their most frequent form of physical activity. Gaelic football was the most popular form among women with fifteen female respondents claiming it to be their most frequent form of physical activity. Tables 5.24 and 5.25 below represent the above data.

**Table 5.24      Frequency Table – Soccer**

soccer					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Over 3 days per week	19	17.6	40.4	40.4
	2-3 days per week	21	19.4	44.7	85.1
	Under 5 days per month	5	4.6	10.6	95.7
	Once per month	1	.9	2.1	97.9
	Less Often	1	.9	2.1	100.0
	Total	47	43.5	100.0	
Missing	999	61	56.5		
	Total	108	100.0		

**Table 5.25      Gender/Most Frequent Form of Physical Activity Crosstabulation**

gender * mostfreq Crosstabulation											
Count											
		mostfreq									
		Soccer	Hurling	Gaelic	Swimming	Horse Riding	Weightlifting	Jogging	Walking/Hiking	Cycling_Leisure	Total
gender	Male	32	4	0	3	0	4	5	2	1	51
	Female	0	4	15	3	1	0	7	6	0	36
	Total	32	8	15	6	1	4	12	8	1	87

## 5.4 Section C: Final Study – Questionnaire 1 (Intentions to Behave)

This section will present the findings of the first final study questionnaire. Firstly, the author will show the regression of the original TPB on intentions to engage in physical activity. Following this, the author will show the regression of the Extended TPB on intentions to engage in physical activity. The analysis of this phase of the final study was conducted using Pallant's (2005) guidelines for regressions using SPSS.

### 5.4.1 Grouping Variables

The first stage of this process was to summate each of the variables. For example, when bi1 and bi2 were summated, they became *bi\_summated* (i.e. the mean value of bi1 and bi2).

The statements/questions used in Questionnaire 1 were labelled as follows:

**Figure 5.11 List of Variables used in Final Study**

bi1 → Over the next two weeks, I intend to engage in leisure-time physical activity on a regular basis								
Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
bi2 → I will attempt to regularly engage in leisure-time physical activity over the next two weeks								
Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
cons1 → I am always prepared for activities								
Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
cons2 → When I make plans, I stick to them								
Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
pc1 → If I wanted to I could engage in regular leisure-time physical activity over the next two weeks								
Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
pc2 → I would consider myself								
extremely	1	2	3	4	5	6	7	extremely
incapable								capable
of participating in regular leisure-time physical activity over the next two weeks								
se1 → If I do not participate in regular leisure-time physical activity over the next two weeks, it will be entirely my own fault								
Extremely False	1	2	3	4	5	6	7	Extremely True

se2 → It is mainly up to me whether or not I engage in regular leisure-time physical activity over the next two weeks

<b>Strongly Disagree</b>	1	2	3	4	5	6	7	<b>Strongly Agree</b>
--------------------------	---	---	---	---	---	---	---	-----------------------

sn1 → The majority of people whose opinions I value actively engage in leisure-time physical activity

<b>Extremely False</b>	1	2	3	4	5	6	7	<b>Extremely True</b>
------------------------	---	---	---	---	---	---	---	-----------------------

sn2 → The people in my life who are important to me

<b>seldom</b>	1	2	3	4	5	6	7	<b>regularly</b>
---------------	---	---	---	---	---	---	---	------------------

participate in leisure-time physical activity

sn3 → The majority of people whose opinions I value would

<b>disapprove</b>	1	2	3	4	5	6	7	<b>approve</b>
-------------------	---	---	---	---	---	---	---	----------------

of my participation in regular leisure-time physical activity over the next two weeks

sn4 → The important people in my life think that

<b>I should not</b>	1	2	3	4	5	6	7	<b>I should</b>
---------------------	---	---	---	---	---	---	---	-----------------

engage in regular leisure-time physical activity over the next two weeks

ss2 → How much support do you receive for participating in regular leisure-time physical activity from your family?

<b>No</b>	1	2	3	4	5	6	7	<b>Very Regular</b>
<b>Support</b>								<b>Support</b>

si1 → Regular participation in leisure-time physical activity over the next two weeks is an important part of who I am

<b>Strongly Disagree</b>	1	2	3	4	5	6	7	<b>Strongly Agree</b>
--------------------------	---	---	---	---	---	---	---	-----------------------

si2 → I consider myself to be the kind of individual that would participate in leisure-time physical activity on a regular basis over the next two weeks

<b>Strongly Disagree</b>	1	2	3	4	5	6	7	<b>Strongly Agree</b>
--------------------------	---	---	---	---	---	---	---	-----------------------

atb1 → For me to participate in regular leisure-time physical activity over the next two weeks is

<b>Worthless</b>	1	2	3	4	5	6	7	<b>Valuable</b>
------------------	---	---	---	---	---	---	---	-----------------

atb2 → For me to participate in regular leisure-time physical activity over the next two weeks is

Unpleasant	1	2	3	4	5	6	7	Pleasant
------------	---	---	---	---	---	---	---	----------

atb3 → For me to participate in regular leisure-time physical activity over the next two weeks is

Bad	1	2	3	4	5	6	7	Good
-----	---	---	---	---	---	---	---	------

atb4 → For me to participate in regular leisure-time physical activity over the next two weeks is

Useless	1	2	3	4	5	6	7	Useful
---------	---	---	---	---	---	---	---	--------

atb5 → For me to participate in regular leisure-time physical activity over the next two weeks is

Dissatisfying	1	2	3	4	5	6	7	Satisfying
---------------	---	---	---	---	---	---	---	------------

as1 → How important is regular engagement in leisure-time physical activity to you?

Extremely	1	2	3	4	5	6	7	Extremely
Unimportant								Important

as2 → I feel very strongly about the benefits of regular engagement in leisure-time physical activity

Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
-------------------	---	---	---	---	---	---	---	----------------

afe1 → I do a lot in my spare time

Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
-------------------	---	---	---	---	---	---	---	----------------

afe2 → I am always busy

Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
-------------------	---	---	---	---	---	---	---	----------------

ar1 → If I did not participate in regular leisure-time physical activity over the next two weeks, I would worry in the days afterwards

Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
-------------------	---	---	---	---	---	---	---	----------------

ar2 → If I did not participate in regular leisure-time physical activity over the next two weeks, I would be disappointed in myself

Strongly Disagree	1	2	3	4	5	6	7	Strongly Agree
-------------------	---	---	---	---	---	---	---	----------------

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### 5.4.2 Regression of Original TPB Variables on Intention

After conducting the regression using SPSS, the author looked at the following results.

#### 1. Correlations and Multicollinearity

Upon analysing the Correlations table, no two items had a bivariate correlation of 0.7 or above. Attitude Toward the Behaviour appeared to be closely correlated to Behavioural Intention (0.750), while Perceived Controllability (0.621) could also be considered a valid predictor of intention as it is close to 0.7. In the Coefficients table, each of the tolerance figures was above 0.10 while the VIF figures were all below 10. The results suggest no presence of multicollinearity (see Table 5.26).

**Table 5.26 Original TPB Multicollinearity**

Correlations					
	bi_summated	atb_summated	sn_summated	se_summated	pc_summated
Pearson Correlation bi_summated	1.000	.750	.478	.259	.621

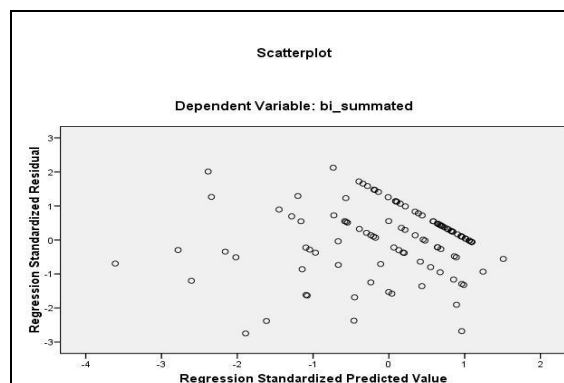
  

Collinearity Statistics	
Tolerance	VIF
.476	2.099
.656	1.524
.771	1.297
.474	2.112

#### 2. Presence of Outliers

Outliers are located outside the range (-3 to +3) in the scatterplot. The regression showed one outlier (see Table 5.27).

**Table 5.27 Original TPB Scatterplot**



In order to locate the outlier, the author referred to the dataset. Tabachnick and Fidell (2001) cited by Pallant (2005) suggest that if there are four independent variables, then the Mahalanobis distance critical value will show outliers above 18.47. Using this information, the author discovered that Questionnaire #35 contained an outlier. Motulsky and Brown (2006) suggest that in some cases, it is acceptable to leave an outlier in the analysis, so as not to hamper the model. As the sample was relatively small, the author decided it would be best not to remove the outlier.

### 3. *Evaluating the Model*

Using Pallant's (2005) guidelines the author looked at the Model Summary. The R Square figure was 0.597. This suggests that the model explains 59.7% of the variance in Behavioural Intention relative to physical activity. However Pallant (2005) suggests that if the sample size is relatively small then the Adjusted R Square should also be taken into consideration. This figure was 0.581, suggesting that the model explains 58.1% of the variance in Behavioural Intention relative to physical activity (see Table 5.28).

**Table 5.28      Original TPB Regression - Model Summary**

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.773 <sup>a</sup>	.597	.581	.720
a. Predictors: (Constant), pc_summated, se_summated, sn_summated, atb_summated				
b. Dependent Variable: bi_summated				

### 4. *Evaluating Independent Variables*

In this stage of analysis the author looked at the *Beta* and *Sig.* values within the Coefficients box. Pallant (2005) suggests that the variable with the largest Beta value *"makes the strongest unique contribution to explaining the dependent variable"*. In this case Attitude Toward the Behaviour (0.612) contributes most to explaining Behavioural Intention in a physical activity context. Pallant (2005) also states that if the *Sig.* value is below 0.05 then the independent variable *"is making a*



*significant unique contribution to the prediction of the dependent variable". In this case, Attitude Toward the Behaviour (0.000) and Perceived Controllability (0.012) both contribute significantly to Behavioural Intention. Table 5.29 below illustrates the above information.*

**Table 5.29 Original TPB Regression - Coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.411	.613		-.670	.505
	atb_summated	.875	.130	.612	6.752	.000
	sn_summated	.053	.085	.049	.630	.530
	se_summated	-.128	.083	-.111	-1.553	.123
	pc_summated	.265	.104	.232	2.549	.012
a. Dependent Variable: bi_summated						

### 5.4.3 Regression of Extended TPB Variables on Intention

Following the regression of the original TPB variables on Behavioural Intention, a regression of the Extended TPB on Behavioural Intention was conducted. The Conscientiousness and Activity Facet of Extraversion variables were left out as they directly affect behaviour, and not intentions to behave. The results were as follows.

#### 1. Correlations and Multicollinearity

Upon analysing the Correlations table, two items had a bivariate correlation of 0.7 or above. Attitude Toward the Behaviour remained at 0.750, while Self-Identity (0.719) was also above 0.7. In the Coefficients table, each of the tolerance figures was above 0.10 while the VIF figures were all below 10. The results suggest no presence of multicollinearity (see Table 5.30).

**Table 5.30**      **Extended TPB Multicollinearity**

Correlations									
	bi_summated	pc_summated	se_summated	sn_summated	ss_summated	si_summated	atb_summated	as_summated	ar_summated
Pearson Correlation bi_summated	1.000	.621	.259	.478	.391	.719	.750	.601	.466

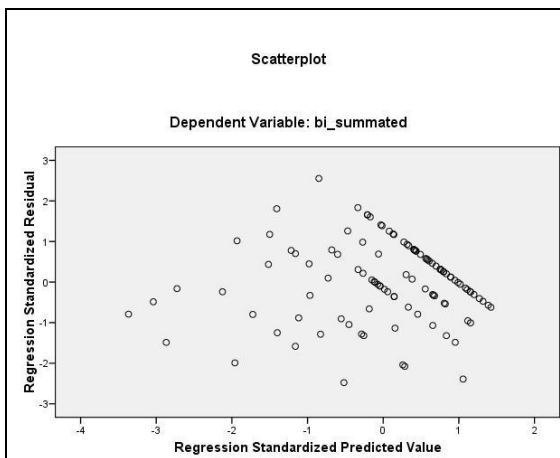
  

Collinearity Statistics	
Tolerance	VIF
.438	2.285
.738	1.356
.525	1.906
.601	1.665
.426	2.345
.307	3.257
.410	2.437
.641	1.559

## 2. Presence of Outliers

The Scatterplot was inspected to check for the presence of outliers (see Table 5.31). Upon inspection one outlier was discovered. Upon referring to the dataset, it was found that Questionnaire #35 again contained an outlier.

**Table 5.31**      **Extended TPB Scatterplot**



## 3. Evaluating the Model

In the regression of the Extended TPB variables on Behavioural Intention, the R Square figure was 0.678. This suggests that the model explains 67.8% of the variance in Behavioural Intention relative to physical activity (8.1% greater than the Original TPB). The Adjusted R Square was 0.652, suggesting that the model explains 65.2% of the variance in Behavioural Intention relative to physical activity (7.1% greater than the Original TPB). Table 5.32 illustrates the above information.

**Table 5.32 Extended TPB Regression - Model Summary**

Model Summary <sup>b</sup>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.823 <sup>a</sup>	.678	.652	.656

a. Predictors: (Constant), ar\_summated, se\_summated, ss\_summated, as\_summated, sn\_summated, pc\_summated, si\_summated, atb\_summated

b. Dependent Variable: bi\_summated

#### 4. Evaluating Independent Variables

Upon analysis of the Coefficients Table, the item with the largest Beta value is Attitude Toward the Behaviour (0.469). As with the Original TPB, Attitude Toward the Behaviour contributes most to explaining Behavioural Intention in a physical activity context.

Both Attitude Toward the Behaviour and Self-Identity received a Sig. value of 0.000 (below 0.05), suggesting that both contribute significantly to Behavioural Intention in a physical activity context. Perceived Controllability had a Sig. value of 0.059. As this value is close to 0.05, one could infer that, as with the Original TPB, Perceived Controllability contributes significantly to Behavioural Intention within the Extended TPB model. Table 5.33 illustrates the above information.

**Table 5.33 Extended TPB Regression - Coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.163	.570		-.287	.775
	pc_summated	.188	.099	.165	1.909	.059
	se_summated	-.057	.077	-.049	-.744	.459
	sn_summated	-.028	.087	-.025	-.322	.748
	ss_summated	-.091	.066	-.102	-1.389	.168
	si_summated	.353	.078	.395	4.524	.000
	atb_summated	.670	.147	.469	4.551	.000
	as_summated	-.024	.117	-.018	-.206	.837
	ar_summated	.027	.055	.035	.486	.628

a. Dependent Variable: bi\_summated

#### 5.4.4 Regression of Original TPB + Extra Variables on Intention

The next step in the process was to conduct regressions using the Original TPB model plus each of the Extended TPB variables independently. This could help to formulate answers to Objectives 3, 4, 5 and 6 in the methodology chapter. The R Square, Adjusted R Square, Beta and Sig. values

##### 5.4.4.1 Attitude Strength

###### 1. Evaluating the Model

In the regression of the Original TPB variables + Attitude Strength on Behavioural Intention, the R Square figure is 0.599, thus explaining 0.2% greater variance than the Original TPB variables alone. However, the Adjusted R Square is lower at 0.579 (0.2% lower than the Original TPB). Table 5.34 below illustrates the above information.

**Table 5.34**      **Original TPB + Attitude Strength Regression – Model Summary**

Model Summary <sup>a</sup>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.774 <sup>a</sup>	.599	.579	.722
a. Predictors: (Constant), as_summated, se_summated, sn_summated, pc_summated, atb_summated				
b. Dependent Variable: bi_summated				

###### 2. Evaluating Independent Variables

In the regression of the Original TPB variables + Attitude Strength on Behavioural Intention, the item with the largest Beta value is Attitude Toward the Behaviour (0.576). Both Attitude Toward the Behaviour and Perceived Controllability were seen to make a significant contribution toward Behavioural Intention. Their Sig. values were 0.000 and 0.018 respectively (see Table 5.35).

**Table 5.35 Original TPB + Attitude Strength Regression – Coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.475	.623		-.762	.448
	pc_summated	.254	.105	.223	2.415	.018
	se_summated	-.132	.083	-.113	-1.585	.116
	sn_summated	.048	.086	.043	.559	.578
	atb_summated	.824	.152	.576	5.413	.000
	as_summated	.081	.127	.062	.644	.521

a. Dependent Variable: bi\_summated

#### 5.4.4.2 Anticipated Regret

##### 1. Evaluating the Model

In the regression of the Original TPB variables + Anticipated Regret on Behavioural Intention, the R Square figure is 0.609, thus explaining 1.2% greater variance than the Original TPB variables alone. The Adjusted R Square is 0.590, which suggests that the model explains 0.9% greater variance in Behavioural Intention relative to physical activity that the Original TPB (see Table 5.36)

**Table 5.36 Original TPB + Anticipated Regret Regression – Model Summary**

Model Summary <sup>b</sup>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.780 <sup>a</sup>	.609	.590	.712

a. Predictors: (Constant), ar\_summated, se\_summated, sn\_summated, pc\_summated, atb\_summated  
b. Dependent Variable: bi\_summated

##### 2. Evaluating Independent Variables

In the regression of the Original TPB variables + Attitude Strength on Behavioural Intention, the item with the largest Beta value is Attitude Toward the Behaviour (0.562). Both Attitude Toward the Behaviour and Perceived Controllability were seen to make a significant contribution toward Behavioural Intention. Their Sig. values were 0.000 and 0.009 respectively. As the study used a small sample, it

could be argued that Anticipated Regret also makes a significant contribution as its Sig. value (0.080) is close to 0.05 (see Table 5.37).

**Table 5.37 Original TPB + Anticipated Regret Regression – Coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.370	.607		-.609	.544
	pc_summated	.274	.103	.240	2.659	.009
	se_summated	-.116	.082	-.100	-1.418	.159
	sn_summated	.010	.088	.009	.115	.909
	atb_summated	.804	.134	.562	5.978	.000
	ar_summated	.101	.057	.130	1.769	.080

a. Dependent Variable: bi\_summated

#### 5.4.4.3 Social Support

##### 1. Evaluating the Model

In the regression of the Original TPB variables + Social Support on Behavioural Intention, the R Square figure is 0.598, thus explaining 0.1% greater variance in Behavioural Intention in a physical activity context than the Original TPB. The Adjusted R Square figure is 0.579 (explaining 0.2% less variance than the Original TPB). Table 5.38 illustrates the above information.

**Table 5.38 Original TPB + Social Support Regression – Model Summary**

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.773 <sup>a</sup>	.598	.579	.722

a. Predictors: (Constant), ss\_summated, se\_summated, sn\_summated, pc\_summated, atb\_summated  
b. Dependent Variable: bi\_summated

##### 2. Evaluating Independent Variables

In the regression of the Original TPB variables + Social Support on Behavioural Intention, the item with the largest Beta value is Attitude Toward the Behaviour (0.621). Both Attitude Toward the Behaviour and Perceived Controllability were

seen to make a significant contribution toward Behavioural Intention. There Sig. values were 0.000 and 0.011 respectively (see Table 5.39 below).

**Table 5.39 Original TPB + Social Support Regression – Coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.417	.615		-.678	.499
	pc_summated	.273	.105	.239	2.595	.011
	se_summated	-.129	.083	-.111	-1.557	.123
	sn_summated	.070	.090	.063	.774	.441
	atb_summated	.888	.132	.621	6.720	.000
	ss_summated	-.039	.070	-.044	-.559	.577

a. Dependent Variable: bi\_summated

#### 5.4.4.4 Self-Identity

##### 1. Evaluating the Model

In the regression of the Original TPB variables + Self-Identity on Behavioural Intention, the R Square figure is 0.670, thus explaining 7.3% greater variance in Behavioural Intention in a physical activity context than the Original TPB. The Adjusted R Square figure is 0.654, which also explains 7.3% greater variance. Table 5.40 illustrates the above information.

**Table 5.40 Original TPB + Self-Identity Regression – Model Summary**

Model Summary <sup>b</sup>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.818 <sup>a</sup>	.670	.654	.655

a. Predictors: (Constant), si\_summated, se\_summated, sn\_summated, pc\_summated, atb\_summated  
b. Dependent Variable: bi\_summated

##### 2. Evaluating Independent Variables

In the regression of the Original TPB variables + Self-Identity on Behavioural Intention, the item with the largest Beta value is Attitude Toward the Behaviour (0.455). Both Attitude Toward the Behaviour and Self-Identity were seen to make a significant contribution toward Behavioural Intention in a physical activity context.

There Sig. values were both 0.000. Considering the small sample size, Perceived Controllability (0.089) could also be seen as contributing to Behavioural Intention (see Table 5.41 below).

**Table 5.41 Original TPB + Self-Identity Regression – Coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.186	.560		-.332	.741
	pc_summated	.166	.097	.145	1.718	.089
	se_summated	-.062	.076	-.053	-.809	.420
	sn_summated	-.052	.080	-.047	-.645	.520
	atb_summated	.650	.127	.455	5.122	.000
	si_summated	.342	.072	.382	4.740	.000

a. Dependent Variable: bi\_summated

## 5.5 Section D: Final Study – Questionnaire 2 (Actual Behaviour)

To discover whether the Extended TPB is a greater predictor of behaviour than the Original TPB, two regressions were conducted. The dependent variable in both regressions was the item minutesperwk. The statement used in the questionnaire was:

*Over the past fortnight I engaged in moderate and/or vigorous leisure-time physical activity for...*

1	2	3	4	5	6
Under 20 Mins Per Week	21-40 Mins Per Week	41-60 Mins Per Week	61-90 Mins Per Week	91-120 Mins Per Week	Over 120 Per Week

This was used to measure the leisure-time physical activity behaviour of the participants over the previous fortnight.

### 5.5.1 Regression of Original TPB on Behaviour

The dependent variables in the first regression were Behavioural Intention, Self-Efficacy and Perceived Controllability. The results of the regression were as follows:



## 1. Correlations and Multicollinearity

Upon analysing the Correlations table, no two items had a bivariate correlation of 0.7 or above. In the Coefficients table, each of the tolerance figures was above 0.10 while the VIF figures were all below 10. The results suggest no presence of multicollinearity (see Table 5.42 below).

**Table 5.42 Original TPB Multicollinearity**

Correlations					
		minutesperwk	bi_summated	se_summated	pc_summated
Pearson Correlation	minutesperwk	1.000	.361	-.032	.180
	bi_summated	.361	1.000	.259	.621
	se_summated	-.032	.259	1.000	.455
	pc_summated	.180	.621	.455	1.000

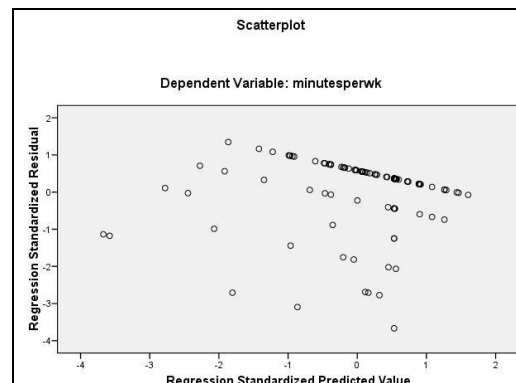
  

Collinearity Statistics	
Tolerance	VIF
.614	1.629
.792	1.262
.522	1.916

## 2. Presence of Outliers

Outliers are located outside the range (-3 to +3) in the scatterplot. The regression showed two outliers (see Table 5.43). Upon analysis of the dataset, the outliers were #21 and #35. As the sample was relatively small, a decision was made to leave the outliers in the analysis.

**Table 5.43 Original TPB Scatterplot**



### 3. Evaluating the Model

Using Pallant's (2005) guidelines the author looked at the Model Summary. The R Square figure was 0.147. This suggests that the model explains 14.7% of the variance in actual behaviour relative to physical activity. The Adjusted R Square figure was 0.123, suggesting that the model explains 12.3% of the variance in behaviour relative to physical activity (see Table 5.44).

**Table 5.44 Original TPB Regression - Model Summary**

Model Summary <sup>a</sup>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.384 <sup>a</sup>	.147	.123	1.240

a. Predictors: (Constant), pc\_summated, se\_summated, bi\_summated  
b. Dependent Variable: minutesperwk

### 4. Evaluating Independent Variables

Upon analysis of the Coefficients Table, the item with the largest Beta value is Behavioural Intention (0.402). This suggests that Behavioural Intention contributes most to explaining Behavioural Intention in a physical activity context. Behavioural Intention was the only independent variable to receive a Sig. value below 0.05 (0.001). This suggests that Behavioural Intention contributes significantly to actual behaviour in a physical activity context. Table 5.45 illustrates the above information.

**Table 5.45 Original TPB Regression – Coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.567	.938		3.801	.000
	bi_summated	.478	.138	.402	3.475	.001
	se_summated	-.182	.140	-.132	-1.294	.199
	pc_summated	-.013	.170	-.010	-.078	.938

a. Dependent Variable: minutesperwk

### 5.5.2 Regression of Extended TPB on Behaviour

The Extended TPB behaviour variables (Conscientiousness and Activity Facet of Extraversion) were then added to the model and a second regression was conducted.

#### 1. Correlations and Multicollinearity

Upon analysing the Correlations table, no two items had a bivariate correlation of 0.7 or above. In the Coefficients table, each of the tolerance figures was above 0.10 while the VIF figures were all below 10. The results suggest no presence of multicollinearity (see Table 5.46 below).

**Table 5.46**      **Extended TPB Multicollinearity**

Correlations							
		minutesperwk	bi_summated	se_summated	pc_summated	afe_summated	cons_summated
Pearson Correlation	minutesperwk	1.000	.361	-.032	.180	.059	.326
	bi_summated	.361	1.000	.259	.621	.379	.491
	se_summated	-.032	.259	1.000	.455	.063	.089
	pc_summated	.180	.621	.455	1.000	.304	.462
	afe_summated	.059	.379	.063	.304	1.000	.326
	cons_summated	.326	.491	.089	.462	.326	1.000

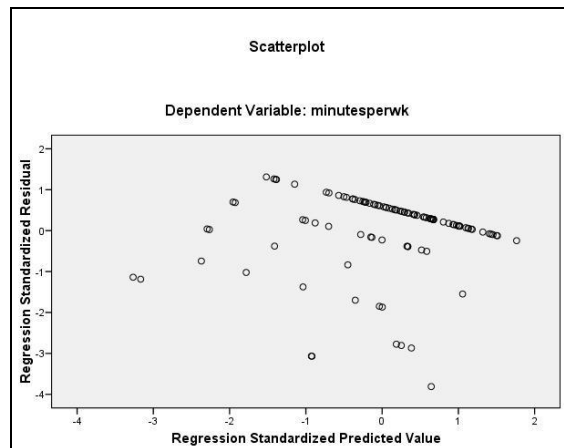
  

Collinearity Statistics	
Tolerance	VIF
.538	1.859
.771	1.296
.481	2.078
.824	1.213
.688	1.454

#### 2. Presence of Outliers

Outliers are located outside the range (-3 to +3) in the scatterplot. The regression showed two outliers (see Table 5.47). Upon analysis of the dataset, the outliers were #21 and #35. As the sample was relatively small, a decision was made to leave the outliers in the analysis.

**Table 5.47      Extended TPB Scatterplot**



### 3. *Evaluating the Model*

The R Square figure was 0.191. This suggests that the model explains 19.1% of the variance in actual behaviour relative to physical activity (4.4% greater than the Original TPB). The Adjusted R Square figure was 0.151, suggesting that the model explains 15.1% of the variance in behaviour relative to physical activity (2.8% greater than the Original TPB (see Table 5.48).

**Table 5.48      Extended TPB Regression - Model Summary**

Model Summary <sup>b</sup>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.437 <sup>a</sup>	.191	.151	1.220

a. Predictors: (Constant), cons\_summated, se\_summated, afe\_summated, bi\_summated, pc\_summated

b. Dependent Variable: minutesperwk

### 4. *Evaluating Independent Variables*

Upon analysis of the Coefficients Table, the item with the largest Beta value is Behavioural Intention (0.366). This suggests that Behavioural Intention contributes most to explaining Behavioural Intention in a physical activity context. Both Behavioural Intention and Conscientiousness received a Sig. value below 0.05 (0.003 and 0.037 respectively). This suggests that Behavioural Intention and

Conscientiousness contribute significantly to actual behaviour in a physical activity context. Table 5.49 illustrates the above information.

**Table 5.49      Extended TPB Regression – Coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.133	1.060		2.955	.004
	bi_summated	.436	.145	.366	3.018	.003
	se_summated	-.152	.140	-.110	-1.085	.280
	pc_summated	-.087	.175	-.064	-.498	.619
	afe_summated	-.147	.113	-.127	-1.297	.198
	cons_summated	.312	.148	.227	2.113	.037

a. Dependent Variable: minutesperwk

## 5.6 Conclusion

This chapter provides a comprehensive review of the primary research. The results of the primary research were presented in this chapter in the form of graphs and tables processed using SPSS software. The above findings will be discussed in the next chapter.

## **Chapter 6: Discussion**

### **6.1 Introduction**

This chapter will assess the results of the primary research, as presented in the previous chapter. The aim of this chapter is to link, compare and contrast the findings of this study to those of previous studies discussed in the literature review chapters.

The author will also seek to discuss the findings of this study relative to the research objectives presented in the methodology chapter.

#### **6.1.1 Structure of the Discussion**

The structure of the discussion chapter will follow the structure of the research objectives. This will permit the author to formulate comparisons between existing literature and the findings of the primary research. It will also allow the author to easily identify and discuss key issues arising from the primary research.

Firstly, the author will discuss the effectiveness of Hagger and Chatzisarantis' (2008) Extended TPB with respect to Ajzen's TPB Model. Following this, the author will briefly discuss the correlation between intended physical activity behaviour and actual behaviour. Finally, the value of each of the additional elements of the Extended TPB in predicting intentions and behaviour will be discussed.

### **6.2 Objective One**

*To examine whether Hagger and Chatzisarantis' (2008) Extended Theory of Planned Behaviour acts as a greater predictor of intention to behave than Ajzen's Theory of Planned Behaviour*

#### **6.2.1 Objective One: Literature Review**

Hagger and Chatzisarantis (2008) argue that Ajzen's TPB Model lacks precision and accuracy in terms of predicting variance in intentions to engage in physical activity behaviour. They suggest that attitude strength, anticipated regret, social support and self-identity can help to develop a more accurate prediction of intentions to engage in physical activity. Within the TPB Model, ATB is judged to be a stronger predictor of BI than

Subjective Norm and Perceived Behavioural Control (Hagger et al, 2001; Jackson et al., 2003).

### **6.2.2 Objective One: Findings**

Analysis of the data showed that Ajzen's TPB Model predicted between 58.1% (Adjusted R Square) and 59.7% (R Square) of the variance in intentions to engage in physical activity. The Extended TPB was found to predict between 65.2% and 67.8% of the variance in behavioural intention. ATB was regarded as the most significant predictor of BI in both models.

### **6.2.3 Objective One: Discussion**

From the above information, one can deduce that the primary research correlates strongly with the existing literature. Hagger and Chatzisarantis' (2008) model accounted for up to 8.1% greater variance in intentions to engage in physical activity behaviour than Ajzen's (1985) model. These findings suggest that the Extended TPB model acts as a greater predictor of intentions to engage in physical activity, than the Original TPB. One plausible explanation for this is that the Extended TPB takes more factors into consideration than the Original TPB. These additional constructs can help to leverage the accuracy of the model. For example, Self-Identity received a Sig. value of 0.000 suggesting a high level of significance in the prediction of BI in an exercise context.

The findings also supported those of Hagger et al. (2001) and Jackson et al. (2003). Of the three major elements of the TPB, ATB was the strongest predictor of BI. One plausible reason for this is that many of the participants claimed that they participated in individual-based activities in public places, and so SN and PBC would not influence their intentions to the same degree as ATB.

## **6.3 Objective Two**

*To measure peoples' intended physical activity behaviour against their actual behaviour*

### **6.3.1 Objective Two: Literature Review**

Armitage (2005) claims that the greater one's motivation to perform a behaviour, the greater the chance that he/she will successfully carry out the behaviour. According to Blanchard et al. (2008), behavioural intention (BI) is a fundamental predictor of actual behaviour.

### **6.3.2 Objective Two: Findings**

Analysis of the data showed that in respect to both the TPB and Extended TPB models, the BI variable was the most significant predictor of actual behaviour, with Sig. values of 0.001 and 0.003 respectively.

### **6.3.3 Objective Two: Discussion**

From the above information, one can deduce that the primary research correlates strongly with the existing literature. The information gathered from the primary research suggests that the claims made by Armitage (2005) and Blanchard et al. (2008) are accurate. The results also show that the majority of respondents, who planned to engage in physical activity, actively did so.

## **6.4 Objective Three**

*To determine the effect of attitude strength on intentions to engage in regular leisure-time physical activity*

### **6.4.1 Objective Three: Literature Review**

Attitude strength (AS) can act as a strong predictor of behavioural intention (Krosnick and Smith, 1994). Theodorakis (1994) found that individuals who displayed high levels of certainty towards their intentions to engage in exercise programmes were more likely to actively engage in physical activity.



#### **6.4.2 Objective Three: Findings**

The findings showed that the use of AS as an additional construct of Ajzen's TPB model increased the R Square value by 0.2%, thus explaining 0.2% greater variance than the TPB alone. However, the Adjusted R Square was reduced by 0.2% when AS was included. The evaluation of the independent variables showed that AS was not a significant predictor of BI as it received a Sig. value of 0.521.

#### **6.4.3 Objective Three: Discussion**

From the above information, one can deduce that the results of the primary research suggest little correlation with the existing literature. The findings contradict those of Theodorakis (1994), and rather, indicate that AS bares little significance in determining individuals' behavioural intentions in regard to physical activity.

### **6.5 Objective Four**

*To determine the effect of anticipated regret on intentions to engage in regular leisure-time physical activity*

#### **6.5.1 Objective Four: Literature Review**

Hagger and Chatzisarantis (2008) believe that anticipated regret (AR) can act as a significant indicator of BI. Abraham and Sheeran (2004) found that anticipated regret is a useful indicator of peoples' intentions to exercise. Their study showed that participants who thought about the feeling of regret that they would experience subsequent to non-participation displayed greater levels of intentions to exercise.

#### **6.5.2 Objective Four: Findings**

Analysis of the data showed that AR acted as a noteworthy extension of Ajzen's TPB Model. The model predicted between 59% (Adjusted R Square) and 60.9% (R Square) of the variance in intentions to engage in physical activity. Evaluation of the independent variables suggested that AR could be regarded as a relatively significant predictor of BI as it received a Sig. value of 0.080.

### **6.5.3 Objective Four: Discussion**

From the above information, one can deduce that the primary research correlates strongly with the existing literature. The findings suggest that the inclusion of AR as a construct of the TPB model increases the accuracy of the model in predicting intentions to engage in physical activity by approximately 0.9 to 1.2%. In accordance with Abraham and Sheeran's (2004) findings AR was found to prove valuable in predicting BI in regard to physical activity. One reason for this could be that participants considered the regret that they might feel following non-participation whilst answering the questionnaire, and so, agreed that they would experience a feeling of post-non-participation regret.

## **6.6 Objective Five**

*To determine the effect of social support on intentions to engage in regular leisure-time physical activity*

### **6.6.1 Objective Five: Literature Review**

Smith and Terry (2003) claim that an individual will be more likely to engage in a specific behaviour if he/she feels that he/she has got the backing and/or encouragement of his/her family or friends to do so. Robbins et al., (2008) found that for younger adolescents, support from family members (particularly parents) plays a major role in determining BI in an exercise context.

### **6.6.2 Objective Five: Findings**

The findings showed that the use of SS as an additional construct of Ajzen's TPB model increased the R Square value by 0.1%, thus explaining 0.1% greater variance than the TPB alone. However, the Adjusted R Square was reduced by 0.2% when SS was included. The evaluation of the independent variables showed that SS was not a significant predictor of BI as it received a Sig. value of 0.577.

### **6.6.3 Objective Five: Discussion**

From the above information, one can deduce that the primary research contradicts the existing literature. The inclusion of the SS variable as an extension of the TPB does not contribute greatly to the prediction of BI in an exercise context. As an independent

variable, SS does not correlate strongly with BI. A probable explanation for this is that many of the respondents claimed that they engaged in individual-based physical activity and so would not rely heavily on the support of others in order to perform such activities. Drawing from the work of Robbins et al., (2008), one could deduce that support from family members may not be as important to those who took part in the study (i.e. individuals aged between eighteen and forty). This could explain the reason for the insignificance of the SS variable in regard to BI in an exercise context. It could also help to formulate the following theory - *The significance of SS as a predictor of BI decreases as one gets older.*

## **6.7 Objective Six**

*To determine the effect of self-identity on intentions to engage in regular leisure-time physical activity*

### **6.7.1 Objective Six: Literature Review**

Hagger and Chatzisarantis (2008) claim that self-identity (SI) can be a major factor in the prediction of intentions to participate in a target behaviour. They claim that in an exercise context, individuals who view themselves as being the "sporty type" would consider themselves to be passionate about exercise participation, and this in turn would positively leverage their future intentions to participate. Jackson et al. (2003) claim that people who see themselves as having a desire to become more physically active would be more inclined to increase their intentions to engage in physical activity behaviour.

### **6.7.2 Objective Six: Findings**

Analysis of the data showed that SI acted as an extremely significant extension of Ajzen's TPB Model. The model predicted between 65.4% (Adjusted R Square) and 67% (R Square) of the variance in intentions to engage in physical activity. Evaluation of the independent variables suggested that SI could be regarded as a highly significant predictor of BI as it received a Sig. value of 0.000.

### **6.7.3 Objective Six: Discussion**

It is evident from the primary research findings that SI is an extremely accurate predictor of BI in a physical activity context. The findings correlated strongly with the existing literature. One plausible reason for this could be that convenience sampling was used during the research, and so, much of the research was conducted in sports and leisure facilities etc., leading to a large percentage of responses from individuals who would, more than likely, consider themselves as being passionate about exercise participation.

## **6.8 Objective Seven**

*To determine the effect of conscientiousness on leisure-time physical activity behaviour*

### **6.8.1 Objective Seven: Literature Review**

Chatzisarantis and Hagger (2008) found that individuals who showed high levels of conscientiousness were more likely to continue participating in regular exercise behaviours than those who displayed low levels of conscientiousness. This was because *"continuation intentions of failure predicted physical activity participation among conscientious individuals."*

### **6.8.2 Objective Seven: Findings**

Analysis of the regression of the Extended TPB on actual physical activity behaviour showed that CONS acted as an extremely significant indicator of exercise behaviour. The model predicted between 15.1% (Adjusted R Square) and 19.1% (R Square) of the variance physical activity behaviour. Evaluation of the independent variables suggested that CONS could be regarded as a highly significant predictor of behaviour as it received a Sig. value of 0.037.

### **6.8.3 Objective Seven: Discussion**

It is evident from the primary research findings that CONS is an extremely accurate predictor physical activity behaviour. The findings of the primary research were in line with those of Chatzisarantis and Hagger (2008). One possible reason for this could be that, as much of the research was conducted in sports and leisure facilities etc., many of the respondents would, more than likely, feel committed to continuation of their current

physical activity behaviour, and thus show high levels of conscientiousness in regard to their personal exercise participation.

## **6.9 Objective Eight**

*To determine the effect of the activity facet of extraversion on leisure-time physical activity behaviour*

### **6.9.1 Objective Eight: Literature Review**

Rhodes et al., (2002) found that the activity facet of extroversion is a significant indicator of physical activity behaviour. Hagger and Chatzisarantis (2008) explain that in the context of physical activity, an individual who displays characteristics of the activity facet of extroversion may participate in "*spontaneous behavioural engagement*". An example of such spontaneous behaviour would occur whereby the individual in question becomes involved in an informal football match with his/her friends in a park.

### **6.9.2 Objective Eight: Findings**

Analysis of the regression of the Extended TPB on actual physical activity behaviour found that AFE was not a significant indicator of exercise behaviour. Upon evaluation of the independent variables, AFE received a Sig. value of 0.198. This result (above 0.05) suggests that AFE does not make a significant contribution to exercise behaviour.

### **6.9.3 Objective Eight: Discussion**

The results of the primary research suggest that AFE is not a significant indicator of exercise behaviour. This information contradicts that of Rhodes et al. (2002) who found that AFE had an immense influence on exercise behaviour. One possible explanation this finding is a lack of behavioural intention (i.e. that participants who took part in the study may not have been able to foresee an act of *spontaneous* behavioural engagement whilst responding to the first final study questionnaire). Such failure to predict behaviour could have negatively impacted on the Sig. value of AFE.

## **6.10 Conclusion**

The findings prove that Hagger and Chatzisarantis' (2008) Extended TPB Model predicts exercise behaviour more accurately than Ajzen's (1985) Model. The results of the primary research also showed that in most cases BI was a significant predictor of actual physical activity behaviour.

During the discussion chapter, the author sought to confirm the validity of claims made in previous studies. In terms of the additional constructs of Hagger and Chatzisarantis' (2008) model, anticipated regret and self-identity proved to be valuable to the prediction of behavioural intentions in a physical activity/exercise context. On the contrary, attitude strength and social support proved insignificant. Conscientiousness was found to be a significant driver of exercise behaviour, while AFE was not.

In the next chapter the author will seek to draw conclusions from the research. The author will also seek to provide recommendations for further study as well as highlighting certain limitations that may have hindered the research.

## **Chapter 7: Conclusions and Recommendations**

### **7.1 Introduction**

In this chapter the author will seek to summarise the key issues emerging from the study, and from this, formulate conclusions. The author will then aim to use these conclusions to develop recommendations on how the information gathered during the study can be used by practitioners and theorists in the future. Following this a list of limitations of the study will be presented. Finally, the author will suggest possible areas for further research.

### **7.2 Conclusions**

The following is a list of the key conclusions evident from the primary research:

#### **7.2.1 Objective One**

*To examine whether Hagger and Chatzisarantis' (2008) Extended Theory of Planned Behaviour acts as a greater predictor of intention to behave than Ajzen's Theory of Planned Behaviour*

Hagger and Chatzisarantis (2008) suggest that their extended model of Ajzen's (1985) TPB can act as a greater predictor of intention in regard to exercise behaviour. However, despite many previous studies examining each additional element of the Extended TPB as an extension of Ajzen's model, there has never been a study examining the entire Extended TPB model. It is evident from the above information that a gap exists in the literature. From the primary research, one can conclude that, indeed Hagger and Chatzisarantis' model does offer a more substantial prediction of BI in a physical activity/exercise context. In conclusion, the primary research has closed the gap in the literature, as it has proven Hagger and Chatzisarantis' theory.

### **7.2.2 Objective Two**

*To measure peoples' intended physical activity behaviour against their actual behaviour*

Ajzen (1985) claims that, in regard to many health behaviours, intention is greatest predictor of actual behaviour. In terms of exercise compliance, many theorists have agreed with the claims made by Ajzen (Armitage, 2005; Blanchard et al., 2008). The results of the primary research also concur with the findings presented in the existing literature. In conclusion, the primary research has helped to further cement these claims.

### **7.2.3 Objective Three**

*To determine the effect of attitude strength on intentions to engage in regular leisure-time physical activity*

Many theorists believe that AS is a significant driver of BI in an exercise context (Krosnick and Smith, 1994; Theodorakis, 1994). However, the findings of the primary research conflicted with the existing literature. The primary research proved inconclusive as the author could not find any reason as to why the findings were inconsistent with previous studies.

### **7.2.4 Objective Four**

*To determine the effect of anticipated regret on intentions to engage in regular leisure-time physical activity*

Hagger and Chatzisarantis (2008) believe that anticipated regret can act as an extremely significant indicator of behavioural intention. Abraham and Sheeran (2004) found that AR is a useful indicator of peoples' intentions to exercise. It is evident from the primary research findings that AR can indeed prove very significant in the prediction of BI in an exercise context. In conclusion, the primary research has helped to reinforce the claims of the existing literature.



### **7.2.5 Objective Five**

*To determine the effect of social support on intentions to engage in regular leisure-time physical activity*

Smith and Terry (2003) claim that SS plays a vital role in determining BI in regard to health behaviours. Robbins et al. (2008) found that for younger adolescents, support from family members (particularly parents) plays a major role in determining BI in an exercise context. It is evident from the above information that a gap exists in the literature (i.e. does SS affect BI in terms of adult participation in physical activity?). The primary research found that SS was insignificant as a predictor of BI in an exercise context. Although this contradicts the existing literature, it does offer a unique insight into the importance of SS among adults. In conclusion, the primary research helped to formulate a theory that the significance of SS as a predictor of BI decreases as one gets older.

### **7.2.6 Objective Six**

*To determine the effect of self-identity on intentions to engage in regular leisure-time physical activity*

Many theorists have claimed that SI can act as a significant predictor of BI in an exercise context. It is thought that those who consider themselves as being the "sporty type" would consider themselves to be passionate about exercise participation, which would in turn encourage them to actively engage in exercise (Jackson et al., 2003; Hagger and Chatzisarantis, 2008). The results of the primary research prove that the above information is correct. SI proved extremely accurate in determining intentions to engage in physical activity among those who participated in the study. In conclusion, the primary research findings helped to bolster the claims of the existing literature.

### **7.2.7 Objective Seven**

*To determine the effect of conscientiousness on leisure-time physical activity behaviour*

Chatzisarantis and Hagger (2008) found that individuals who showed high levels of conscientiousness were more likely to continue participating in regular exercise behaviours than those who displayed low levels of conscientiousness. The findings of the primary research proved concurrent with the above claim. In conclusion, the primary research helped to reinforce the claims of the existing literature.

### **7.2.8 Objective Eight**

*To determine the effect of the activity facet of extraversion on leisure-time physical activity behaviour*

Rhodes et al., (2002) found that the activity facet of extroversion is a significant indicator of physical activity behaviour. Hagger and Chatzisarantis (2008) stated that usually AFE is evident in individuals who take part in spontaneous acts of participation such as an informal "kick-about" in the park with friends. The primary research found that AFE was not as significant as the literature claimed. The author believes that these findings are inconclusive. The author argues however, that the respondents may have been unable to predict "spontaneous behaviour", which may have skewed the results.

## **7.3 Recommendations**

The following are the author's recommendations for practitioners based on the findings of the study:

1. The Extended TPB should be used as a means of measuring BI in an exercise context as it offers a more comprehensive insight into the drivers of BI than the Original TPB.
2. For future intervention studies and marketing campaigns aimed at promoting behavioural changes in terms of exercise compliance, marketers should focus heavily on anticipated regret and self-identity as methods of leveraging BI among their target audiences.

## **7.4 Limitations**

Time constraints and cost were the dominant limitations of the study. The primary research was conducted during the summer months. This contributed heavily to the low response rate. The sample population was less than that stated in the requirements, and so this may have contributed to the low scoring of certain variables. Another limitation was the technical wording of the questionnaires which may have been confusing to certain participants in the study. Finally, due to the convenience sampling approach taken by the researcher, there may be some bias relating to the majority of respondents' behavioural patterns which may not reflect the beliefs of the wider population.

## **7.5 Recommendations for Further Research**

Based on the findings of the study, the author has compiled the following recommendations for further research:

1. In regard to Attitude Strength, the findings of the primary research proved contradictory to those of previous studies. The author believes that as these results proved inconclusive, further research should be conducted on AS as a driver of BI to discover whether or not it can influence BI in an exercise context.
2. In regard to Social Support, the findings of the primary research proved contradictory to those of previous studies. However, drawing from the work of Robbins et al., (2008) the author developed the following theory - *The significance of SS as a predictor of BI decreases as one gets older*. The author believes that in order to test this theory, further study is necessary to compare the significance of SS as a predictor of BI among children and adults in an exercise context.

## **7.6 Conclusion**

This chapter has drawn to a close the dissertation. The major findings of the primary research were presented and from these, a number of conclusions were drawn. The author also discussed the limitations of the research and presented a list of recommendations for both practitioners and theorists for future research and practice.

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## **Appendix A: Personal Reflection**

### **Introduction**

Over the course of completing my dissertation I learned a lot. From the offset, I knew that the completing of such a piece of work would be, by no means, a walk in the park, so I made a deal with myself to choose a topic that I was interested in, in order to eliminate as much stress as possible. Nevertheless there was plenty stress! Notwithstanding the countless ups and downs that occurred throughout the year, I felt that, ultimately, I enjoyed the experience of completing a dissertation and I learned a lot about my area of interest along the way.

### **Key Learning**

The first stage in the completion of the dissertation was selecting a research topic. After pondering over several possible topics, I finally decided to study something that was of genuine interest to me – Exercise motivation. Having studied consumer behaviour in a previous course, I felt that it would be interesting to discover what drives people to participate in physical activity.

The literature review was a torturous ordeal. It wasn't long before I learned that it can be difficult to filter through previous research in order to find the key facts and figures that you are looking for. However, as time went by, I discovered that if you use your initiative and search through the right sources it can become less of a chore. I learned a lot about motivational theory (particularly Ajzen's Theory of Planned Behaviour) and exercise from completing the literature review.

The next step was the methodology – i.e. collection and analysis of the primary research. At times the data collection process seemed extremely demoralising. The quantitative nature of the study meant that in order to collect my data, I had to conduct field research in the form of questionnaires. Initially, I felt disheartened because many individuals did not want to take part in my research. When they saw the length of the questionnaire they lost interest and some people did not take the survey seriously. This meant that I was forced to conduct more surveys than I had initially planned to. One respondent even completed the

survey fully and then tore it up in my face. At this point my confidence hit rock bottom and I even considered throwing in the towel and packing the whole study in!

Despite this setback however I carried on, and ended up reaching my target of 108 respondents. Although the analysis was tough, I got through it and learned a lot about data analysis using SPSS in the process. In the end I was delighted with how my research turned out and I was glad that I had some interesting findings to discuss.

Overall I learned that in order to succeed you must work hard and never give up.

### **What would I do differently?**

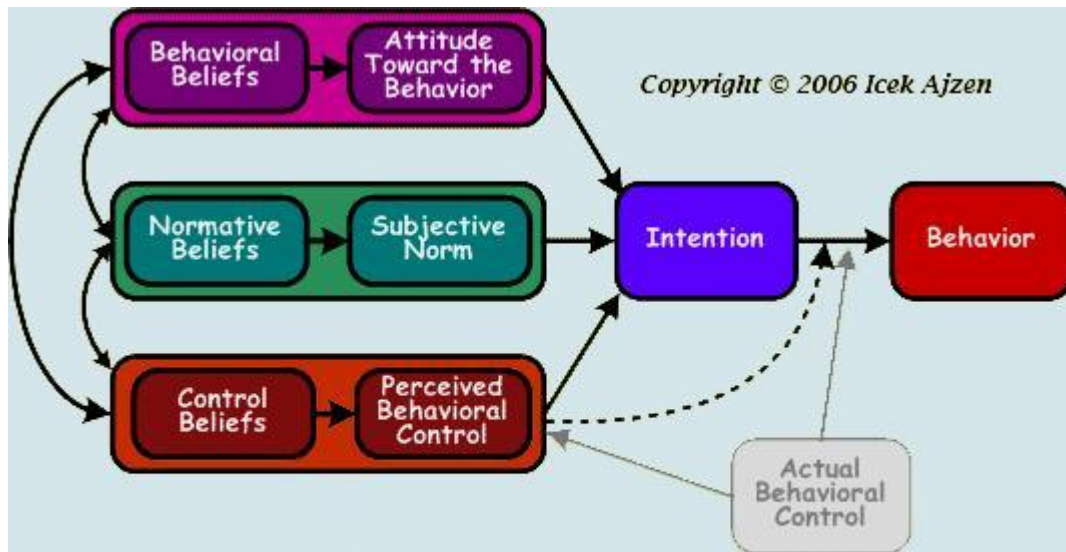
In hindsight, I would have preferred to gather my data earlier in the year rather than over the summer. I found that it was very difficult to get people to commit to taking part in the follow-up study during the summer months as many of those whom I approached had made arrangements to go on holidays etc. As a result they could not take part in my research at all. This wasted valuable time as I was forced to search for other respondents who would be more flexible and accommodating in regard to participating in the follow-up. If I had conducted my surveys during the academic year, I would have had easier access to college students, who would have fitted perfectly into my required age demographic.

### **How will I use the learning and skills that I have derived and developed in the future?**

It is my honest belief that this dissertation will stand to me in the future. As I mentioned previously I am passionate about exercise and physical activity. In the future I would like to work in the area of health promotion, social or sports marketing and I feel that the knowledge that I have gained from this research will enable me to gain a greater insight into exercise motivation and consumer behaviour.

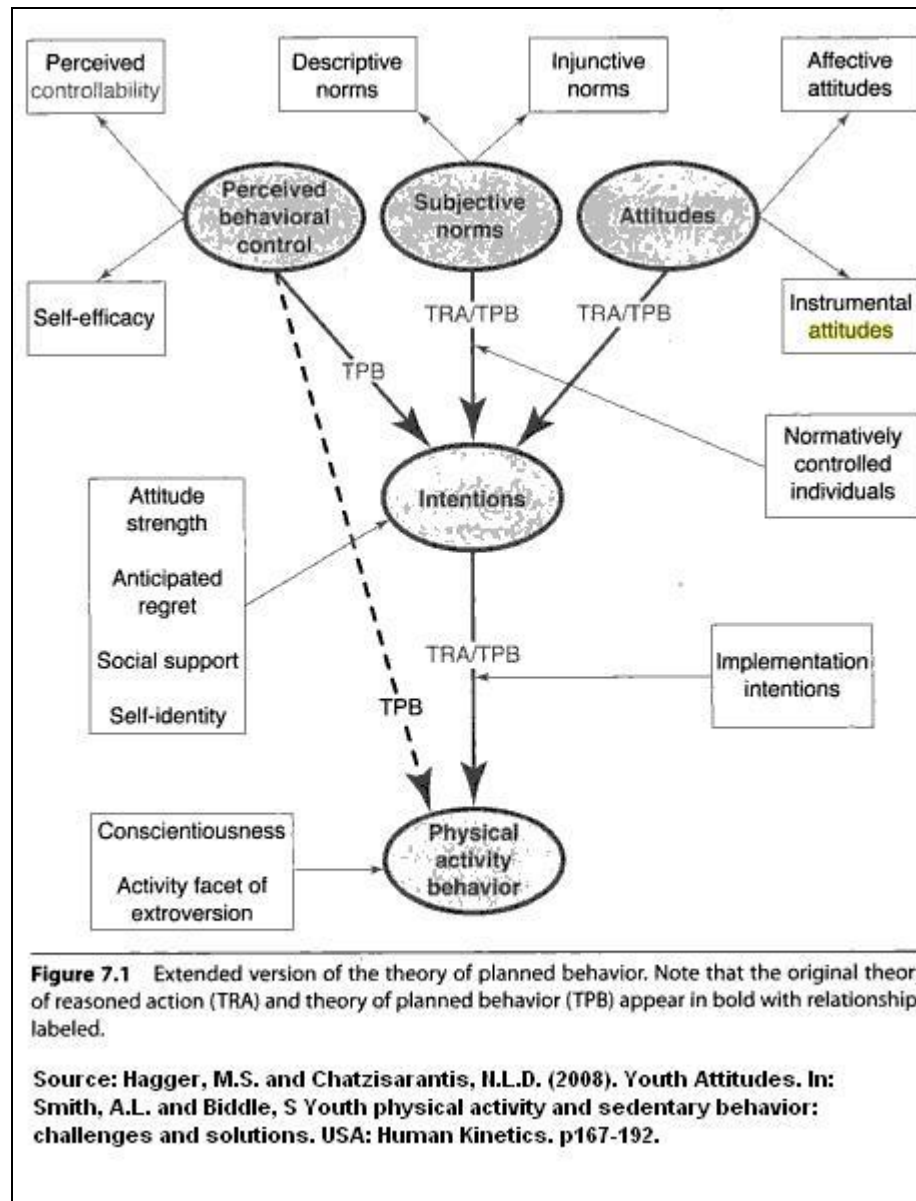


## Appendix B: Theory of Planned Behaviour Model (Ajzen, 1985)



Source: Ajzen, I. (2006b). Constructing a TpB Questionnaire: Conceptual and Methodological Considerations. Available: [people.umass.edu/ajzen/pdf/tpb.measurement.pdf](http://people.umass.edu/ajzen/pdf/tpb.measurement.pdf).

## Appendix C: Extended TPB Model (Hagger and Chatzisarantis, 2008)



## **Appendix D: Pilot Study Questionnaire**

To whom it may concern,

My name is Mark Dunne. I am a student at Waterford IT and I am currently studying a Masters Degree in Business Studies, specializing in marketing. As part of my studies I am currently undertaking a study which is investigating the factors that influence leisure-time engagement in physical activity.

As part of the study I am required to conduct a pilot study to determine your beliefs, attitudes and motivations in regard to participation in leisure time physical activity.

I hope that you will help me with my research by participating in this study. The information that you provide is strictly confidential and no individual names or other personal information will be used in the study.

Thank you in advance for your cooperation with my research,

Yours Sincerely,

---

Mark Dunne

1. Name: \_\_\_\_\_
2. Age: \_\_\_\_\_
3. Gender: ☐ Male ☐ Female
4. Which of the following sentences best describes your current status in terms of participation in physical activity?

*Please take note of the definition of Regular Leisure-Time Exercise below.*

**\* Regular Leisure-Time Exercise** is defined as follows:

⇒ At least 20 minute or longer **vigorous physical activity** sessions in your leisure-time per week.

Or

⇒ At least five 30 minute or longer **moderate physical activity** sessions in your leisure-time per week.

**Moderate Physical Activity:** Exercise that leads to a noticeable increase in breathing

**Vigorous Physical Activity:** Exercise that leads to heavy breathing and difficulty talking in full sentences

(World Health Organisation, 2003)

- ☐ At present, I do not engage in physical activity, nor do I plan to start engaging in physical activity over the next six months
- ☐ At present, I do not engage in physical activity, however I am considering starting to engage in physical activity over the next six months
- ☐ At present, I engage in physical activity a little, but not frequently
- ☐ At present, I engage in physical activity frequently, but I have only started to do so within the last six months
- ☐ At present, I exercise frequently, and have done so for over six months

**If you presently engage in regular physical activity, please address Questions 5-7**

**If you do not presently engage in regular physical activity, please advance to Question 8 on Page 3**

5. Please state your most frequent form of physical activity.

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6. At which of the following locations do you most frequently engage in physical activity?  
(Please tick all that apply)

- ☐ Sports Club                      ☐ College/University                      ☐ Public Swimming Pool
- ☐ Gym/Leisure Centre                      ☐ Athletics Track                      ☐ Community Hall
- ☐ At home                      ☐ Public Places\*
- ☐ Other (Please Specify) \_\_\_\_\_

\*Public Places include public roadways, parks, paths etc.

7. From the types of physical activities listed below, please indicate those which you have engaged in over the past six months.

In the first column, tick the relevant activities.

In one of the remaining five columns, please indicate the frequency of engagement in each selected activity over the past six months.

	Physical Activity	Over 3 Days Per Week	2-3 Days Per Week	Under 5 Days Per Month	Once Per Mth.	Less Often
Soccer/5-a-side						
Hurling/Camogie						
Gaelic Football						
Rugby						
Swimming						
Basketball						
Hockey						
Horse Riding						
Gymnastics						
Martial Arts						
Aerobics						
Weightlifting						
*Vigorous Walking/Hiking						
Golf						
Cycling for Leisure						
Competitive Cycling						
Athletics						
Tennis						
Other						

If other please specify \_\_\_\_\_

\* Vigorous walking is defined for the purpose of this study as the participant expending at least moderate effort (i.e. noticeable increase in breathing) when engaging in the activity. This does not include walking that involves no effort or a light effort (mild increase in breathing). Non-vigorous walking (i.e. walking that involves no effort or light effort) is not considered a physical activity for the purpose of this study.

**Please skip to Q9**

**Please only answer the following question if you presently do not participate in regular physical activity**

8. Please evaluate the issues below that may have affected your non-participation in physical activities over the past six months.

**I did not engage regularly in leisure time physical activities over the past six months because....**

	Strongly Disagree			Strongly Agree
I was tied up with work commitments	1	2	3	4
I was tied up with family commitments	1	2	3	4
I was tied up with study commitments	1	2	3	4
The physical activity facilities/areas were overcrowded	1	2	3	4
The physical activity facilities/areas were poorly kept	1	2	3	4
I could not afford transportation to facilities/areas	1	2	3	4
I could not afford the required equipment	1	2	3	4
I had no transportation to get to the facilities/areas	1	2	3	4
I could not afford membership/admission	1	2	3	4
I was unaware as to where to participate	1	2	3	4
I had nobaody to participate with	1	2	3	4
There is a lack of facilities where I live	1	2	3	4
I do not believe I have the capabilities to participate	1	2	3	4
I was physically unable to take part due to illness/injury	1	2	3	4
I was too shy to interact with others	1	2	3	4
I did not feel motivated to engage in physical activity	1	2	3	4

**The following statements relate to your personal beliefs regarding participation in leisure time physical activity. Please read each statement carefully and circle the number that best describes your beliefs.**

9. Over the coming month, I intend to engage in leisure time physical activity on a regular basis

**Strongly Disagree**      1      2      3      4      5      6      7      **Strongly Agree**

10. What level of control do you feel that you have over regularly engaging in leisure time physical activity during the coming month?

**Zero**      1      2      3      4      5      6      7      **Absolute**  
**Control**      **Control**

11. I am unconcerned about the benefits of regular engagement in leisure time physical activity

**Strongly Disagree**      1      2      3      4      5      6      7      **Strongly Agree**

12. For me to participate in regular leisure time physical activity in the coming month is

**Harmful**      1      2      3      4      5      6      7      **Beneficial**

13. I am always prepared for activities

**Strongly Disagree**      1      2      3      4      5      6      7      **Strongly Agree**

14. It is expected of me that I engage in regular leisure time physical activity over the coming month

**Extremely False**      1      2      3      4      5      6      7      **Extremely True**

15. Many individuals like me engage regularly in leisure time physical activity

<b>Strongly Disagree</b>	1	2	3	4	5	6	7	<b>Strongly Agree</b>
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16. If I wanted to I could engage in regular leisure time physical activity over the coming month

<b>Strongly Disagree</b>	1	2	3	4	5	6	7	<b>Strongly Agree</b>
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17. I will attempt to regularly engage in leisure time physical activity in the coming month

<b>Strongly Disagree</b>	1	2	3	4	5	6	7	<b>Strongly Agree</b>
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18. For me to participate in regular leisure time physical activity in the coming month is

<b>Unenjoyable</b>	1	2	3	4	5	6	7	<b>Enjoyable</b>
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19. If I do not participate in regular leisure time physical activity in the coming month, it will be entirely my own fault.

<b>Extremely False</b>	1	2	3	4	5	6	7	<b>Extremely True</b>
------------------------	---	---	---	---	---	---	---	-----------------------

20. The majority of people whose opinions I value actively engage in leisure time physical activity

<b>Extremely False</b>	1	2	3	4	5	6	7	<b>Extremely True</b>
------------------------	---	---	---	---	---	---	---	-----------------------

21. When I make plans, I stick to them

<b>Strongly Disagree</b>	1	2	3	4	5	6	7	<b>Strongly Agree</b>
--------------------------	---	---	---	---	---	---	---	-----------------------



22. I like to take it easy

<b>Strongly Disagree</b>	1	2	3	4	5	6	7	<b>Strongly Agree</b>
--------------------------	---	---	---	---	---	---	---	-----------------------

23. How much support do you receive for participating regularly in leisure time physical activity from your friends?

<b>No Support</b>	1	2	3	4	5	6	7	<b>Very Regular Support</b>
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24. Regular participation in leisure time physical activity over the coming month is an important part of who I am

<b>Strongly Disagree</b>	1	2	3	4	5	6	7	<b>Strongly Agree</b>
--------------------------	---	---	---	---	---	---	---	-----------------------

25. I find it hard to get down to work

<b>Strongly Disagree</b>	1	2	3	4	5	6	7	<b>Strongly Agree</b>
--------------------------	---	---	---	---	---	---	---	-----------------------

26. I plan on taking part in leisure time physical activity on a regular basis during the coming month

<b>Strongly Disagree</b>	1	2	3	4	5	6	7	<b>Strongly Agree</b>
--------------------------	---	---	---	---	---	---	---	-----------------------

27. For me to participate in regular leisure time physical activity in the coming month is

<b>Worthless</b>	1	2	3	4	5	6	7	<b>Valuable</b>
------------------	---	---	---	---	---	---	---	-----------------

28. It is mainly up to me whether or not I engage in regular leisure time physical activity over the coming month

<b>Strongly Disagree</b>	1	2	3	4	5	6	7	<b>Strongly Agree</b>
--------------------------	---	---	---	---	---	---	---	-----------------------

29. How important is regular engagement in leisure time physical activity to you?

<b>Extremely Unimportant</b>	1	2	3	4	5	6	7	<b>Extremely Important</b>
----------------------------------	---	---	---	---	---	---	---	--------------------------------

30. I don't see things through

<b>Strongly Disagree</b>	1	2	3	4	5	6	7	<b>Strongly Agree</b>
--------------------------	---	---	---	---	---	---	---	---------------------------

31. I do a lot in my spare time

<b>Strongly Disagree</b>	1	2	3	4	5	6	7	<b>Strongly Agree</b>
--------------------------	---	---	---	---	---	---	---	---------------------------

32. For me to participate in regular leisure time physical activity in the coming month is

<b>Unpleasant</b>	1	2	3	4	5	6	7	<b>Pleasant</b>
-------------------	---	---	---	---	---	---	---	-----------------

33. I am determined to engage in regular leisure time physical activity in the coming month

<b>Strongly Disagree</b>	1	2	3	4	5	6	7	<b>Strongly Agree</b>
--------------------------	---	---	---	---	---	---	---	---------------------------

34. The people in my life who are important to me

<b>seldom</b>	1	2	3	4	5	6	7	<b>regularly</b>
---------------	---	---	---	---	---	---	---	------------------

participate in leisure time physical activity

35. I would consider myself

<b>extremely</b>	1	2	3	4	5	6	7	<b>extremely</b>
<b>incapable</b>								<b>capable</b>

of participating in regular leisure time physical activity over the coming month

36. I feel very strongly about the benefits of regular engagement in leisure time physical activity

<b>Strongly Disagree</b>	1	2	3	4	5	6	7	<b>Strongly Agree</b>
--------------------------	---	---	---	---	---	---	---	-----------------------

37. If I did not participate in regular leisure time physical activity over the coming month, I would worry in the days afterwards

<b>Strongly Disagree</b>	1	2	3	4	5	6	7	<b>Strongly Agree</b>
--------------------------	---	---	---	---	---	---	---	-----------------------

38. I consider myself to be the kind of individual that would participate in leisure time physical activity on a regular basis over the coming month

<b>Strongly Disagree</b>	1	2	3	4	5	6	7	<b>Strongly Agree</b>
--------------------------	---	---	---	---	---	---	---	-----------------------

39. The majority of people whose opinions I value would

<b>Disapprove</b>	1	2	3	4	5	6	7	<b>Approve</b>
-------------------	---	---	---	---	---	---	---	----------------

of my participation in regular leisure time physical activity over the coming month

40. If I did not participate in regular leisure time physical activity over the coming month, I would feel regret?

<b>Strongly Disagree</b>	1	2	3	4	5	6	7	<b>Strongly Agree</b>
--------------------------	---	---	---	---	---	---	---	-----------------------

41. The important people in my life think that

<b>I should not</b>	1	2	3	4	5	6	7	<b>I should</b>
---------------------	---	---	---	---	---	---	---	-----------------

engage in regular leisure time physical activity over the coming month

42. I can count on certain people to participate in leisure time physical activity with me

<b>Strongly Disagree</b>	1	2	3	4	5	6	7	<b>Strongly Agree</b>
--------------------------	---	---	---	---	---	---	---	-----------------------

43. I am always busy

<b>Strongly Disagree</b>	1	2	3	4	5	6	7	<b>Strongly Agree</b>
--------------------------	---	---	---	---	---	---	---	-----------------------

44. For me to participate in regular leisure time physical activity in the coming month is

<b>Bad</b>	1	2	3	4	5	6	7	<b>Good</b>
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45. I think of myself as one who takes pleasure in participating in regular leisure time physical activity

<b>Strongly Disagree</b>	1	2	3	4	5	6	7	<b>Strongly Agree</b>
--------------------------	---	---	---	---	---	---	---	-----------------------

46. For me to participate in regular leisure time physical activity over the coming month would be

<b>Extremely Impossible</b>	1	2	3	4	5	6	7	<b>Extremely Possible</b>
-----------------------------	---	---	---	---	---	---	---	---------------------------

47. If I did not participate in regular leisure time physical activity over the coming month, I would be disappointed in myself?

<b>Strongly Disagree</b>	1	2	3	4	5	6	7	<b>Strongly Agree</b>
--------------------------	---	---	---	---	---	---	---	-----------------------

48. For me to participate in regular leisure time physical activity in the coming month is

**Useless**                      1            2            3            4            5            6            7            **Useful**

49. How much support do you receive for participating regularly in leisure time physical activity from your family?

**No Support**                      1            2            3            4            5            6            7            **Very  
Regular  
Support**

50. I consider myself to be someone who is concerned with the advantages of regular engagement in leisure time physical activity

**Strongly Disagree**            1            2            3            4            5            6            7            **Strongly  
Agree**

51. For me to participate in regular leisure time physical activity in the coming month is

**Dissatisfying**                      1            2            3            4            5            6            7            **Satisfying**

**The survey is now complete!!!!**

**Thank you for participating in this study. Your help in my research is much appreciated.**

## **Appendix E: Cover Letter for Final Studies**

To whom it may concern,

My name is Mark Dunne. I am a student at Waterford IT and I am currently studying a Masters Degree in Business Studies, specializing in marketing. As part of my studies I am currently undertaking a study which is investigating the factors that influence leisure-time engagement in physical activity.

The study will be carried out over two phases.

**Phase 1** – will take place during the week commencing 21 June 2010. This phase of the study will measure your beliefs regarding exercise and physical activity.

**Phase 2** –will take place during the week commencing 5 July 2010. This phase of the study will measure your actual behaviour in relation to leisure-time physical activity over the previous fortnight.

I hope that you will help me with my research by participating in this study. The information that you provide is strictly confidential and no individual names or other personal information will be used in the study.

Thank you in advance for your cooperation with my research,

Yours Sincerely,

---

Mark Dunne

## **Appendix F: Final Study Questionnaires**

Please turn to next page to view questionnaires

## **SECTION A**

52. Name: \_\_\_\_\_

53. Age: \_\_\_\_\_

54. Gender: ☐ Male ☐ Female

55. Which of the following sentences best describes your current status in terms of participation in physical activity?

*Please take note of the definition of Regular Leisure-Time Exercise below.*

\* **Regular Leisure-Time Exercise** is defined as follows:

⇒ At least 20 minute or longer **vigorous physical activity** sessions in your leisure-time per week.

Or

⇒ At least five 30 minute or longer **moderate physical activity** sessions in your leisure-time per week.

**Moderate Physical Activity:** Exercise that leads to a noticeable increase in breathing

**Vigorous Physical Activity:** Exercise that leads to heavy breathing and difficulty talking in full sentences

(World Health Organisation, 2003)

- ☐ At present, I do not engage in physical activity, nor do I plan to start engaging in physical activity over the next six months
- ☐ At present, I do not engage in physical activity, however I am considering starting to engage in physical activity over the next six months
- ☐ At present, I engage in physical activity a little, but not frequently
- ☐ At present, I engage in physical activity frequently, but I have only started to do so within the last six months
- ☐ At present, I exercise frequently, and have done so for over six months

**If you ticked Box 4 or 5 above, please address SECTION B of the survey**

**Otherwise, please advance to SECTION C**



## **SECTION B**

1. Please state your most frequent form of physical activity.

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2. At which of the following locations do you most frequently engage in physical activity?  
(Please tick all that apply)

- ☐ Sports Club
                         
 ☐ College/University
                         
 ☐ Public Swimming Pool  
  
☐ Gym/Leisure Centre
                         
 ☐ Athletics Track
                         
 ☐ Community Hall  
  
☐ At home
                         
 ☐ Public Places\*  
  
☐ Other (Please Specify) \_\_\_\_\_

\*Public Places include public roadways, parks, paths etc.

3. From the types of physical activities listed below, please indicate those which you have engaged in over the past six months.
- In the first column (Physical Activity), tick the relevant activities.
  - In one of the remaining five columns, please indicate the frequency of engagement in each selected activity over the past six months.

	Physical Activity	Over 3 Days Per Week	2-3 Days Per Week	Under 5 Days Per Month	Once Per Mth.	Less Often
Soccer/5-a-Side						
Hurling/Camogie						
Gaelic Football						
Rugby						
Swimming						
Basketball						
Hockey						
Horse Riding						
Gymnastics						
Martial Arts						
Aerobics						
Weightlifting						
Jogging						
* Vigorous Walking/Hiking						
Golf						
Cycling for Leisure						
Competitive Cycling						
Athletics						
Tennis						
Other						

If other please specify \_\_\_\_\_

\* Vigorous walking is defined for the purpose of this study as the participant expending at least moderate effort (i.e. noticeable increase in breathing) when engaging in the activity. This does not include walking that involves no effort or a light effort (mild increase in breathing). Non-vigorous walking (i.e. walking that involves no effort or light effort) is not considered a physical activity for the purpose of this study.

## SECTION C

The following statements relate to your personal beliefs regarding participation in leisure time physical activity. Please read each statement carefully and circle the number that best describes your beliefs.

1. Over the next two weeks, I intend to engage in leisure-time physical activity on a regular basis

**Strongly Disagree** 1      2      3      4      5      6      7      **Strongly Agree**

2. I am always prepared for activities

**Strongly Disagree** 1      2      3      4      5      6      7      **Strongly Agree**

3. If I wanted to I could engage in regular leisure-time physical activity over the next two weeks

**Strongly Disagree** 1      2      3      4      5      6      7      **Strongly Agree**

4. I will attempt to regularly engage in leisure-time physical activity over the next two weeks

**Strongly Disagree** 1      2      3      4      5      6      7      **Strongly Agree**

5. If I do not participate in regular leisure-time physical activity over the next two weeks, it will be entirely my own fault

**Extremely False** 1      2      3      4      5      6      7      **Extremely True**

6. The majority of people whose opinions I value actively engage in leisure-time physical activity

**Extremely False** 1      2      3      4      5      6      7      **Extremely True**

7. When I make plans, I stick to them

**Strongly Disagree** 1      2      3      4      5      6      7      **Strongly Agree**

8. How much support do you receive for participating regularly in leisure-time physical activity from your friends?

<b>No</b>	1	2	3	4	5	6	7	<b>Very Regular</b>
<b>Support</b>								<b>Support</b>

9. Regular participation in leisure-time physical activity over the next two weeks is an important part of who I am

<b>Strongly Disagree</b>	1	2	3	4	5	6	7	<b>Strongly Agree</b>
--------------------------	---	---	---	---	---	---	---	-----------------------

10. For me to participate in regular leisure-time physical activity over the next two weeks is

<b>Worthless</b>	1	2	3	4	5	6	7	<b>Valuable</b>
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11. It is mainly up to me whether or not I engage in regular leisure-time physical activity over the next two weeks

<b>Strongly Disagree</b>	1	2	3	4	5	6	7	<b>Strongly Agree</b>
--------------------------	---	---	---	---	---	---	---	-----------------------

12. How important is regular engagement in leisure-time physical activity to you?

<b>Extremely</b>	1	2	3	4	5	6	7	<b>Extremely</b>
<b>Unimportant</b>								<b>Important</b>

13. I do a lot in my spare time

<b>Strongly Disagree</b>	1	2	3	4	5	6	7	<b>Strongly Agree</b>
--------------------------	---	---	---	---	---	---	---	-----------------------

14. For me to participate in regular leisure-time physical activity over the next two weeks is

<b>Unpleasant</b>	1	2	3	4	5	6	7	<b>Pleasant</b>
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15. The people in my life who are important to me

<b>seldom</b>	1	2	3	4	5	6	7	<b>regularly</b>

participate in leisure-time physical activity

16. I would consider myself

<b>extremely</b>	1	2	3	4	5	6	7	<b>extremely</b>
<b>incapable</b>								<b>capable</b>

of participating in regular leisure-time physical activity over the next two weeks

17. I feel very strongly about the benefits of regular engagement in leisure-time physical activity

<b>Strongly Disagree</b>	1	2	3	4	5	6	7	<b>Strongly Agree</b>
--------------------------	---	---	---	---	---	---	---	-----------------------

18. If I did not participate in regular leisure-time physical activity over the next two weeks, I would worry in the days afterwards

<b>Strongly Disagree</b>	1	2	3	4	5	6	7	<b>Strongly Agree</b>
--------------------------	---	---	---	---	---	---	---	-----------------------

19. I consider myself to be the kind of individual that would participate in leisure-time physical activity on a regular basis over the next two weeks

<b>Strongly Disagree</b>	1	2	3	4	5	6	7	<b>Strongly Agree</b>
--------------------------	---	---	---	---	---	---	---	-----------------------

20. The majority of people whose opinions I value would

<b>disapprove</b>	1	2	3	4	5	6	7	<b>approve</b>
-------------------	---	---	---	---	---	---	---	----------------

of my participation in regular leisure-time physical activity over the next two weeks

21. The important people in my life think that

<b>I should not</b>	1	2	3	4	5	6	7	<b>I should</b>
---------------------	---	---	---	---	---	---	---	-----------------

engage in regular leisure-time physical activity over the next two weeks

22. I am always busy

<b>Strongly Disagree</b>	1	2	3	4	5	6	7	<b>Strongly Agree</b>
--------------------------	---	---	---	---	---	---	---	-----------------------

23. For me to participate in regular leisure-time physical activity over the next two weeks is

<b>Bad</b>	1	2	3	4	5	6	7	<b>Good</b>
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24. If I did not participate in regular leisure-time physical activity over the next two weeks, I would be disappointed in myself

**Strongly Disagree** 1 2 3 4 5 6 7 **Strongly Agree**

25. For me to participate in regular leisure-time physical activity over the next two weeks is

**Useless** 1 2 3 4 5 6 7 **Useful**

26. How much support do you receive for participating in regular leisure-time physical activity from your family?

**No** 1 2 3 4 5 6 7 **Very Regular**  
**Support** **Support**

27. For me to participate in regular leisure-time physical activity over the next two weeks is

**Dissatisfying** 1 2 3 4 5 6 7 **Satisfying**

**THE SURVEY IS NOW COMPLETE!!!!**

**THANK YOU FOR PARTICIPATING IN THIS STUDY.**  
**YOUR HELP IN MY RESEARCH IS MUCH APPRECIATED.**

## Leisure-Time Physical Activity Questionnaire

Name: \_\_\_\_\_

\* Before you proceed please take a moment to read the following definitions of physical

<b>Mild Physical Activity:</b>	Exercise that leads to a light or no increase in breathing
<b>Moderate Physical Activity:</b>	Exercise that leads to a noticeable increase in breathing
<b>Vigorous Physical Activity:</b>	Exercise that leads to heavy breathing and difficulty talking in full sentences
(World Health Organisation, 2003)	

activity

### SECTION A

Below is a list of statements relative to your leisure-time physical activity behaviour over the past two weeks. Please read each statement carefully and circle the number that best describes your own personal activity patterns:

1. Over the past fortnight, I participated in *mild* leisure-time physical activity

1	2	3	4	5	6	7
Never	1-3 Days	4-6 Days	7 Days	8-10 Days	11-13 Days	Every Day

2. Over the past fortnight, I participated in *moderate* physical activity

1	2	3	4	5	6	7
Never	1-3 Days	4-6 Days	7 Days	8-10 Days	11-13 Days	Every Day

3. Over the past fortnight, I participated in *vigorous* physical activity

1	2	3	4	5	6	7
Never	1-3 Days	4-6 Days	7 Days	8-10 Days	11-13 Days	Every Day

## **SECTION B**

**Please read the following questions and circle the answers that best describe your leisure time physical activity over the past two weeks:**

1. Over the past fortnight, how many times have you engaged in *vigorous* leisure-time physical activity for a minimum of 20 minutes?

1	2	3	4	5	6	7
Never	1-3 Days	4-6 Days	7 Days	8-10 Days	11-13 Days	Every Day

2. Over the past fortnight, how many times have you engaged in *moderate* leisure-time physical activity for a minimum of 30 minutes?

1	2	3	4	5	6	7
Never	1-3 Days	4-6 Days	7 Days	8-10 Days	11-13 Days	Every Day

3. Over the past fortnight, how many times have you engaged in *mild* leisure-time physical activity?

1	2	3	4	5	6	7
Never	1-3 Days	4-6 Days	7 Days	8-10 Days	11-13 Days	Every Day

## **SECTION C**

**Please address the following statements relative to your own participation in leisure-time physical activity:**

1. Over the past fortnight I engaged in moderate and/or vigorous leisure-time physical activity for...

1	2	3	4	5	6
Under 20 Mins Per Week	21-40 Mins Per Week	41-60 Mins Per Week	61-90 Mins Per Week	91-120 Mins Per Week	Over 120 Per Week

2. Over the past fortnight, I engaged in the following types of leisure-time physical activity

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**THANK YOU AGAIN FOR YOUR HELP WITH MY RESEARCH!!!**