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碩士學位論文

The Influences of Personality, Basic Psychological  
Needs on Exercise Motivation and Exercise  
Behavior of Sport Management Students



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中 華 民 國 1 0 3 年 6 月

臺中市

**Title of Thesis:** The Influences of Personality, Basic Psychological Needs on Exercise  
Motivation and Exercise Behavior of Sport Management Students

**Name of Institute:** Graduate Institute of Sport Management

**Graduate date:** June, 2014

**Degree Conferred:** M.P.E

**Name of Student:** Pham, Thanh Anh Khoa

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## **ABSTRACT**

The major purpose of this study was to identify the influences of personality and basic psychological needs on individual exercise motivation, which then impact exercise behavior of sport management students. A pilot study (N=100 students) was conducted to test the reliability and validity of the measurement. A comprehensive model was developed, based on an extensive literature review, and empirically tested using by using sport management student (N= 395) of National Taiwan University of Physical Education and Sport (NTUPES), Ton Duc Thang University (TDTU) and Hochiminh University of Sport (HUS) as respondent.

All the hypotheses of this study were supported. The results indicate that individuals with high level of personality ( emotional stability, extraversion, openness to experience, agreeable ness and conscientiousness) will have positive influence on basic psychological needs and exercise motivation then impact on exercise behavior. It also suggested that extraversion, openness to experience and conscientiousness could be the predictors of basic psychological needs, autonomous motivations (identified regulation and intrinsic motivation) and exercise participation. Student's basic psychological needs have significantly associated with their exercise motivation and exercise behavior. Lastly, amotivation has negative impact on exercise behavior, but autonomous motivation has positive association with exercise behavior. The study results offer

valuable suggestions to physical lecturer to promote exercise participation through stimulating exercise motivation.

**Keywords:** Personality, basic psychological needs, exercise motivation, exercise behavior.

## **ACKNOWLEDGEMENTS**

For the completion of this thesis, I would like to thank Dr. Chiung- Hsia, Wang for her professional training, advice, kindness and guidance throughout the thesis process. Her deliacation in preparing me to effectively conduct the research study lead to the achievement of this thesis. Secondly, I would like tho say thank the committee member, Dr. Shih- Kuei, Huang for his advice and guidance. His contributions to this thesis gave it more professional outcome.

Additionally, I would like to say thank Dr. Yen- Hsiang, Huang who initiated my desire to study, learn and continue growing. Without him, I would never have a reached this stage of my education and career. In addition, I would like to say thank Dr. Le Vinh Danh, Dr Bui Trong Toai and Mr Nguyen Van Bac for giving me a chance to study in Taiwan that help me improve my skill and life. In addition, I would like to thank my parents, my brother for their support and encouragement.

Finally, I would like to thank my wife, Huong, for her great love, support and caring my baby while I was kept occupied by my studies for endless hours. Without her support and encouragement, the completion of this thesis would never be possible.

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## **CHAPTER I – INTRODUCTION**

Exercise cannot only improve one's physiological development, but can also promote psychological well-being. There are numerous physical, social, and psychological benefits of regular physical activity involvement, including a reduced risk of cardiovascular disease, diabetes, osteoporosis, and cancer, as well as reduced anxiety, stress, and depression (Biddle & Mutrie, 2001; Warburton, Nicol, & Bredin, 2006).

Participation in exercise dramatically improved the well-being of people suffering from chronic health conditions (Graham, Kremer & Wheeler, 2008), while individual components of well-being, including fortitude, stress management and coping, have all been shown to significantly improve when associated with a regular exercise schedule (Edwards, 2006). In addition, regular exercisers perceive themselves as having more autonomy, personal growth, purpose in life, positive relations with others and conditioning than nonexercisers (Edwards, Ngcobo, Edwards & Palavar, 2005).

Yet according to the National Health Service in the United Kingdom 2006, only 35% of men and 24% of women reported achieving the physical adult recommendations of 30 minutes of moderate intensity exercise at least 5 times a week in 2004. With the evidence indicating that the notion of 'healthy body, healthy mind' really can exist, Jones, Harris, Waller & Coggins (2005) note that encouraging exercise is an essential area of health promotion.

Despite the fact that the significant role of exercise on reducing negative emotional states and enhancing positive has been established, the mechanism through which this occurs remains unclear (Stathopoulou, Powers, Berry, Smiths, & Otto, 2006). For this reason, encouraging exercise, as well as the understanding of factors related to physical activity, is important research fields for promoting health and the prevention of serious disease (Jones, Harris, Waller, & Coggins, 2005). Several studies have

attempted to explain this process, stressing the role of personality traits, sport motivation and mood states, in order to understand what it is that makes people less active or excessively engaged in physical exercise (Ingledeu, Markland, & Sheppard, 2004).

Because physical activity is associated with numerous health benefits and many young people are insufficiently active to achieve these benefits, an important public health initiative is to determine effective methods for improving the physical activity levels of young people. To develop effective physical activity interventions, the correlates of physical activity, and specifically the social cognitive and motivational factors that influence physical activity participation need to be identified and understood. Therefore, there is a critical need to conduct theoretical research to understand the social cognitive factors associated with physical activity in adolescents to determine what variables can be targeted as mediators in interventions for behavior change (Kohl III & Hobbs, 1998). Theoretical frameworks that are commonly used to understand and predict physical activity participation are the theory of reasoned action (Ajzen & Fishbein, 1980) and the theory of planned behavior (Ajzen, 1985, 1991, 2002).

Identifying the individual factors, which encourage exercise participation, and gaining a deeper understanding of the relationship between personality, exercise motivation and exercise participation is therefore important in order to help promote healthy lifestyles.

Various theoretical models have been adopted to explain individuals' exercise behavior. Among others, TPB has been applied more frequently to predict exercise behavior. TPB asserts that individuals' exercise behavior can be predicted from their intention (including attitudes and subjective norms) to perform the behavior and their perceptions of control over the behavior (Hagger, Chatzisarantis, & Biddle, 2002; Rhodes, Blanchard, & Matheson, 2006).

In addition to TPB, personality traits have been regarded as critical factors for exercise motivation and exercise participation. Recent studies by Ingledew, Markland, and Sheppard (2004), and Lochbaum and Lutz (2005) have indicated that the five personality factors (i.e., emotional stability, extraversion, agreeableness, conscientiousness, and openness to experience) have a positive influence on exercise motivation and participation.

Furthermore, SDT has been adopted to explain the influences of individuals' personality on their exercise participation (Deci & Ryan, 2000). According to SDT, there are three innate psychological needs (i.e., needs for competence, relatedness, and autonomy) which account for the basis of individuals' self-motivation and personality and for the conditions that influence their behavior.

Ingledew, Markland & Sheppard (2004) suggest that it is insufficient to only look at the surface motivations of exercise, as they do not reveal valuable information about the underlying reasons for exercise, and recommend using SDT (Deci & Ryan, 2000) because it allows for a more differentiated view of motivation. SDT examines the extent to which human behaviors are self-determined and the degree to which people's actions are influenced by internal and external forces.

According to Huang et al, 2007, it found the influences between personality, motivation on exercise participation behavior and quality of life; however, this study used physical and psychological motivation for the exercise motivation variable and did not include basic psychological needs to examine the relationships of this variables to exercise motivation and exercise behavior. Although the results of this study are fruitful and may contribute to the existing literature, several limitation was conducted. First, the ability to generalize the current findings is limited by the fact that only individuals who exercise in fitness centers were sampled. Thus, it is not known to what extent our findings represent other respondents. Second, the study gathered only 142

questionnaires from the members of fitness centers in Europe, American, and Taiwan. The sample size may be too small to represent all fitness centers. Future study should resolve these research issues through the collection of data from more representative samples. Third, there are many reasons for participating in physical activity, and the exercise motivations examined in this study may not represent an exhaustive list. Other motivations that may significantly influence participation in physical activity should be considered in future studies.

Despite these findings, the exploration of the interaction between individual characteristics, motivation and emotional aspects in predicting exercise behavior is still at an early stage and for this reason it is necessary to explore the mechanisms that underlie physical activity participation. Based on the foregoing discussion, none of the previous studies has integrated these theories to explain the influences of personality and basic psychological needs on exercise motivation and exercise behavior. For this reason, this study aimed to analyze the influences of personality and basic psychological needs on exercise motivation and exercise behavior applied for sport management student by empirically test the research hypotheses as developed in this study.

### **1.1 Statement of the Problem**

The purpose of this study was to identify the influences of personality and perceived basic psychological needs on individual exercise motivation which then influences exercise participation behavior among sport management students by using sport management of National Taiwan University of Physical Education and Sport (NTUPES), Ton Duc Thang University (TDTU) and Hochiminh University of Sport (HUS) as respondents.

### **1.2 The Subproblems**

According to the purpose of this study, the following subproblems were proposed:

1. The first sub-problem was to compare the opinion about personality, basic psychological needs, exercise motivation and exercise behavior of sport management student among NTUPES, TDTU and HUS.

2. The second sub-problem was to explore the influences of personality and perceived basic psychological needs on exercise motivation, which then impact on exercise behavior.

3. The third sub-problem was to clarify the interrelationship between factors of these variables (personality, basic psychological needs, exercise motivation and exercise behavior).

### **1.3 Hypotheses of the Study**

According to the purpose of this study and base on literature review, the six hypotheses were proposed:

H1: The personality of students (including emotional stability, extraversion, conscientiousness, agreeableness, and openness to experience) will have a positive and direct impact on their basic psychological needs.

H2: The personality of students (including emotional stability, extraversion, conscientiousness, agreeableness, and openness to experience) will have a positive and direct impact on their exercise motivation.

H3: The personality of students (including emotional stability, extraversion, conscientiousness, agreeableness, and openness to experience) will have a positive and direct impact on their exercise behavior.

H4: The basic psychological needs of students (autonomy, competence and relatedness) will have a positive and direct impact on their exercise motivation.

H5: The basic psychological needs of students (autonomy, competence and relatedness) will have a positive and direct impact on their exercise motivation.

H6: The exercise motivation of students (amotivation, external regulation, introjected regulation, identified regulation and intrinsic motivation) will have a positive and direct impact on their exercise behavior.

#### **1.4 Definition of Terms**

For the purpose of this study, the following terms were operationally defined:

1. *Personality*: Personality is the set of psychological traits and mechanisms within the individual that are organized and relatively enduring and that influence his or her interactions with, and adaptations to, the intrapsychic, physical, and social environments (Larsen & Buss, 2005).
2. *Basic psychological needs*: According to SDT (Deci & Ryan, 1985), basic psychological needs are evolved experiential requirements that all people must have in order to grow to their fullest potential.
3. *Exercise motivation*: Exercise motivation is defined as the forces acting on or within a person to initiate a behavior or participation in exercise or physical activity. (Deci & Ryan, 2002).
4. *Exercise*: Planned, structured, and repetitive physical activity that is done with the purpose of maintaining or improving physical fitness or health (Sallis & Owen, 1999).
5. *Sport management student*: is undergraduate student who is studying sport management program.
6. *Self-determination*: A relatively enduring aspect of a person's personality, which reflects being more aware of their feelings and their sense of self, and feeling a sense of choice with respect to their behavior (Thrash & Elliot, 2001).

#### **1.5 Scope of the Study**

The study involved sport management students from three universities NTUPES, TDTU and HUS, with NTUES is the school from Taiwan, and the other are Vietnamese schools. Especially, this study focused on NTUPES, Chaiyi Campus. There are many faculties in the sport University; however, this study is focused on sport management student. The questionnaire, consisting of personality, basic psychological needs, exercise motivation and exercise behavior scale was used as the instrument and conducted in these schools during spring, 2014.

### **1.6 Delimitations**

The following delimitations were chosen to assist with the development of the study:

1. This study did not include students of other faculties, excepted sport management.
2. This study did not include students of other Universities, excepted NTUPES, TDTU and HUS.
3. Participants will be both male and female.
4. The questionnaires will be completed directly in class.

### **1.7 Limitations**

The purpose of this study may lead to the following limitations:

1. Human resources: This is an individual study not a team or group study, it was completed by myself. So the distribution of questionnaires were limited in sport management student of NTUPES, TDTU and HUS.
2. Financial budget: The budget is limit, it is just enough to collect the data in three Universities. The results are only generalizable to sport management student in Vietnam and Taiwan.
3. Respondents: The entire student understood the questionnaire because they were translated into both Taiwanese and Vietnamese. The self-report assessment of exerciser behavior is typically inferior to objective indicators of physical activity.

4. This study attempted to examine the influences of personality and basic psychological needs on exercise motivation and exercise behavior; however, the factor that might mediate the variables such as Social factors (e.g. teacher's or peers' behavior in PE) were not study.

### **1.8 Significant of the Study**

The low rates of regular physical activity, coupled with the documented health benefits of a physically active lifestyle, warrant continued efforts to understand the determinants of physical activity in order to examine potential opportunities to promote active lifestyles.

The current study tests the SDT tenets of psychological needs satisfaction in the exercise domain. Although there is increased attention in the role of personality in determining exercise motivation then impacts on exercise behavior, much of the research has focused on instrument development issues or has focused on the relationship between dimension of personality and self-regulations. Furthermore, although past research has examined role of basic psychological needs in determining exercise behavior and the model of the basic psychological needs within the exercise setting, activity levels were assessed by self-report measures that may be subject to participation biases (Wilson, Mack, Muon & Leblanc, 2007). In addition, many of the past studies were researched in many countries such as the United States, Taiwan, Greece, so on calling into question the generalizability of SDT in predicting exercise behaviors (Vlachopoulos & Karageorghis, 2005). However, no study combined all the variables together, and use applied it to test the influences among the sport management student. More research is needed on SDT in a variety of populations with different measures of exercise behavior. The current study attempts to fill in the gaps within the literature and investigate the influences of personality (i.e., emotion stability, extraversion, agreeableness, conscientiousness, openness to experience) and three

constructs of basic psychological needs under SDT (i.e., competence, relatedness, and autonomy) on exercise motivation (i.e., amotivation, intrinsic regulation, External regulation, Introjected regulation and Identified regulation) to predict exercise behavior among sport management student.

## CHAPTER II - LITERATURE REVIEW

The literature review was divided into 10 sections: (1) Personality; (2) Basic psychological needs; (3) Exercise motivation; (4) Exercise behavior; (5) Personality and basic psychological needs; (6) Personality and exercise motivation; (7); Personality and exercise behavior; (8) Basic psychological needs and exercise motivation; (9) Basic psychological needs and exercise behavior; (10) Exercise motivation and exercise behavior; and (11) Summary.

### 2.1 Personality

Personality can be defined as a cluster of traits that determine individual-specific responses to the environment (Musek, 1999). Therefore, on the one hand, the concept of personality explains why one individual differs from all other individuals and, on the other hand, it explains his/her behavioural consistency in diverse situations (Asendorpf & van Aken, 2003; Macdonald, Bore, & Munro, 2008; Knezović, Kulenović, Šakić, Zarevski & Žužul, 1989).

Every personality theory tries to embrace as wide a range of human behavioural patterns as possible by its limited system of assumptions or constructs (Buško, 1990). The *Big Five Model* or the *Five-Factor Model* (FFM) is substantially descriptive, with the emphasis on the taxonomic aspect, that is, on the way in which personality can be divided into a smaller number of fundamental constructs (Bucik, Boben, & Hruševar-Bobek, 1997; Macdonald, Bore, & Munro, 2008).

According to that theory, personality can be described by means of five factors: Extraversion (the tendency to be assertive, sociable and outgoing), Agreeableness (warm, generous and trusting as opposed to more self-focused and untrusting), Conscientiousness (organised, thorough and dependable), Emotional Stability (calm and unperturbed through most of life's events; the opposite pole of this trait is often referred

to as Neuroticism) and finally Openness to Experience (the extent to which a person is imaginative, curious and creative). (Pervin & John, 1997). These five factors represent personality in the highest degree of abstraction, and each of these dimensions includes a large number of distinct specific characteristics.

Factor *EXTRAVERSION* accounts for the amount and intensity of social interaction, activity level, the need for external stimulation and the feature of joy. Individuals scoring high on that dimension can be described as sociable, active, venturesome, talkative, and optimistic, as ones who like parties and fun, who are warm-hearted. Opposite to them, persons low on that dimension are described as unsociable, quiet, reserved, unexuberant, balanced, serious, aloof, and task-oriented.

Factor *AGREEABLENESS* assesses quality of interpersonal orientation towards the others along a continuum from pity and compassion to adversary, antagonism in thoughts, emotions and actions. Persons scoring high on that dimension can be described as soft-hearted, as a being of a good nature, trusting, helping, forgiving, open persons, straightforward, honest, whereas those on the opposite pole of the dimension are seen as cynical, mocking, rude, irritable, suspicious, vengeful, ruthless, uncooperative, and manipulative.

Factor *CONSCIENTIOUSNESS* describes task-oriented and goal-oriented behaviour and socially required impulse control. Individuals scoring high on that dimension are known as organized, reliable, assured, self-disciplined, punctual, scrupulous, neat, polite, considerate, ambitious, committed, and persevering. Opposite to them, persons with low scores are unreliable, lazy, careless, negligent, imprudent, inconsiderate, indifferent, weak-willed, inert, hedonistic, aimless, and with no aspirations.

Factor *NEUROTICISM/ EMOTIONAL STABILITY* identifies persons who tend to feel negative emotions (anxiety, bitterness, sorrow), who suffer from unrealistic ideas, excessive yearning and urges and have or suffer from maladaptive stress-coping strategies. Persons highly positioned on that dimension exemplify as worrying, nervous, irritable, easy jumping, too emotional, insecure, unreliable, inadequate, and frequently hypochondriacal. Low positioned individuals are calm, relaxed, not too emotional, hardy, secure, and self-satisfied.

Factor *INTELLECT/OPENESS TO EXPERIENCE* assesses proactive seeking and appreciation of experience for its own sake, tolerance for the unknown and exploration of the unfamiliar; in other words, it assesses the width, depth and complexity of one' s “spiritual world” and life experience. Persons scoring high on this dimension are described as curious, of broad interests, creative, operational, imaginative and non-conventional. On the contrary, those scoring low are traditional, down-to-earth, narrow-hearted, limited, inartistic, not curious and not interested to explore (Pervin & John, 1997).

The Five-Factor Model of personality (FFM) allows researchers to examine the effects that the five distinct individual traits (extraversion, emotional stability, conscientiousness, agreeableness, and openness to experience) have on behavioral outcomes (Costa & McCrae, 1992).

## **2.2 Basic Psychological Needs**

Human needs are diverse. They may be physiological, psychological and social. Needs are very different, depending on individual and social-economic development of society. Individuals in different environments have different needs. A part of these needs appear in the work environment.

By definition, a “need” indicates some deficient state within and individual. Psychologists have proposed the humans have psychological needs that serve to drive

much of human behavior (Jex, 2002). The concept of basic psychological needs has played an important, though often implicit, role in SDT and each of its mini-theories from the time the work began. To qualify as a need, a motivating force must have a direct relation to well-beings. Needs, when satisfied, promote well-being, but when thwarted, lead to negative consequences.

SDT is a positive psychological motivation theory based on the premise that people actively seek opportunities to satisfy their basic psychological needs for competence, relatedness and autonomy (Greguras & Diefendorff, 2009).

SDT suggests that the type of motivation an individual experiences toward a specific activity is related to how well the context fulfills their core psychological needs. According Deci and Ryan, people are always trying to overcome challenges to meet their needs for competence and self-determination. We identified three, the needs for competence, relatedness, and autonomy, (Deci & Ryan, 2000). Everyone is assumed to have these innate needs (regardless of the strength of their reported desires for those outcomes). The needs are: autonomy (to be self-regulation, to be the maker or at least the owner of one's choice); competence (to be effective in what one does mastering new skills in the process); and relatedness (to feel connected and in sympathy with at least some others) (Martocchio, & Ferris, 2003). Individual perceptions of the three core needs can explain variations in the degree of self-determination of motivated behaviors.

Need for competence refers to the needs to experience ourselves as capable and competent in controlling the environment and being able to reliably predict outcomes. The need for competence is met when an individual feels efficacious with respect to the challenge presented and is able to achieve a desired outcome (Vallerand, Fortier, & Guay, 1997).

The need for autonomy refers to our need to actively participate in determining our own behavior. It includes the need to experience our actions as result of

autonomous choice without external interference. The need for autonomy is satisfied when athletes feel they have choices and are in control of their own behaviour (Deci & Ryan, 1985).

The need for relatedness refers to our need to care for and be related to others, includes the need to experience authentic relatedness from others and to experience satisfaction in participation and involvement with the social world (Contento, 2011). The need for relatedness is met when an athlete feels connected to others and involved in the social context of the sport (Deci & Ryan, 1991).

The SDT postulates that the type of regulation guiding the behavior in an activity is dependent on the extent to which the social factors (e.g. teacher's or peers' behavior in PE) facilitate individuals' basic psychological needs for competence (i.e. a desire to be effective in his or her environment), autonomy (i.e. a desire to be the origin of his or her behavior), and relatedness (i.e. a desire to be socially connected to others) (Deci & Ryan, 2000).

Factors in the person or situation that facilitate autonomy, competence, and relatedness are thus expected to enhance well-being, whereas factors that detract from fulfillment of these needs should undermine well-being (Reis, Sheldon, Gable, Roscoe, & Ryan, 2000). Whether or not one is aware of “needing” autonomy, competence or relatedness, one’s access to them will impact upon one’s tendencies toward growth and integration, and thus the experience of wellbeing and health. Not only are one’s conscious desires not definitional of needs; conscious wants and desires may often run counter to basic needs. For example, because of various dynamic and cultural influences, an individual may come to consciously value “independence” and be strongly oriented to avoid relying on others. Such a value may conflict with relatedness needs and thus have deleterious consequences for integration and well-being. Similarly, one may place a high value on material success and thus enslave oneself to attain it, thereby losing one’s

autonomy in the process. These examples show one advantage of defining psychological needs independently of acquired desires and values (Ryan, 1995).

### **2.3 Exercise Motivation**

Motivation is the construct used to describe the internal and/or external forces that generate a particular behavior (Deci & Ryan, 1985). Deci and Ryan's Self Determination Theory (SDT; 1985, 1991, 2000a, 2000b) is a conceptual model that is well suited to study motivation in sport. SDT focuses on the degree to which human behaviors are self-determined, and the social-contextual factors that facilitate the development of motivation (Deci & Ryan, 2000a, 2000b).

It distinguishes between different motives in contexts that reflect the reasons why individuals choose to participate in an activity. In line with SDT, student who takes part in PE because s/he enjoys the fun derived from the PE (i.e. intrinsic motivation) or because s/he realizes the importance of the activities performed in PE (i.e. identified regulation) holds a self-determined motivational orientation.

SDT specifies that motivated behaviour lies on a continuum of autonomy, ranging from least self-determined to most self-determined (Deci & Ryan, 1985, 1991, 2000a, 2000b; Gagné, Ryan, & Bargman, 2003). The least-self determined form of motivation is amotivation, which is characterized by a complete lack of motivation to engage in behaviour (Deci & Ryan, 2000a).

**Amotivation** stems from not valuing an activity, not feeling competent to complete the activity, or not expecting it to yield a desirable outcome (Ryan, 1995; Deci & Ryan, 2000a).

In contrast, **intrinsic motivation** refers to engaging in an activity in the absence of external rewards because it is inherently satisfying, interesting, or enjoyable (Deci & Ryan, 1985, 2000a, 2000b; Vallerand & Rousseau, 2001). Vallerand and colleagues (Pelletier, Fortier, Vallerand, Tuson, Briere, & Blais, 1995; Vallerand,

1997; Vallerand & Losier, 1999) have indicated that there are three forms of intrinsic motivation: motivation to know, motivation toward accomplishment, and motivation for stimulation.

On the continuum of self-determined motivation, in between amotivation and intrinsic motivation, lies **extrinsic forms of motivation**. Extrinsically motivated behaviours are not undertaken for inherent enjoyment, but rather to achieve a specific outcome that lies outside of the behaviour itself (Deci & Ryan, 1985, 2000, 2000a; Vallerand & Rousseau, 2001). There are four types of extrinsic motivation. These forms of extrinsic motivation vary in the degree to which their regulation is self-determined (Deci & Ryan, 2000a).

The least autonomous form of extrinsic motivation is external regulation, followed by introjected regulation, identified regulation, and finally, the most self-determined extrinsic motivation is integrated regulation.

The less self-determined form of **extrinsic motivation** is based on External Regulation, to which the behavior is driven by external contingencies and means taking action with the sole purpose of receiving a reward or avoiding punishment. **The Introjected Regulation** is, however, a motivation controlled by internal factors; the subject has not fully identified with the values of the behavior and performs the action driven by contingencies, such as pride or avoiding feelings of guilt and shame. Individuals with an **Identified Regulation** perceive and consider the action as important and almost fully integrated with their cultural models. Finally, the **Integrated Regulation** consists in the most complete form of extrinsic motivation, because it not only involves identifying behavior, but the action is perfectly integrated with other self-aspects. Although the last two types of motivation share many characteristics with the intrinsic one, they are still considered forms of extrinsic motivation, because the

behaviors are emitted to achieve important results from a personal point of view, rather than interest and pleasure.

An appealing feature of SDT is that motivation is considered from a multidimensional perspective, distinguishing between autonomous and controlled types of motivational regulation and their differential impact on an individual's psychological well-being, behavioral quality, persistence, functioning, and learning (Ryan & Deci, 2000).

Autonomous motivation is underpinned by two behavioral regulations, namely intrinsic motivation and identified regulation. (Ryan & Deci, 2000).

Referring to a relatively autonomous form of extrinsic motivation (i.e., an individual's engagement in an activity is governed by some separable consequence), when an individual freely chooses to perform an activity because they accept and identify the underlying value of a behavior they are acting out of identified regulation.

In contrast, when one's behavior is governed by external and/or internal pressures such as being coerced, persuaded, and/or seduced their motivation is classed as being controlled (Moller, Deci, & Ryan, 2006). The behavioral regulations underpinning controlled motivation are introjected regulation and external regulation.

## **2.4 Exercise Behavior**

Behaviours that are characterized by internal desire and free choice are described as self-determined, while behaviours that are initiated as a result of factors that lie outside the self are described as non-self determined (Deci & Ryan, 1985).

Operational definitions of exercise behavior have differed strongly across studies. First, a distinction can be made between studies querying "pure" exercise activities (jogging, gymnasia, and all individual or team sports) versus studies including all

physical activities which may improve cardiorespiratory health but are not primarily intended that way (gardening, walking the dog, or bicycling to school/work) (Caspersen, Powell, & Christenson, 1985). Even when we restrict ourselves to pure exercise activities in leisure time, exercise definitions differ across studies. Only two very specific phenotypes have been defined in a highly comparable way.

*Sedentary* subjects simply do not engage in any type of leisure time physical activity, whereas *vigorous exercisers* perform activities above the intensity and frequency thresholds required to maintain a continued increase in aerobic fitness above their sedentary level. To achieve such an increase, subjects need to engage in large muscle dynamic exercise activities requiring more than 50% of their maximal oxygen consumption for at least three times a week for 20 minutes or more per occasion (Blair, Sellars, Strickland, Clark, Williams & Smith, 1996; Pate, Pratt, Blair, Haskell, Macera & Bouchard, 1995).

Measures of *light-to-moderate exercise*, i.e., all activity levels in between sedentary and vigorous exercise, are much harder to compare across studies. Studies use different criteria for the minimum frequency and the minimum intensity that is required to classify participants as “regular exercisers” . Criteria for frequency have varied from once per 2 weeks (Haase, Steptoe, Sallis & Wardle, 2004; Steptoe, Wardle & Filler, 1997) to five or more times a week (Caspersen, Pereira, & Curran, 2000).

## **2.5 Personality and Basic Psychological Needs. (H1)**

It is suggested that conscientious individuals are able to feel self-determined because exercise satisfies their need for competence. In the same vein, openness (inversely associated with external regulation) may reflect the need for autonomy. The behavior of extraverts is induced by their need for relatedness. Emotion stability is positively related to the need for relatedness and autonomy (Sheldon & Niemiec, 2006).

People scoring high on emotional stability typically present as pleasant, relaxed and confident. Individuals scoring high on extraversion tend to be sociable, outgoing, affable, gregarious, warm, expressive, and energized by social interaction. An individual, who scores high on openness to experience, is characterized as creative, forward thinking, artistic, rational, and thoughtful. High scorers on the agreeableness scale tend to be regarded as participative, helpful, obliging, and motivated to interact peaceably with others. Highly conscientiousness individuals would likely be described as reliable, consistent, responsible, trustworthy, and rule bound. (McCrae & Costa, 1990, 1992, 1997). With these five factors personality, people tend to want to have the relationship with peer exerciser, they want to achieve more in their ability and also free choice when making decision. All of these are autonomy, competence and relatedness in basic psychological needs.

H1: The personality of students (including emotional stability, extraversion, conscientiousness, agreeableness, and openness to experience) will have a positive and direct impact on their basic psychological needs.

## **2.6 Personality and Exercise Motivation. (H2)**

Although exercise is widely regarded as beneficial, particularly to physical health (Blair, Kohl III, Paffenbarger, Clark, Cooper & Gibbons, 1989), only a fraction of the population exercises regularly. Fifty percent of the American population exercises less than current recommendations and 25% do not exercise at all (Stephens, 1988). Therefore, motivating people to develop lifelong exercise habits is a major challenge.

The Big Five traits are positively associated with exercise motivations including health, appearance, stress management, enjoyment and weight control, with Extraversion and Openness identified as the traits that most positively related to exercise enjoyment (Courneya & Hellsten, 1998). Emotional stability and extraversion

are positively related to weight control, sexual attractiveness, general appearance, health, and enjoyment. (Davis, Fox, Brewer & Ratusny, 1995)

Lin, Chen, Wang and Cheng (2007) suggested that people who score highly on Extraversion would be highly motivated to attend fitness centers because of their energy and outgoing nature, and identified a positive correlation between Extraversion and four leisure motivation dimensions: intellectual, social, competence-mastery and stimulus-avoidance (or relaxation).

Given that personality and motivation have separately been linked to exercise, Ingledew et al. (2004) investigated the relationship between personality and exercise motivation, finding that Neuroticism was associated with more introjected regulation. Extraversion with both more intrinsic and identified regulation. Openness with less external regulation. Conscientiousness with more intrinsic regulation and finally, Psychoticism (not one of the Big Five) with more external regulation. Agreeableness was not treated as a separate construct.

Research on personality traits and motivation generally concludes that the two systems are independent elements of personality but that they interact to predict behaviour (Winter, John, Stewart, Klohnen & Duncan, 1998), both have been studied extensively in relation to sport and exercise behaviour.

Specifically, previous study found that the more autonomous types of behavioural regulation (Intrinsic, Identified) are associated with higher Extraversion, Conscientiousness and Openness, while the more controlled types of regulation (External) are associated with lower Emotional Stability. The study will also extend previous research by including the Agreeableness trait and Amotivation.

H2: The personality of students (including emotional stability, extraversion, conscientiousness, agreeableness, and openness to experience) will have a positive and direct impact on their exercise motivation.

## **2.7 Personality and Exercise Motivation (H3)**

Studies, based on the five-factor personality model, have demonstrated a significant relationship between personality characteristics and sport participation. The Big Five personality traits have been associated with many health-related behaviours, including smoking (Cosci, Corlando, Fomai, Paoletti & Carrozzi, 2009), alcohol consumption (Goldstein & Flett, 2009), healthy eating (MacNicol, Murray & Austin, 2003) and exercise (Huang, Lee & Chang, 2007).

Specifically, higher levels of extraversion and conscientiousness and lower neuroticism seem to be related to higher exercise frequency and time spent training (Bogg & Roberts, 2004; Bogg, Voss, Wood & Roberts, 2008; Courneya, Bobick, & Schinke, 1999; Rhodes & Smith, 2006), though findings are often contradictory. Yeung & Hemsley (1997a) associated high levels of Extraversion amongst women with low attendance on an eight-week aerobics exercise program. However, Rhodes (2006) identified Extraversion and Conscientiousness as consistent positive correlates of physical activity, with Neuroticism a consistent negative correlate. These findings were further corroborated and extended by work suggesting that regular exercise is associated with low levels of Neuroticism, anxiety and depression, and high levels of Extraversion and sensation seeking (De Moor, Beem, Stubbe & Boomsma, 2006).

Conscientiousness is most strongly related to participation in exercise behavior, and its effect is mediated by intentions to the goal (health protection) and the specific behavior (exercising) (Courneya & Hellsten, 1998; Lochbaum & Lutz, 2005; Marks & Lutendorf, 1999). The positive relationship between Extraversion and fitness was further supported by Bogg, Voss, Wood & Roberts (2008).

Other evidence indicates that extraverts tend to be more sociable and active, and are typically characterized by exuberance and optimism (Marshall, Wortman, Kusulas,

Hervig, & Vickers, 1992; Williams, 1992). Thus, extraversion is associated with positive affect toward exercise (Diener, Sandvik, Pavot, & Fujita, 1992).

In addition. Extraversion, Conscientiousness and Agreeableness predicted exercise frequency, with further analysis indicating that the Extraversion and Conscientiousness effects were mediated by Intrinsic and External motivation. Agreeableness was not mediated; however, and indicates that individuals who are more self-focused are likely to engage in a more frequent exercise regime.

The strong relationship correlates between personality and physical activity which provides new insights into the study of the psychological aspects related to exercise behavior. It is well known that exercisers who have a poor self-perception tend to decrease involvement in physical exercise and practice sport mainly with the aim of reducing their weight and improving their physical appearance (Ingledeu & Sullivan, 2002). However, this particular extrinsic motivation may deprive athletes of their sense of autonomy and, as consequences, their sport engagement and performance could be strongly reduced (Markland & Ingledeu, 2007).

H3: The personality of students (including emotional stability, extraversion, conscientiousness, agreeableness, and openness to experience) will have a positive and direct impact on their exercise behavior.

## **2.8 Basic Psychological Needs and Exercise Motivation. (H4)**

Sport psychology research has found that coaches who satisfied athletes' core psychological needs promoted the development of self-determined motivation (e.g., Vallerand & Losier, 1999). This relationship is important, as there is a link between self-determined motivation and success in sport (e.g., Gould, Dieffenbach, Moffett, 2002; Sarrazin, Vallerand, Guillet, Pelletier, & Cury, 2002; Vallerand, Deci & Ryan, 1987). Athletes who had input in the decision making process had significantly higher

perceptions of autonomy, competence, and relatedness, and therefore, self-determined motivation toward sport (Sarrazin et al., 2002).

Taking into account the postulates of the SDT, it is interesting to analyse pupils' perceptions of their autonomy, competence and relatedness, since they will have an influence on their motivation towards physical education and probably on how important and useful they think the subject is.

The three needs will influence motivation, to the extent that an increase in the perception of competence, autonomy and relatedness will create a type of intrinsic motivation, while frustrating these needs will be associated with less intrinsic motivation and more extrinsic motivation and amotivation. The theory further proposes that as one's motivational state moves towards intrinsic motivation, increases in cognition (e.g. deeper understanding), behaviour (e.g. increased participation) and affect (e.g. attitude) will result. These postulates have been demonstrated in physical education classes by different research studies. High levels of intrinsic motivation in students are desirable because students will participate for reasons not limited to the influence of setting grades, the teacher, or forced participation. In other words, they are more likely to become physically active on their own.

Deci (1975) suggested that intrinsically motivated behaviors are based on individual needs to feel competent and self-determined. This means that the satisfaction of basic needs leads individuals to experience intrinsic motivation. The fulfillment of basic needs also has an effect on behavior internalization. An individual feeling autonomous, competent and connected to others in a given context is expected to have a more internalized motivation.

That is, fulfilling students' basic psychological needs is proposed as central to the promotion of the self-determined forms of motivation (i.e. intrinsic motivation and identified regulation), whereas failing to satisfy students' basic psychological needs in

PE should result in the non-self-determined forms of motivational regulation (i.e. introjected and external regulation) or even amotivation.. Pelletier, Fortier, Vallerand, & Brière (2001) demonstrated that athletes experienced intrinsic motivation and self-determined extrinsic motivation (i.e., identified regulation and introjected regulation) when their needs for autonomy, competence, and relatedness were fulfilled.

H4: The basic psychological needs of students (autonomy, competence and relatedness) will have a positive and direct impact on their exercise motivation.

### **2.9 Basic Psychological Needs and Exercise Behavior. (H5)**

According to the SDT, human behaviour is motivated by three primary and universal psychological needs: autonomy, competence and relatedness, which seem to be essential to facilitate optimum functioning of natural tendencies for growth and integration, as well as for social development and personal welfare.

The SDT postulates that the type of regulation guiding the behavior in an activity is dependent on the extent to which the social facilitate individuals' basic psychological needs for competence, autonomy, and relatedness (Deci & Ryan, 2000a).

In a study comparing workplace environments in the United States and Bulgaria, Deci and colleagues explored whether the concept of needs satisfaction was generalizable across cultures. The researchers surveyed 676 employees of large corporations (548 Bulgarians, 128 Americans), and used the Work Climate Survey to measure the degree to which employees felt the company supported their autonomy, competence, and relatedness. Offering opportunities for choice and encouraging self-initiation were two examples of a company actively supporting their employees' autonomy. As well, the Need Satisfaction Scale was used to measure workers' perceived satisfaction of the three psychological needs (Deci et al., 2001). In both American and Bulgarian cultures, a significant link was found between an autonomy supportive work environment and self-determined motivation. Workers with increased

perceptions of autonomy support and needs satisfaction reported more positive job attitudes, higher task engagement and self-esteem, as well as lower anxiety (Deci et al., 2001).

In this study just concentrated on the self- activities after school, means there is no instruction from trainer or teacher. Hence, the social factor or the automomy support (e.g. teacher's or peers' behavior in PE) was removed from the model.

The impact of the basic psychological needs on exercise behavior has also been demonstrated through experimental manipulation. For example, Vansteenkiste, Simon, Lens, Sheldon, & Deci (2004) examined the impact of need satisfaction on high school students' exercise engagement in physical education. In the study, exercises were presented in a need supportive or controlling way. This was accomplished by giving students the option to participate in exercises or forcing them to engage in the activity. Results indicated that, compared to the controlling context, participants in the need supportive condition displayed greater effort and were more likely to persist and receive higher performance scores from teachers. Likewise, Edmunds, Ntoumanis & Duda (2008) examined the impact of need supportive teaching styles on psychological need satisfaction and exercise behavior. Female group fitness class participants in a 10-week exercise class were assigned to an SDT-based or typical teaching style. In the SDT-based class, the instructor provided need support by taking the perspective of the exercisers into account, acknowledging their feelings, and providing rationale for exercise. Compared to the control group, participants in the SDT condition displayed a significantly greater linear increase in relatedness and competence need satisfaction. Participants in the SDT condition also attended class significantly more often.

H5: The basic psychological needs of students (autonomy, competence and relatedness) will have a positive and direct impact on their exercise motivation.

## **2.10 Exercise Motivation and Exercise Behavior. (H6)**

In sports, studies aspects related to sport motivation play a crucial role in fostering the greater involvement of athletes and, above all, depend on the outcome of athletic performance.

As predicted by SDT, more autonomous forms of exercise motivation were more strongly correlated with increased exercise participation while External behavioural regulation and Amotivation were negatively correlated with exercise participation.

In this sense, Ryan & Deci (2007) have shown that intrinsic motivation and more autonomous forms of extrinsic motivation are associated with a greater involvement and engagement in sport (Vlachopoulos & Karageorghis, 2005), better performance (Pelletier, Vallerand, Brière, & Blais, 2003), greater psychological well-being (Burton, Lydon, D'Alessandro, & Koestner, 2006), and negligible levels of diseases (Vansteenkiste, Ryan, & Deci, 2008).

People with intrinsic motivation have a greater likelihood of maintaining a regular exercise routine and making it a continuing part of their life. Furthermore, intrinsic motivations are more likely to lead to an increased sense of psychological well-being, may be implicated in long-term maintenance. Moreover, enjoyment and competence factors appear to be associated with both intrinsic motivation and a regular pattern of exercise.

Most individuals participate in fitness programs for extrinsic reasons. These concerns include losing weight or becoming more attractive. Such reasons for participation are likely to be related to poor adherence, because extrinsically focused individuals may derive less enjoyment from the activity itself. Although extrinsic motives may be important in getting individuals initially involved in fitness programs, they are usually not enough to maintain regular exercise. There is evidence that

extrinsic motives to exercise lead to stress, whereas intrinsic motives increase feelings of well-being.

What is known thus far is that motives for exercise participation tend to vary by age, sex, and personality. For example, younger adults are more motivated by challenge and fitness, whereas older adults are increasingly concerned with their health.

An investigation of college students<sup>23</sup> found that about one-half of the participants were primarily motivated to look better rather than being motivated by health concerns. Moreover, 29% reported that they were not at all satisfied with their current exercise program. There is considerable evidence that participation in all types of physical activity declines as children progress through school. The tendency toward a more sedentary lifestyle is likely because of not developing a sufficient amount of intrinsic motivation for regular physical exercise.

Similarly, field-based studies in education (e.g., Vallerand & Bissonnette, 1992) and sport (e.g., Pelletier et al, 2001) have shown autonomous forms of motivation to positively predict behavioral persistence.

Indeed, extant work has shown autonomous types of motivation to positively predict higher levels of moderate-intensity self-reported exercise behavior (e.g., Gillison, Standage, & Skevington, 2006; McDonough & Crocker, 2007; Wilson, Rodgers, Blanchard, & Gessell, 2003; Wilson, Rodgers, Fraser, & Murray, 2004).

H6: The exercise motivation of students (amotivation, external regulation, introjected regulation, identified regulation and intrinsic motivation) will have a positive and direct impact on exercise behavior.

## **2.11 Summary**

This chapter reviewed the literature about each variable including in this study; they are Personality, Basic psychological needs, exercise motivation and exercise

behavior the relationship of them. This chapter was written based on the Self-determination theory, theory of personal traits, Five Factor model.

Personality can be defined as a cluster of traits that determine individual-specific responses to the environment (Musek, 1999). In present study, we applied the FFM to examine relationships between these factors and other factors of each variable. According to FFM, there are five personality factors:

- Emotion stability
- Extraversion
- Conscientiousness
- Agreeableness
- Openness to experience

Basic psychological needs: According to self-determination theory, there are three innate psychological needs that account for the basis of individuals' self-motivation and personality and for the conditions that influence their behavior. The needs are: autonomy (to be self-regulation, to be the maker or at least the owner of one's choice); competence (to be effective in what one does mastering new skills in the process); and relatedness (to feel connected and in sympathy with at least some others) (Martocchio, & Ferris, 2003)

Exercise motivation is the construct used to describe the internal and/or external forces that generate a particular behaviour (Deci & Ryan, 1985). It distinguishes between different motives in contexts that reflect the reasons why individuals choose to participate in an activity. SDT specifies that motivated behaviour lies on a continuum of autonomy, ranging from least self-determined to most self-determined (Deci & Ryan, 1985, 1991, 2000a, 2000b; Gagné, Ryan, & Bargman, 2003). Exercise motivation includes five dimensions:

- Amotivation
- External regulation
- Introjected regulation
- Identified regulation
- Intrinsic motivation

Exercise behavior: Operational definitions of exercise behavior have differed strongly across studies. There are three level of exercise behavior: Sedentary, Vigorous exercise, Light-to-moderate exercise.

In the domain of exercise, SDT seems to also demonstrate the ability to predict positive behavior such as enhanced performance and exercise participation. In particular, the satisfaction of the basic psychological needs may be a possible avenue through which exercise motivations can be fostered. However, given the limited research and mixed findings concerning the needs, more research is needed to verify the theory's claims and add to the literature on ways health professionals can espouse motivation for exercise.

## CHAPTER III- METHODOLOGY

The purpose of this study was to explore the influences of personality, basic psychological needs on exercise motivation then impact on exercise behavior of sport management students of NTUPES, TDTU and HUS. The subjects of this study were sport management students in these universities. A survey was utilized and the questionnaires were collected in person.

### 3.1 The Research Design

With an in-depth review of the literature and the reference of results from prior studies, the structure of the research was built as shown in Figure 1:

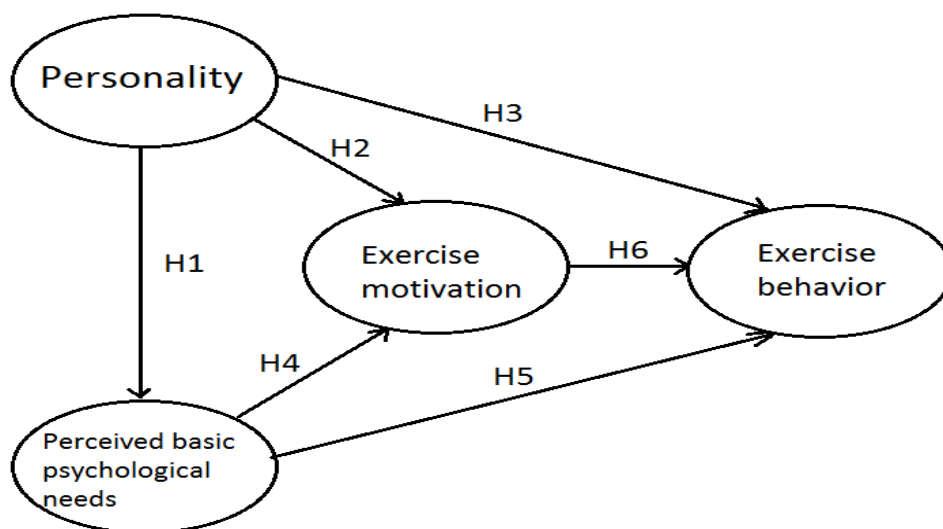


Figure 3.1: Hypothesis Model of this study

The purpose of this study was to identify the influences of personality and perceived basic psychological needs on individual exercise motivation which then influences exercise participation behavior among sport management of National Taiwan University of Physical Education and Sport (NTUPES), Ton Duc Thang University (TDTU) and Hochiminh University of Sport (HUS).

### **3.2 Selection of the Subjects**

The subjects of this study were undergraduate sport management students in three universities: National Taiwan University of Physical Education and Sport, Ton Duc Thang University and Hochiminh University of Sport.

NTUPES (Taiwan, Chaiyi campus) has two faculties: Sport information and sport management. In the sport management faculty, there are about 150 students including four grades.

TDTU (Vietnam) has begun sport management education for two years. The number of students are 100, including 30 first grade student and 70 second grade.

HUS (Vietnam) the number of sport management student are about 200 students, including four grades .

### **3.3 Instrumentation**

#### **3.3.1 Personality**

Personality was assessed by the revised NEO Personality Inventory (NEO-PI-R) developed by Costa & McCrae (1992). The NEO-PI-R contains 25 items that measure five personality dimensions labeled emotional stability, extraversion, openness to experience, agreeableness, and conscientiousness. Each item was rated on a seven-point scale with verbal anchors for *strongly disagree* (1) to *strongly agree* (5). A sum of the five items from each scale provides a total score for each personality dimension which can range from 5 to 25. The measurement scale items have been empirically tested to support construct validity, internal consistency, and test-retest reliability (Costa & McCrae, 1992; Coumeya & Helisten, 1998; Ingledew et al., 2004)

#### **3.3.2 Exercise Motivation**

The Behavioural Regulation in Exercise Questionnaire-2 (BREQ-2) developed by Markland & Tobin (2004) was used to assess exercise motivation. The scale comprises five subscales: Amotivation with 4 items (e.g., “I don’t see why I should have to

exercise”), external regulation with 4 items (e.g., “I exercise because other people say I should”), introjected regulation with 3 items (e.g., “I feel guilty when I don’t exercise”), identified regulation with 4 items (e.g., “I value the benefits of exercise”), and intrinsic motivation with 4 items (e.g., “I exercise because it’s fun”). Responses were provided on a 5-point Likert-type scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*)

### **3.3.3 Basic Psychological Needs**

The Basic Psychological Needs in Exercise Scale (BPNES; Vlachopoulos & Michailidou, 2006) was used to assess the degree to which the basic psychological needs for autonomy, competence, and relatedness are fulfilled during exercise. The BPNES comprises 12 items (4 per subscale). Items follow the stem: “In the present exercise setting,…” and include for autonomy: “The exercise program I follow is highly compatible with my choices and interests”, for competence: “I feel I have been making a huge progress with regard to the end result I pursue”, and for relatedness: “I feel that I associate with the other exercise participants in a very friendly way”. Participants were asked to report their agreement with the 12 statements by providing their responses on a 5-point Likert-type scale ranging from *strongly disagree* (1) to *strongly agree* (5).

### **3.3.4 Exercise Behavior**

Exercise behavior was assessed using the Godin Leisure Time Exercise Questionnaire (Godin & Shepard, 1985). Participants responded to three questions assessing the frequency of strenuous, moderate, and mild exercise performed for a minimum of 15 min in a typical week.

## **3.4 Procedures**

This section is designed to elaborate the procedures of this study. To collect data, this study administrated the following steps:

### **3.4.1 Translation of Questionnaires**

The original context of the instruments used for this study were described in English. Therefore, the translation of instruments into Taiwanese version and Vietnamese version to accommodate the subject's understanding to the questions was mandatory. According to Lee (2000), the translation of questionnaire not only needs to be loyalty to the original context of the source instrument, but also should reflect a cultural understanding and cultural effectiveness of the target language. The translator should know well both source and the target language and should be familiar with the subject matter. Moreover, both the translator and researcher should be sensitive to the subject's cultural experiences, their beliefs, customs, religion and cultural mores and practices (Bracken & Barona, 1991).

For that reason, this study adopted two translation techniques which suggested by Brislin (1986), the use of interpreter and committee approach to create a reliable and valid measurement tool. The researcher first translated all questions from English to Chinese and Vietnamese. Then both version were given to two English teachers with a master's degree in English (one in Vietnam and one in Taiwan) for correction of any words or sentences that have not reflected the original context of the source instrument or carried an unclear message.

### **3.4.2 Data Collection:**

Data will be collected directly in person. Before collecting the data, an invitation (see appendix A) was sent to the director of physical education office of three universities to request permission to conduct a survey and all the permissions were accepted, then universities will arrange the timetable for collecting the data.

In NTUPES, the survey will be done in class with permission of on-duty professor at that time. The in-class surveys are total 4 times, because there are four sport management classes.

In TDTU and HUS, all the sport management student will be scheduled for attending to the class. All the survey will be done and collected in class one time.

### **3.4.3 Pilot Study**

Using revised versions (both Chinese and Vietnamese) of the questionnaires, the researcher then will conduct a pilot study to examine the content validity of measurement. The pilot study will request that these students fill out the questionnaires to establish measurement reliability and validity.

All the data will be collected from sport management students from three university (total number is about 450 students), 100 surveys will be used to do the pilot study. Taiwan and Vietnam have the similar culture and context, so it is appropriate to mix all the questionnaire together and used for pre-test:

For the questionnaire survey, total of 516 sets were collected, including 178 participants in NTUPES, 75 participants in TDTU, and 263 participants in HUS. Of this number, there were 21 sets with missing data, and the remaining 495 were usable questionnaires, took 95.93%, including 175 participants in NTUPES, 69 participants in TDTU, and 251 participants in HUS. 100 surveys were used to do a pilot study to test the validity and reliability following ratio, 35 surveys from NTUPES, 14 surveys from TDTU and 51survey from HUS.

### **3.5 Data Analysis**

In light of the needs for solving the proposed research problems and testing the hypotheses for the study, the statistic applied include Descriptive statistic Analysis, Internal Consistent Reliability Analysis, One-way Analysis of Variance (ANOVA), Explorative Factor Analysis (EFA) and Regression Analysis.

The data collected was screened for accuracy and assumptions. Descriptive statistics, including means, standard deviations, frequency and percentage were calculated to analyze subject's demographic such as sex, age, school, level of grade.

Internal consistent reliability analysis is used to test the reliability of an instrument on its consistency with which measuring instrument yields a certain result when the entity being has not changed (Leedy & Ormod, 2001) Item to total correlation and Cronbach's alpha were administered to test the internal consistency of the instrument.

One-way analysis of Variance (ANOVA) is an extension of independent t- test. This study applied ANOVA to compare the different opinions of subjects from different school on dependent variables.

Explorative Factor Analysis (EFA) is to test the constructive validity of the instrument. A principle component analysis with varimax rotation was managed to test the factor loading of each observed variable on its constructs. Following Hair, Black, Babin, Anderson, and Tatham (2006), the following criteria were adopted to select the questionnaire items for each factor: factor loadings for each retained item should be greater than 0.6; Cronbach's alpha for each factor should be greater than 0.6; and all item-to-total correlations should be greater than 0.5

In statistics, regression analysis is a statistical process for estimating the relationships among variables. It includes many techniques for modeling and analyzing several variables, when the focus is on the relationship between a dependent variable and one or more independent variables. More specifically, regression analysis helps one understand how the typical value of the dependent variable (or 'Criterion Variable') changes when any one of the independent variables is varied, while the other independent variables are held fixed. Most commonly, regression analysis were used to estimate the conditional expectation of the dependent variable given the independent variables – that is, the average value of the dependent variable when the independent

variables are fixed. In this study, the regression analysis were used to test all the hypothesis and interrelation of these dimensions in each construct.

## CHAPTER IV- RESULTS

This chapter presents the result of data analysis. It is divided into the following sections: (1) Demographics profile, (2) Test factors reliability and validity; (3) Comparisons of opinion among NTUPES, TDTU and HUS students, (4) Overall hypotheses testing; and (5) Test of interrelation between internal factors of the construct.

### 4.1 Demographic profile

The demographic profile of subjects who participated in this study includes (1) gender, (2) age, (3) school, (4) Major, and (5) grade. The demographics for total number of subjects are presented in table 4.1 and 4.2. For the questionnaire survey, a total of 516 sets were sent to students of three universities, including 178 students in NTUPES, 75 students in TDTU, and 263 students in HUS. Of this number, 516 questionnaires were returned, takes 100%. There were 21 sets with missing data, and the remaining 495 were valid questionnaires, takes 95.93%. As shown, most of the subjects in this study are male, more than 21 of age and sophomore student.

Table 4.1 shows the basic students characteristics of three schools, including five major factors considered in this study: includes (1) gender, (2) age, (3) school, (4) Major, and (5) grade.

For NTUPES, 55% of students were male. Approximately 31% of the students were over 21 years of age. All the students' major was sport management. About 23% of the students were freshman, 34.3% of students were sophomore, 32% of them were junior and the left was senior.

Table 4.1

*Comparisons of student's personal demographic among three schools.*

Attribute	NTUPES (n= 175)		TDTU (n=69)		HUS (n= 251)	
	Frequency	Percentage (%)	Frequency	Percentage (%)	Frequency	Percentage (%)
<b>1. Gender</b>						
Male	96	55	53	76.8	191	76.1
Female	79	45	16	23.2	60	23.9
<b>2. Age</b>						
18	28	16	9	13	1	.4
19	49	28	24	34.8	21	8.4
20	44	25.1	11	15.9	101	40.2
> 21	54	30.9	25	36.3	128	51
<b>3. Major</b>						
SM	175	100	69	100	251	100
Other	0	0	0	0	0	0
<b>4. Grade</b>						
Freshman	40	22.9	43	62.3	33	13.2
Sophomore	60	34.3	26	37.7	117	44.5
Junior	56	32	0	0	83	33.1
Senior	19	10.8	0	0	18	7.2

For TDTU, more than 76% of students were male. Approximately 35% of the students were 19 years of age and more than 36% of them were over 21 years of age. All the students' major was sport management. About 62% of the students were freshman, and the left approximately 38% were sophomore. There were no junior and senior students in TDTU.

For HUS, about 76% of students were male. More than 40% of the students were 20 years of age and 51% of them were over 21 years of age.. All the students' major was sport management. About 13% of the students were freshman, 44.5% of students were sophomore, about 33% of them were junior and the left 7.2 % was senior.

Table 4.2

*Personal demographic data of all Subjects (N = 495)*

Attribute	Frequency	Percentage (%)	Attribute	Frequency	Percentage (%)
<b>1. Gender</b>			<b>4. Major</b>		
Male	340	68.7	SM	495	100
Female	155	31.3	Others	0	
<b>2. Age</b>			<b>5. Grade</b>		
19	38	7.7	Freshman	116	23.4
20	94	19	Sophomore	203	41
21	156	31.5	Junior	139	28.1
More than 21	207	41.8	Senior	37	7.5
<b>3. School</b>					
NTUPES	175	35.35			
TDTU	69	13.94			
HUS	251	50.71			

Table 4.2 shows more than 68% of students were male. Approximately 42% of the students were over 21 years of age. More than 50% of the students were from HUS. All the students' major was sport management. About 23% of the students were freshman, 41% of students were sophomore, about 28% of them were junior and the left 7.5% was senior.

#### **4.2 Test Factor Reliability and Validity**

To verify the dimensionality and reliability of the research constructs, pilot study were conducted. 100 surveys were taken for the pilot study following the ratio of each university per total. Such as: Ratio of NTUPES takes 35.35% from total number of surveys, so 35 surveys of NUTPES were used to do the pilot study, as the same, we took 14 surveys from TDTU's and 51 surveys from HUS's.

For each research construct, explorative factor analysis were first employed to identify the dimensionality of the factors for each research construct and to compare these selected items with items suggested by previous studies. Item-to-total correlations

and alpha coefficients were also assessed to identify the internal consistency and reliability of the constructs.

Following Hair, Black, Babin, Anderson & Tatham (2006), the following criteria were adopted to select the questionnaire items for each factor: factor loadings for each retained item should be greater than 0.6; Cronbach's alpha for each factor should be greater than 0.6; and all item-to-total correlations should be greater than 0.5. The results are shown in Table 4.3; 4.4 and 4.5.

The results indicate that, for the construct of personality, all 25 questionnaire items have higher factor loadings and five items each belong to one factor. Thus, a five-factor solution (i.e., emotional stability, extraversion, openness to experience, agreeableness, and conscientiousness) was concluded for personality. The result indicated that even the construct of personality has 5 factors (i.e., emotional stability, extraversion, openness to experience, agreeableness, and conscientiousness), but one item "I carry conversation to higher level." from factor Openness to experience moved to factor Extraversion. This is reasonable, because the meaning of this item can represent for the extraversion. The entire factor loading  $> 0.608$ , item to total correlation  $> 0.504$  and Cronbach's  $\alpha > 0.777$ .

For the construct of exercise motivation, a five factor solution (Amotivation, External regulation, Introjected regulation, Identified regulation and Intrinsic motivation) was concluded. All the items of Exercise motivation construct have high factor loading. Exercise motivation has 5 factors Amotivation (4 items), external regulation (4 items), introjected regulation (3 items), identified regulation (3 items) and intrinsic motivation (4 items). The entire factor loading  $> 0.736$ , item to total correlation  $> 0.643$  and Cronbach's  $\alpha > 0.839$ .

For the construct of basic psychological needs, a three-factor solution was concluded (i.e., autonomy, competence and relatedness). All four questionnaire items

for each factor have high factor loadings  $> 0.743$ , item to total correlation  $> 0.636$  and Cronbach's  $\alpha > 0.846$ .

The indices for factor loadings (all  $> 0.608$ ), item-to-total correlation coefficients (all  $> 0.537$ ) and Cronbach's alpha coefficients (all  $> 0.749$ ) suggest that all factors, as derived in this study to represent the research constructs, are reliable.

Thus in this study the summated scores for each factor were adopted to conduct hypotheses testing in the following section.

Table 4.3

*Factor analysis and Reliability of the Personality construct*

	<b>Factor</b>	<b>Research Items</b>	<b>Factor loading</b>	<b>Item-total correlation</b>	<b>Cronbach 's <math>\alpha</math></b>	
42	<b>Personality</b>	Emotional stability	Pe3 I feel comfortable with myself	.874	.778	.857
			Pe2 I am seldom feel blue	.822	.705	
			Pe4 I rarely get irritated.	.767	.641	
	Extraversion		Pe1 I am easily bothered by things	.762	.618	.856
			Pe5 I am very pleased with myself.	.750	.632	
			Pe8 I make friends easily	.834	.753	
			Pe7 I am skilled in handling social situations.	.765	.692	
			Pe9 I know how to captivate people.	.711	.705	
			Pe10 I feel comfortable around people	.643	.599	
			Pe6 I am the life of party.	.629	.548	
	Openness		Pe14 I carry conversation to higher level.	.619	.581	.777
			Pe12 I believe in the important of art.	.792	.567	
			Pe15 I enjoy hearing new ideas	.755	.589	
	Agreeableness		Pe11 I tend to vote for conservative political candidates.	.749	.580	.749
			Pe13 I have a vivid imagination.	.689	.600	
			Pe16 I respect others.	.732	.504	
			Pe19 I accept people as they are	.666	.588	
			Pe18 I believe that others	.628	.537	
			Pe20 I make people feel at ease.	.612	.589	
			Pe17 I have a good word for everyone	.608	.552	
	Conscientiousness		Pe22 I make plans and stick to them	.833	.768	.849
			Pe25 I get chores done right away.	.774	.650	
			Pe23 I carry out my plans.	.765	.694	
			Pe24 I pay attention to details.	.711	.611	

Pe21 I am always prepared.

.643 .575

Table 4.4

*Factor analysis and Reliability of the Exercise motivation construct*

	Factor	Research Items	Factor loading	Item-total correlation	Cronbach 's $\alpha$
43	<b>Exercise motivation</b>	Em2 I can't see why I should bother exercising	.806	.7426	.877
		Em4 I think exercising is a waste of time	.799	.643	
		Em1 I don't see why I have to exercise	.789	.757	
	External regulation	Em3 I don't see the point in exercising	.768	.680	.896
		Em7 I exercise because others will not be pleased with me if I don't	.814	.843	
		Em8 I feel under pressure from my friends/family to exercise	.810	.702	
		Em5 I exercise because other people say I should	.799	.843	
		Em6 I take part in exercise because my friends/family/partner say I should	.798	.801	
		Em9 I feel guilty when I don't exercise	.802	.688	
	Introjected regulation	Em10 I feel ashamed when I miss an exercise session	.886	.718	.839
		Em11 I feel like a failure when I haven't exercised in a while	.828	.704	
	Identified regulation	Em13 It's important for me to exercise regularly	.879	.838	.916
		Em12 I value the benefits of exercise	.866	.864	
		Em14 I think it's important to make the effort to exercise regularly	.854	.796	
	Intrinsic motivation	Em16 I enjoy my exercise sessions	.875	.880	.909
Em17 I find exercise a pleasurable activity		.871	.864		
Em18 I get pleasure and satisfaction from participating in exercise.		.779	.702		
Em15 I exercise because it's fun		.736	.740		

Table 4.5

*Factor analysis and Reliability of the basic psycho**construct*

	<b>Factor</b>	<b>Research Items</b>	Factor loading	Item-total correlation	Cronbach 's $\alpha$		
44	<b>Basic psychological needs</b>	Autonomy	Bn1	The way I exercise is in agreement with my choices and interests.	.821	.792	.889
		Bn2	I feel that the way I exercise is the way I want to.	.813	.797		
		Bn4	I feel that I have the opportunity to make choices with regard to the way I exercise	.804	.760.		
		Bn3	I feel that the way I exercise is a true expression of who I am	.763	.724		
	Competence	Bn8	I am able to meet the requirements of my exercise program.	.815	.716	.846	
		Bn7	I feel exercise is an activity which I do very well.	.761	.636.		
		Bn6	I feel I perform successfully the activities of my exercise program.	.743	.690		
		Bn5	I feel I have made a lot of progress in relation to the goal I want to achieve	.737	.742		
	Relatedness	Bn12	I feel comfortable with the people I exercise with	.821	.804	.900	
		Bn11	My relationships with the people I exercise with are close	.813	.767		
		Bn10	I feel I have excellent communication with the people I exercise with	.804	.798		
		Bn9	My relationships with the people I exercise with are very friendly	.763	.752		



### 4.3 Comparisons of opinions among NTUPES, TDTU, and HUS students

In order to test for differences of the research variables among NTUPES, TDTU, AND HUS students, ANOVA was conducted. Table 4.6 showed the result of the differences.

Table 4.6

*Comparisons of responses among NTUPES, TDTU and HUS students*

Dependent variables	NTUPES students (n= 175)	TDTU students (n=69)	HUS students (n= 251)	F	p	Duncan
<b>1. Personality</b>						
Emotional stability	3.409	3.276	3.460	2.170	.116	
Extraversion	3.879	3.695	3.700	11.547	.000	(1,3 2)
Openness	3.691	3.600	3.670	.663	.516	
Agreeableness	3.639	3.424	3.515	1.118	.306	
Conscientiousness	3.743	3.427	3.535	11.804	.000	(1,3 2)
<b>2. Exercise motivation</b>						
Amotivation	1.771	2.191	1.686	15.551	.000	(2,1 3)
External regulation	1.882	1.946	2.270	9.486	.000	(3,2 1)
Introjected regulation	3.152	3.348	3.175	1.786	.169	
Identified regulation	4.364	4.133	4.291	3.527	.030	(13,3 2)
Intrinsic motivation	4.343	4.046	4.141	7.608	.001	(1,3 2)
<b>3. BPN</b>						
Autonomy	4.314	4.027	4.053	10.568	.000	(1,3 2)
Competence	3.941	3.771	3.876	1.430	.241	
Relatedness	4.250	4.027	4.099	6356	.002	(1,2 3)
<b>4. Exercise behavior</b>						
Exercise level	41.614	36.546	38.635	4.4805	.009	(1,3 2)

Table 4.6 indicates that for the construct of personality, NTUPES students tend to have significantly higher scores on Extraversion (mean value = 3.88;  $p < 0.000$ ) and conscientiousness (mean value = 3.74;  $p < 0.000$ ) than the HUS and TDTU students. However, there are no differences among these three groups on emotional stability, openness to experience and agreeableness (mean value = 3.28 ~ 3.69;  $p = 0.116 \sim 0.516$ ).

For the construct of exercise motivation, TDTU students tend to have significantly higher scores on amotivation (mean value = 2.19;  $p < 0.000$ ) than the NTUPES and TDTU students. HUS students seems to have the highest score on external regulation (mean value = 2.27;  $p < 0.000$ ). TDTU and NTUPES students have the greater scores on identified regulation (mean value = 4.36,  $p < 0.05$ ) than NTUPES and HUS students. Lastly, NTUPES students has higher scores on intrinsic motivation (mean value = 4.34,  $p = 0.001$ ) than HUS and TDTU students. However, there are no differences among these three groups on introjected regulation (mean value = 3.15 ~ 3.35;  $p = 0.169$ ).

For the construct of basic psychological needs, NTUPES students report the highest scores on autonomy (mean value = 4.31;  $p < 0.000$ ) and relatedness (mean value = 4.25;  $p < 0.01$ ) than the TDTU and HUS students. However, there are no differences among these three groups on competence (mean value = 3.77 ~ 3.94;  $p = 0.241$ ).

For the construct of exercise behavior, NTUPES students seem to have the significantly higher scores on exercise level (mean value = 41.61;  $p < 0.09$ ) than the HUS and TDTU students.

#### 4.4 Overall hypotheses testing

To test the hypotheses as stated in this study section, six multiple regression equations were estimated and the results are shown in Table 4.7.

Table 4.7

*Regression analysis for the influences of personality, basic psychological needs on exercise motivation and exercise behavior.*

	Basic psychological needs	Exercise motivation	Exercise behavior
	M1	M2	M3
Personality	.464***	.114*	.318**
Basic psychological needs		.183**	.356***
Exercise motivation			.139**
R <sup>2</sup>	.416	.257	.361
F	108.078	13.808	19.490
P	.000	.000	.000

According to table 4.7, support for research hypothesis 1 was found by the significant positive path coefficient of 0.464 between personality and basic psychological needs ( $p < .000$ ). Personality accounted for approximately 41.6% of the variance of basic psychological need.

Regarding the influences of personality and basic psychological needs on exercise motivation, personality ( $\beta = 0.114$ ,  $p < 0.05$ ) and basic psychological needs ( $\beta = 0.183$ \*\*\*,  $p < .01$ ) both had a positive and significant influence on the exercise motivation, accounted for approximately 25.7% of exercise motivation. Thus, H2 and H4 were supported. That means the personality and basic psychological needs have positive and direct impact on exercise motivation.

Finally, regarding the influence of personality, basic psychological needs and exercise motivation and exercise behavior, personality ( $\beta = 0.318$ \*\*,  $p < 0.01$ ) and basic psychological needs ( $\beta = 0.356$ \*\*\*,  $p < .000$ ) and exercise motivation ( $\beta = 0.139$ ,  $p < .01$ ) had the significant positive and significant impact on exercise behavior. Total variance

explained accounted for approximately 27.2% of exercise behavior. Thus, H3, H5 and H6 were supported. That means the personality, basic psychological needs and exercise motivation have positive and direct impact on exercise behavior.

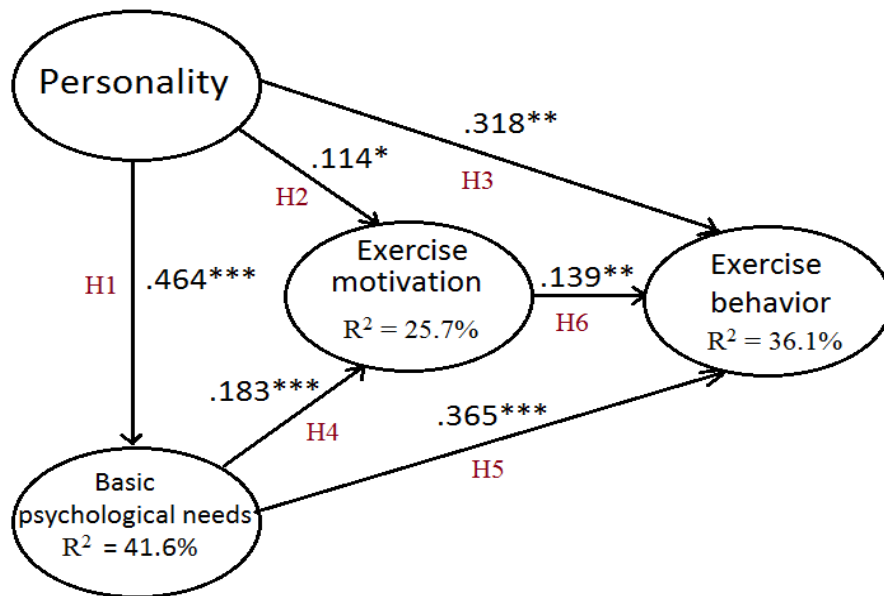


Figure 4.1: Standardized regression weights for whole model. With \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.000$

We recognized that the H2, H4 and H6 the correlation coefficient were low ( $\beta = 0.114 \sim 0.183$ ,  $P < 0.05 \sim 0.000$ ), this issue can be explained by the factors of exercise motivation were complicated. There are five factors of exercise motivation variable; there are amotivation, external regulation, introjected regulation, identified regulation and intrinsic motivation.

Table 4.8

*Summary of Hypothesis*

Hypothesis	Results
H1: The personality of students will have a positive and direct impact on their basic psychological needs.	Accepted
H2: The personality of students will have a positive and direct impact on exercise motivation.	Accepted
H3: The personality of students will have a positive and direct impact on exercise behavior.	Accepted
H4: The basic psychological needs of students will have a positive and direct impact on exercise motivation.	Accepted
H5: The basic psychological needs of students will have a positive and direct impact on exercise motivation.	Accepted
H6: The exercise motivation of students will have a positive and direct impact on exercise behavior.	Accepted

**4.5 Test of interrelation between internal factors of the construct**

Regression analysis was conducted to test the relationship of the latent variables. For examples, there are five dimensions in personality construct and three dimensions in basic psychological needs. After running the linear regression analysis for the data, we will find how the five dimensions of personality effect on three dimensions of basic psychological needs. The results were shown in the table 4.9.

Table 4.9

*Regression analysis for the relationship of personality, basic psychological needs and exercise motivation on exercise behavior.*

	Autonomy	Competence	Relatedness	Amotivation		External regulation		Introjected regulation		Identified regulation		Intrinsic motivation		Exercise behavior		
	M1.1	M1.2	M1.3	M2.1	M2.6	M2.2	M2.7	M2.3	M2.8	M2.4	M2.9	M2.5	M2.10	M3.1	M3.2	M3.3
ES	.145	.140**	.267	-.256		-.104*		.094		.156		.178		.050		
EX	.219***	.248**	.327***	-.303*		-.203		-.091		.226*		.369**		.401**		
OE	.150**	.219***	.237***	-.230		-.125		-.065		.323*		.278**		.341*		
AG	.125	.058	.246	-.126		-.116		.015		.178		.117		.139		
CS	.139*	.379***	.120*	-.314		-.215		-.142		.216*		.238**		.324**		
AUTO					-.227		-.185		.235**		.287***		.372***		.268**	
COMP					-.111		-.194*		.183		.210		.194***		.333***	
RELA					-.224**		-.142		.161		.245***		.224***		.208*	
AMO																-.244***
ER																-.144
INR																-.086
IDR																.214*
IM																.415***
R <sup>2</sup>	.316	.298	.401	.312	.266	.311	.327	.220	.280	.337	.406	.465	.355	.448	.417	.433
Adj R <sup>2</sup>	.295	.291	.386	.394	.258	.298	.308	.196	.271	.211	.297	.441	.354	.624	.406	.418
F	54.08	33.40	56.22	35.45	44.91	4.33	51.10	55.12	30.53	47.45	88.15	50.197	104.03	84.73	76.15	83.61
P	.000	.000	.000	.000	.000	.038	.000	.001	.000	.000	.000	.000	.000	.000	.000	.000
D-W	1.740	1.968	1.641	1.455	1.555	1.589	1.568	1.752	1.768	1.791	1.927	1.888	2.135	1.637	1.713	1.735

With \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.000$

(ES: Emotional stability; EX: Extraversion; OE: Openness to experience; AG: Agreeableness; CS: Conscientiousness; AUTO: Autonomy; COMP: Competence; RELA: Relatedness; AMO: Amotivation; ER: External regulation, INR: Introjected regulation; IDR: Identified regulation; IM; Intrinsic motivation.)

Table 4.10

*Regression analyses factors between personality and basic psychological needs*

Dependent variables (Basic psychological needs)	Predictor (Personality)	$\beta$	t	R <sup>2</sup>
Autonomy (M1.1)	(Constant)	2.074***	7.777	.316
	Emotion stability	.145	.875	
	Extraversion	.219***	3.985	
	Openness	.150**	2.842	
	Agreeableness	.125	.436	
	Conscientiousness	.139*	.2494	
Competence (M1.2)	(Constant)	1.041**	3.410	.298
	Emotion stability	.140**	3.030	
	Extraversion	.248**	2.724	
	Openness	.219**	3.391	
	Agreeableness	.058	1.198	
	Conscientiousness	.379***	7.281	
Relatedness (M1.3)	(Constant)	1.588***	5.491	.401
	Emotion stability	-.086	-1.720	
	Extraversion	.327***	3.648	
	Openness	.237***	4.568	
	Agreeableness	.246	1.244	
	Conscientiousness	.120*	2.197	

For regression model M1.1, extraversion, openness and conscientiousness were significant predictors for autonomy ( $\beta = 0.139 \sim 0.219$ ,  $p < 0.05 \sim 0.000$ ), when the contribution of emotional stability and agreeableness were not significant. The model predicted 31.6 % of the variance in autonomy need.

For regression model M1.2, emotional stability, extraversion, openness, agreeableness and conscientiousness were significant predictors for competence ( $\beta = 0.140 \sim 0.379$ ,  $p < 0.01 \sim 0.000$ ), when the contribution of agreeableness was not significant. The model predicted 29.8% of the variance in competence need.

For regression model M1.3, extraversion, openness and conscientiousness were significant predictors for relatedness ( $\beta = 0.120 \sim 0.327$ ,  $p < 0.05 \sim 0.000$ ), when the contribution of emotional stability and agreeableness were not significant. The model predicted 40.1% of the variance in relatedness need.

Table 4.11

*Regression analyses factors between personality and exercise motivation*

Dependent variables (Exercise motivation)	Predictor (Personality)	$\beta$	t	R <sup>2</sup>
Amotivation (M2.1)	(Constant)	1.894***	4.521	.312
	Emotion stability	-.256	-1.836	
	Extraversion	-.303*	-1.182	
	Openness	-.230	-.554	
	Agreeableness	-.126	-.473	
	Conscientiousness	-.314	-.882	
External regulation(M2.2)	(Constant)	1.715***	3.911	.311
	Emotion stability	-.104*	-2.342	
	Extraversion	-.203	-.0945	
	Openness	-.125	-1.327	
	Agreeableness	-.116	-1.165	
	Conscientiousness	-.215	-.018	
Introjected regulation (M2.3)	(Constant)	2.033***	4.484	.320
	Emotion stability	.094	1.136	
	Extraversion	-.091	-.121	
	Openness	-.065	-1.483	
	Agreeableness	.015	.880	
	Conscientiousness	.142	1.726	
Identified regulation (M2.4)	(Constant)	2.712***	7.929	.337
	Emotion stability	.156	.891	
	Extraversion	.226*	2.316	
	Openness	.323*	2.021	
	Agreeableness	.178	.654	
	Conscientiousness	.216*	2.144	
Intrinsic motivation (M2.5)	(Constant)	2.540***	8.376	.465
	Emotion stability	.178	1.028	
	Extraversion	.369**	2.947	
	Openness	.278**	2.665	
	Agreeableness	.117	.174	
	Conscientiousness	.238**	2.479	

Regarding the influences of exercisers' personality on their exercise motivation (hypothesis 2):

For regression model M2.1, extraversion was the only significant predictor for amotivation ( $\beta = -0.303$ ,  $p < 0.05$ ). The model predicted 31.2% of the variance in amotivation.

For regression model M2.2, emotional stability was the only significant predictor for external regulation ( $\beta = -0.104$ ,  $p < 0.05$ ). The model predicted 31.1% of the variance in external regulation.

For regression model M2.3, there are not any significant predictors for introjected regulation ( $\beta = -0.142 \sim 0.94$ ,  $p > 0.05$ ).

For regression model M2.4, extraversion, openness and conscientiousness were the significant predictors for identified regulation ( $\beta = 0.216 \sim 0.323$ ,  $p < 0.05$ ). The model predicted 33.7% of the variance in identified regulation.

For regression model M2.5, extraversion, openness and conscientiousness were the significant predictors for intrinsic motivation ( $\beta = 0.238 \sim 0.369$ ,  $p < 0.01$ ). The model predicted 46.5% of the variance in intrinsic motivation.

Table 4.12

*Regression analyses factors between personality and exercise behavior*

Dependent variables	Predictor (Personality)	$\beta$	t	$R^2$
Exercise behavior (M3.1)	(Constant)	11.919*	2.276	.448
	Emotion stability	.150	1.813	
	Extraversion	.401**	4.297	
	Openness	.341*	2.082	
	Agreeableness	.139	.580	
	Conscientiousness	.324**	3.013	

For regression model M3.1, extraversion, openness and conscientiousness were the significant predictors for intrinsic motivation ( $\beta = 0.324 \sim 0.401$ ,  $p < 0.05 \sim 0.01$ ). The model predicted 46.5% of the variance in identified regulation.

Table 4.13

*Regression analyses for factors between basic psychological needs and exercise motivation.*

Dependent variables (Exercise motivation)	Predictor (Basic psychological needs)	$\beta$	t	R <sup>2</sup>
Amotivation (M2.6)	(Constant)	3.399***	10.528	.266
	Autonomy	-.227	-.439	
	Extraversion	-.111	-1.743	
	Relatedness	-.224**	-.2226	
External regulation(M2.7)	(Constant)	3.499***	10.094	.327
	Autonomy	-.185	-1.376	
	Extraversion	-.194*	-.1963	
	Relatedness	-.142	-.649	
Introjected regulation (M2.8)	(Constant)	1.425***	4.066	.280
	Autonomy	.235**	2.615	
	Extraversion	.183	1.314	
	Relatedness	.161	.941	
Identified regulation (M2.9)	(Constant)	1.634***	6.660	.406
	Autonomy	.287***	4.582	
	Extraversion	.210	1.914	
	Relatedness	.245***	3.364	
Intrinsic motivation (2.10)	(Constant)	.929***	4.980	.355
	Autonomy	.372***	7.887	
	Extraversion	.194***	3.969	
	Relatedness	.224***	4.493	

Regarding the influences of exercisers' basic psychological needs on their exercise motivation (hypothesis 4):

For regression model M2.6, relatedness was the only significant predictor for amotivation ( $\beta = -0.224$ ,  $p < 0.01$ ). The model predicted 26.6% of the variance in amotivation.

For regression model M2.7, competence was the only significant predictor for external regulation ( $\beta = -0.194$ ,  $p < 0.05$ ). The model predicted 32.7% of the variance in external regulation.

For regression model M2.8, autonomy was the only significant predictor for introjected regulation ( $\beta = 0.235$ ,  $p < 0.01$ ). The model predicted 28% of the variance in introjected regulation.

For regression model M2.9, autonomy and relatedness were the significant predictors for identified regulation ( $\beta = 0.245 \sim 0.287$ ,  $p < 0.000$ ). The model predicted 40.6% of the variance in identified regulation.

For regression model M2.10 autonomy, competence and relatedness were the significant predictors for intrinsic motivation ( $\beta = 0.194 \sim 0.372$ ,  $p < 0.000$ ). The model predicted 35.5% of the variance in intrinsic motivation.

Table 4.14

*Regression analyses for factors between basic psychological needs and exercise behavior.*

Dependent variables	Predictor (Basic psychological needs)	$\beta$	t	$R^2$
Exercise behavior (M3.2)	(Constant)	1.107**	3.356	.417
	Autonomy	.268**	2.956	
	Extraversion	.333***	4.071	
	Relatedness	.208*	2.255	

Regarding the influences of exercisers' basic psychological needs on their exercise participation (H5):

For regression model M3.2, autonomy, competence and relatedness were the significant predictors for intrinsic motivation ( $\beta = 0.208 \sim 0.333$ ,  $p < 0.05 \sim 0.000$ ). The model predicted 35.5% of the variance in intrinsic motivation.

Table 4.15

*Regression analyses for factors between exercise motivation and exercise behavior.*

Dependent variables	Predictor (Exercise motivation)	$\beta$	t	R <sup>2</sup>
Exercise behavior (M3.3)	(Constant)	.345*	1.982	.433
	Amotivation	-.244***	-6.84	
	External regulation	-.144	-.735	
	Introjected regulation	.086	.093	
	Identified regulation	.214*	2.031	
	Intrinsic motivation	.415***	6.037	

Regarding the influences of exercisers' motivation on exercise behavior (H6),

For regression model M3.3, amotivation ( $\beta = -0.244$ ,  $p < 0.000$ ), identified regulation ( $\beta = 0.214$ ,  $p < 0.05$ ) and intrinsic motivation ( $\beta = 0.415$ ,  $p < 0.000$ ) were the significant predictors for exercise behavior. The model predicted 43.3% of the variance in exercise behavior.

Regression analysis was used to test the interrelationship of factors in each construct. The findings were:

1. Extraversion, openness and conscientiousness were significant predictors for autonomy, relatedness, identified regulation, intrinsic motivation when the contribution of emotional stability and agreeableness were not significant.
2. Emotional stability, extraversion, openness, agreeableness and conscientiousness were significant predictors for competence, when the contribution of agreeableness was not significant. The model predicted 29.8% of the variance in competence need.
3. Extraversion was the only significant predictor for amotivation.
4. Emotional stability was the only significant predictor for external regulation.
5. Relatedness was the only significant predictor for amotivation.
6. Competence was the only significant predictor for external regulation.

7. Autonomy was the only significant predictor for introjected regulation.

8. Autonomy and relatedness were the significant predictors for identified regulation.

9. Autonomy, competence and relatedness were the significant predictors for intrinsic motivation

10. Amotivation, identified regulation and intrinsic motivation were the significant predictors for exercise behavior. However, amotivation has a negative effect on exercise behavior.

#### **4.6 Summary**

From the table 4.6, we showed the differences among three school on personality (extraversion, conscientiousness), exercise motivation (amotivation, external regulation, identified regulation and intrinsic motivation), basic psychological needs (autonomy and relatedness) and exercise behavior.

NTUPES students seem to have higher level of personality, autonomous motivation, basic psychological needs and exercise behavior; however; lower level of amotivation and external regulation than HUS and TDTU' students.

To examine the proposed research questions, SEM was used. The gathered data were first analyzed by to test the reliability and validity of the questionnaires. Based on the literature review, all the hypotheses were proposed and tested. The results indicated that all the hypotheses were supported., that means the student has a higher levels of personality, basic psychological needs and self-determined regulation to exercise would favorably influence exercise behavior

Finally, regression analysis was conducted to examine the interrelationship among factors in each construct. Many relationships were found between the factors of these construct. These factors can be the predictors for other factors in the relationship.

## **CHAPTER V – DISCUSSIONS, SUGGESTIONS AND LIMITATIONS**

Our study was designed to determine the influences of personality and basic psychological needs on exercise motivation, which then affect on exercise behavior of sport management students in NTUPES, TDTU and HUS. This chapter was divided into three sections with the first section discussing the findings of this study, the second section concluding the findings of this study and third section suggesting recommendation.

### **5.1 Discussions**

This study found that the NTUPES students tend to have significantly higher scores on extraversion and conscientiousness than the students in HUS and TDTU; however, there are no differences among these three groups on emotional stability, openness to experience and agreeableness. NTUPES students seem to have significant lower level of amotivation and external regulation but significant higher level of identified regulation and intrinsic motivation than the other two universities. According to Deci and Ryan (1985), there are five dimensions of motivation, were ranged from the continuum of self-determination. That means Taiwanese students in sport management department have the higher level of self-determination than students in Vietnam.

The higher scores on basic psychological needs (autonomy and relatedness) and exercise behavior of NTUPES students were found in this study. The differences between TDTU, HUS and NTUPES or in another word, there are the differences between Taiwanese and Vietnamese sport management students. There are at least two possible explanations for the differences. One explanation is that there is the diversity in cultural issues and belief, even Vietnam and Taiwan are the Asian countries but the culture and way of thinking are different. The second is related to the economic, with

the lower level of economic than Taiwan, Vietnamese should pay more attention on earning money, saving expense for their living cost

These results were supported by the present finding of this study, that student with higher level of personality and basic psychological needs will positively influence on exercise motivation, which then positively affect exercise behavior. According to our results that NTUPES students seem to have higher level of personality (extraversion and conscientiousness), higher level of basic psychological needs (autonomous and relatedness), they also have higher level of autonomous motivation, and the highest level of exercise behavior can be effected by supported hypothesis.

Personality was found to have a positive influence on basic psychological needs, exercise motivation and exercise behavior, especially extraversion, openness to experience and conscientiousness. These finding coincides with the self-determination theory. The results of these studies indicated that extraversion, openness and conscientiousness impacted positively on exercise behavior. These results support a large body of research on personality and exercise behavior including the only other study to use the FFM (Coumeya & Hellsten, 1998). There appears to be a growing consensus that extraversion, openness and conscientiousness are the most strongly personality dimensions (Coumeya & Hellsten, 1998; Potgieter & Venter, 1995; Szabo, 1992; Yeung & Hemsley, 1997b), although one recent study (Yeung & Hemsley, 1997a) provided a inverse relationship between extraversion and exercise class attendance. However, the positive correlations between extraversion and exercise behavior in the present studies are show the most related in the literature.

This study aimed to further clarify the relationship between individuals' personality, exercise motivations and exercise behavior. As expected from previous research (e.g., Rhodes, 2006), Extraversion was found to be positively correlated with exercise frequency, though no relationships were found for Emotional Stability,

Agreeableness. McCrae and John (1992) argue that Extraversion is associated with increased activity levels, positive emotionality, and assertiveness and in some cases sensitivity to reward, all of which would tend to encourage exercise participation. Given the largely consistent relationship between Extraversion and exercise across many studies and the clear theoretical basis for hypothesizing that higher Extraversion will be related to a more active, outgoing lifestyle, this finding may help to contribute to the conclusion that Extraversion is related to many types of exercise outcomes, such as participation, frequency and performance.

Personality traits predicted a substantial amount of variance in exercise behavior, with Extraversion, Openness and Conscientiousness and emerging as the strongest predictors. As expected, the effects of the personality traits were mostly subsumed into the motivation variables, which themselves made a further substantial contribution to predicting exercise behavior. It appears that the Extraversion, openness and Conscientiousness traits are mediated by identified regulation and intrinsic motivation. In another study, external regulation is known to be more important for exercise participation; however, current study found that external regulation has negatively related to exercise behavior but not significantly.

Conner, Rodgers and Murray (2007) conducted a study using a sample of University students and identified that Conscientiousness significantly influenced exercise intentions during an unusual week, such as a reading week, but had no influence when the behavior was performed during a normal week of term. Previous findings on emotional stability and agreeableness relating to exercise have also been contradictory and this research further confirms that finding relationships is heavily dependent on the sample and type of exercise outcome.

Exercise behavior is more likely under the conditions of self-determined regulation, personality and basic psychological needs because these variables are high

and significant predictor of exercise behavior (Wankel, 1993). One investigation (Edmunds, Ntoumanis & Duda, 2007) already documented the positive implications of self-determined regulation for exercise behavior among overweight and obese patients. Future research is needed to investigate if these findings hold true in other populations (e.g., sedentary people and people without weight problems).

The hypothesis that higher levels of personality, basic psychological needs and self-determined regulation to exercise would favorably influence exercise behavior was supported. It was found that self-determined regulation, as measured by SDT, significantly and positively affected enjoyment, positive affect, and exercise frequency, while adversely affecting negative affect. This finding suggests that exercising primarily for self-determined reasons provides exercisers with positive behavioral and emotional benefits that may increase their likelihood of adhering to an exercise program. These findings have been supported in other investigations (Edmunds et al., 2006) and have very important implications for promoting physical activity and exercise in the general population (Edmunds et al., 2007; Frederick, 2002).

Providing an environment that fosters autonomy might be particularly important for exercise novices, in which participants are more likely to experience boredom, physical discomfort, early fatigue, and not obtain immediate benefits, while finding the activity extrinsically motivating (Frederick, 2002). It has been found that students who engage in exercise for more extrinsic than intrinsic reasons tend to have negative effects on exercise behavior (Frederick, 2002). It is plausible to surmise, therefore, that novices might be more likely to start exercising for extrinsic reasons, thus creating an environment that fosters self-determined motivation. This, in turn, would create more favorable perceptions of exercise, resulting in higher levels of exercise behavior.

Three of five exercise motivation scales (amotivation, identified regulation and intrinsic motivation) were correlated with exercise behavior. As predicted by self-

determination theory, the strength of these correlations increased and the direction of correlation became positive as autonomy increased. This provides support for the continuum of motivation suggested by Deci and Ryan (2000), further validating Self-determination Theory, and makes for a strong recommendation that programs designed to encourage exercise participation should focus on increasing autonomous exercise regulation rather than external factors. Indeed, external regulation had a negative relationship with exercise participation and indicates that, for those already engaged in physical activity at least, providing external rewards or punishments may well decrease exercise frequency.

The finding in the current study that perceived autonomy and relatedness significantly and positively influenced self-determined regulation to exercise is consistent with other investigations which indicated favorable effects of perceived competence and autonomy on self-regulation (e.g., Edmunds et al., 2006; Vallerand et al., 1997). Thus, it appears that the combination of identified regulation and intrinsic motivation play an important mediating role in understanding the ways in which perceiving basic psychological needs to higher or lower levels of exercise behavior. SDT posits that high levels of perceived autonomy and relatedness should lead to greater autonomy and self-determined regulation (Ryan & Deci, 2000). According to Ryan and Deci, high perceived relatedness and autonomy, in turn, is more likely to encourage regular exercise because these actions are consistent with the person's values, goals, needs, fun and relationship. In other words, the person is more likely to perceive exercise as an end in itself (i.e., the pleasure derived from physical activity) rather than a means to an end (e.g., weight loss, improved appearance, more social interaction).

Regardless of the theoretical explanation, the direct relation between personality and basic psychological needs, exercise motivation, exercise behavior may have an important practical implication. Specifically, personality may need to be taken into

account when developing and administering exercise interventions rather than assuming that targeting social cognitions will necessarily subsume personality differences. For example, individuals in a cardiac rehabilitation program with at-risk personalities (i.e., low Extraversion and Conscientiousness and Emotional stability) could be screened at the beginning of the program and given additional attention, even if they possess a positive social-cognitive profile (e.g., positive attitude, high perceived control). Moreover, individuals might be matched to exercise programs that fit their personality (e.g., extraverts assigned to group classes), or interventions could be developed based on personality profiles that maximize exercise adherence (e.g., low Conscientiousness individuals might spend more time on goal setting).

The overall present findings have important implications for promoting exercise behavior among sport management students. For instance, personality influences exercise motivation and exercise behavior by increasing a person's feelings of relatedness and autonomy (Edmunds et al., 2007a; Frederick, 2002). Specifically, exercise motivation may be enhanced when exercise participants are provided with activity choices. Examples include selecting which exercise classes to attend, which types of exercise to practice, to determine whether the person wants to improve strength or cardiovascular fitness – or both (i.e., to work jointly with the fitness instructor to engage in exercises that are aligned with the exerciser's goals), to determine the most convenient times and locations to exercise, or obtaining the participant's feedback about their exercise experience. In the present study, this latter point was determined by the instructor's perceived interacting style. Thus, providing greater autonomy to exercise participants during instruction should increase feelings of competence and autonomy, thereby promoting self-determined exercise behavior. The importance of creating an environment that promotes and fosters a more self-determined type of regulation cannot be underestimated (Frederick, 2002).

Other implications from the present findings concern the importance of exercising for more self-determined reasons. As previously documented extensively, self-determined regulation leads to important positive behavioral and affective outcomes, which, in turn, promotes exercise participation (e.g., Vansteenkiste et al., 2008). Exercise participation and adherence; therefore, is enhanced if the person's primary motives to engage in exercise occurs in response to the enjoyment and pleasure received from physical activity. Thus, it might be pertinent to emphasize more self-determined than controlling reasons in attempting to convince individuals of the merits of leading a more physically active lifestyle. The plausibility of this hypothesis awaits further research.

## **5.2 Suggestions**

This study focused on examining the influences of personality, basic psychological needs on exercise motivation, which then impact on exercise behavior of sport management students of NUTPES (Taiwan), TDTU and HUS (Vietnam); then comparing the differences opinions among these schools. However, there was no comparison about the overall hypothesis model among them. In the next study, the comparison among the structure equation model should be tested to clarify how the culture and environment effect on the influences of personality, basic psychological needs, exercise motivation and exercise behavior.

We recognized the coefficient correlations and total variance explained were low for any hypothesis related to exercise motivation, because in this study the exercise motivation was used based on SDT (Deci & Ryan, 1985). According to SDT, there were five dimensions in exercise motivation construct, such as amotivation, external regulation, introjected regulation, identified regulation and intrinsic motivation. However, the results of this thesis found that both amotivation and external regulation had negative correlation with personality, basic psychological needs and exercise

motivation; in addition introjected regulation negatively correlated with personality and exercise behavior. So that means the exercise motivation construct was used in this study unstably. We suggest that in the future, there are two ways for solving this issue. Firstly, we can revise the answer of participants for these dimensions. Secondly, exercise motivation construct can be changed, according to Markland & Ingledew 's (1997), exercise motivation were distinguished into two major dimensions: physical health motivation and psychological health motivation, and the measurement items for it consist of 12 items.

Like many other psychological studies investigating exercise motivation (Bogg et al, 2008; Lochbaum et al. 2007), the sample was mostly made up of undergraduate students. In addition, participants were recruited at the University. These two factors may limit the extent to which the findings can be generalised to the general population and to different types of physical activity. Also, as noted by Huang et al. (2007) there is an exhaustive list concerning the reasons for participating in exercise and the current study may be criticised for not exploring more of these. Future research could therefore extend this work to a wider population using a more extensive list of exercise reasons.

Considering the effects of personality and behavioural regulation together has helped to define more clearly, what it is that makes people engage in more frequent exercise. These findings indicate that programs to increase peoples' activity levels would do well to focus on helping people to find activities that are intrinsically enjoyable to them, recognising that these are likely to differ among individuals. In addition, programs could emphasise the importance of "me-time" to improve participants' physical and psychological well-being.

### **5.3 Limitations**

There were several limitations to this study. First, this sample is representative of one southern university and might not be representative of other geographical regions. The sampling methodology was voluntary, self-select. A limitation to this type of methodology is that usually participants are persons with strong views on the subject under study or influenced by the incentive. All measurements relied on self-report, thus the extent to which participants were inclined to provide socially desirable responses is not fully known. Honest responses were an expectation of the study. The study was a cross-sectional design and provided only a snapshot of current status.

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## APPENDIXES

### Appendix A: Letter for Permission to Survey

Pham Thanh Anh Khoa

National Taiwan University of Physical Education and Sport

31 Dec 2013

Dear director of physical education office:

My name is Pham Thanh Anh Khoa, I am a graduated student of National Taiwan University of Physical Education and Sport. I am working on my thesis entitle “The influences of personality, basic psychological needs on motivation and exercise behavior among sport management student”. The attached pages are the questionnaire for the study. The conduct of this study will give director of physical education office an idea how sport management student’s personality and basic psychological needs will influence exercise motivation then impacts on exercise behavior. Therefore, the student’s participation will give this study a creditable academic value. Please mark on Yes or No blank to indicate your permission to let the student join in this study. Thank you for your consideration and assistance.

<input type="checkbox"/>	Yes, I will accept your requirement to let the student participate in this study
<input type="checkbox"/>	No, I will not accept your requirement.
Title of school:	
Department:	
Address:	
Telephone No:	
Fax No:	Email:

## **Appendix B: Cover Letter of Questionnaire**

Dear sport management student,

I am graduated student of the National Taiwan University of Physical Education and Sport. I am working on my thesis entitle “The influences of personality, basic psychological needs on motivation and exercise behavior among sport management student”. The purpose of this study was to identify the influences of personality and perceived basic psychological needs on individual exercise motivation which then influences exercise participation behavior among sport management students. Your response will facilitate researcher to construct a casual-liked model among school, physical education office and physical education teachers.

Your responses will be exclusively for data analysis and never release to public. Please answer the questions in accordance with your personal opinion. Thank you so much for your participation. This survey will take about 20 minutes. There are five sections with instruction in the questionnaire. Please read them before answer. Thanks you.

To thanks for your assistance, this study will provide lottery with the gifts worth NT\$ 200 to 20 respondents who return the questionnaire. If you hope to participate in this activity, please fill out the participation sheet on the end of this questionnaire with your name, address and telephone number. Once you are drawn, you will be contacted with this matter by researcher. Thank you so much for responding this questionnaire,

Sincerely,

Pham Thanh Anh Khoa.

NTUPES

[Oliver\\_love1412@yahoo.com](mailto:Oliver_love1412@yahoo.com)

**Appendix C: Translation of Measurement Instrument and Measurement  
Instrument for Second Revision**

## SECTION I: Personality traits/人格特質量表

**Direction:** Please focus your attention on your personality traits. Using the following scale to indicate the extent to which you agree or disagree with each statement.

In Chinese:

### Personality scale/人格特質量表

<b>Emotional stability</b> 情緒穩定型
1. I am easily bothered by things In Chinese: 我容易被瑣事打攪 Revision: 我是一個容易被瑣事所打攪的人
2. I am seldom feel blue In Chinese: 我很少感到悲傷 Revision: 我是一個不易感到悲傷的人
3. I feel comfortable with myself In Chinese: 我對自己感到滿意 Revision: 我是一個對自己感到自在的人
4. I rarely get irritated. In Chinese: 我很少生氣 Revision: 我是一個不易心急的人
5. I am very pleased with myself. In Chinese: 我對自己感到很愉悅 Revision:
<b>Extraversion</b> 外向型
1. I am the life of party. In Chinese: 在宴會中我非常活躍 Revision: 在宴會中，我能成為核心人物
2. I am skilled in handling social situation. In Chinese: 我非常能夠掌握社交上的一些情況 Revision: 我能夠掌握社交情況
3. I make friends easily. In Chinese: 我容易結交朋友 Revision: 我容易結交朋友
4. I know how to captivate people. In Chinese: 我懂怎樣去吸引別人注意 Revision: 我懂得如何去吸引別人的注意
5. I feel comfortable around people.

In Chinese: 在人群中我感到很舒適 Revision: 在人群中我感到很自在
<b>Openess</b> <b>開放型</b>
1. I tend to vote for conservative political candidates. In Chinese: 我傾向把票投給保守派的政治人物 Revision: 我傾向把票投給較保守的政治人物
2. I believe in the important of art. In Chinese: 我相信藝術的重要性 Revision: 我相信藝術的重要性
3. I have a vivid imagination. In Chinese: 我擁有生動想像力 Revision: 我能夠和高層進行溝通
4. I carry conversation to higher level. In Chinese: 我能和高層進行良好的溝通 Revision: 我喜歡聽到新的想法
5. I enjoy hearing new ideas. In Chinese: 我喜歡聽到新的想法 Revision: 我喜歡聽到新的想法
<b>Agreeableness</b> <b>親和型</b>
1. I respect others. In Chinese: 我會尊重別人 Revision: 我會尊重別人
2. I have a good word for everyone. In Chinese: 我喜歡對別人說好話 Revision: 我喜歡別人的好話
3. I believe that others In Chinese: 我很相信別人 Revision: 我容易相信別人
4. I accept people as they are. In Chinese: 我認同他人 Revision: 我能夠接受他人原來的樣子
5. I make people feel at ease. In Chinese: 我帶給旁人輕鬆的感覺 Revision: 我讓旁人感到輕鬆自在

<b>Conscientiousness</b> 謹慎型
<p>1. I am always prepared. In Chinese: 我隨時都是準備就緒的 Revision: 我隨時隨地都準備就緒</p>
<p>2. I make plans and stick to them. In Chinese: 我設定計劃並且緊盯著計劃 Revision: 我能夠設定並堅持計劃</p>
<p>3. I carry out my plans. In Chinese: 我實現自己的計劃 Revision: 我能夠確實執行計劃</p>
<p>4. I pay attention to details. In Chinese: 我注意到詳細 Revision: 我能注意到細節</p>
<p>5. I get chores done right away. In Chinese: 我會馬上做好繁瑣的事情 Revision: 繁瑣的事情我能馬上做好</p>

## SECTION II: EXERCISE MOTIVATION/運動動機量表

**Direction:** Please focus your attention on your exercise motivation. Using the following scale to indicate the extent to which you agree or disagree with each statement.

### EXERCISE MOTIVATION/運動動機量表

<b>Amotivation</b> <b>無機動型</b>
1. I don't see why I should have to exercise In Chinese: 我不懂為什麼要運動 Revision: 我不知道我為何要運動
2. I can't see why I should bother exercising In Chinese: 我不知為何要自己要擔心運動這件事 Revision: 不知道我為何要在乎運動這件事
3. I don't see the point in exercising In Chinese: 我見不到運動的重要性 Revision: 我不認為運動是重要的
4. I think exercising is a waste of time In Chinese: 我認為運動都是在浪費時間 Revision: 我認為運動是在浪費時間
<b>External regulation</b> <b>外在調節</b>
1. I exercise because other people say I should In Chinese: 我運動是因為別人說我應這樣做 Revision: 我運動是因為別人告訴我應該運動
2. I take part in exercise because my friends/family/partner say I should In Chinese: 我運動是因為我朋友/家人/夥伴要我這樣做 Revision: 我運動是因為我的朋友/家人/夥伴告訴我要運動
3. I exercise because others will not be pleased with me if I don't In Chinese: 我若不運動，我周遭的人將會不高興 Revision: 我從事運動，因為我若不運動我周遭的人會因此而不高興
4. I feel under pressure from my friends/family to exercise In Chinese: 我從朋友/家人身上感到必須運動的壓力 Revision: 我是在朋友/家人的壓力下才運動

<b>Introjected regulation</b> <b>內射調節</b>
<p>1. I feel guilty when I don't exercise In Chinese: 當我不運動時我會感到罪惡感 Revision: 當我沒有運動時，我會有罪惡感</p>
<p>2. I feel ashamed when I miss an exercise session In Chinese: 當我於錯過一次運動，我都會覺得羞愧 Revision: 當我於錯過我的運動計劃時，我會有羞愧感產生</p>
<p>3. I feel like a failure when I haven't exercised in a while In Chinese: 我若停止運動一段時間，我會有很失敗的感覺 Revision: 當我有一段時間沒有運動，我會有失敗/挫折的感覺</p>
<b>Identified regulation</b> <b>認同調節</b>
<p>1. I value the benefits of exercise In Chinese: 我重視運動的好處 Revision: 我相信運動所帶來的好處</p>
<p>2. It's important for me to exercise regularly In Chinese: 對我而言，規律運動是重要的 Revision: 對我而言，規律的運動是重要的</p>
<p>3. I think it's important to make the effort to exercise regularly In Chinese: 我認為致力於規律運動是很重要的 Revision: 我認為致力於規律運動是很重要的</p>
<b>Intrinsic motivation</b> <b>整合調節</b>
<p>1. I exercise because it's fun In Chinese: 我運動因為它是有趣的 Revision: 我運動因為運動是有趣的</p>
<p>2. I enjoy my exercise sessions In Chinese: 我喜歡我的運動課程 Revision: 我享受我運動的期間</p>
<p>3. I find exercise a pleasurable activity In Chinese: 我發現運動是一項很有趣的活動 Revision: 我認為運動是一項令人愉悅的活動</p>
<p>4. I get pleasure and satisfaction from participating in exercise. In Chinese: 我從運動中得到滿足和愉悅 Revision: 我從參與運動中得到滿足感和愉悅感</p>

### SECTION III: The Basic Psychological Needs in Exercise/基本心理需求量表

**Direction:** Please focus your attention on your basic psychological needs in exercise. Using the following scale to indicate the extent to which you agree or disagree with each statement.

**In Chinese:**

#### The Basic Psychological Needs in Exercise Scale (BPNES)

<b>Autonomy</b> 自主型
1. The way I exercise is in agreement with my choices and interests. In Chinese: 我運動的方式符合自己喜好與選擇 Revision: 我運動的方式符合自己選擇與喜好
2. I feel that the way I exercise is the way I want to. In Chinese: 我採用自己希望的運動方式來運動 Revision: 我採用自己希望的運動方式來運動
3. I feel that the way I exercise is a true expression of who I am In Chinese: 我運動的方式可以表達出真實的自我 Revision: 我運動的方式可以充分表達出真實的自我
4. I feel that I have the opportunity to make choices with regard to the way I exercise In Chinese: 我可以選擇自己所喜歡的運動方式 Revision: 我可以選擇自己所喜歡的運動方式
<b>Competence</b> 勝任感
1. I feel I have made a lot of progress in relation to the goal I want to achieve In Chinese: 我感到對於自己所想要達成的目標有很大的進展 Revision: 我對於我自己所想要達成目標有很大的進展
2. I feel I perform successfully the activities of my exercise program. In Chinese: 我感到成功地完成我運動課程中的活動 Revision: 我覺得我能成功地完成我運動計畫中的活動
3. I feel exercise is an activity which I do very well. In Chinese: 我感到運動是一個我做的很好的活動 Revision: 我覺得運動是我的強項之一
4. I am able to meet the requirements of my exercise program. In Chinese: 我能夠滿足自己運動課程的要求 Revision: 我有能力完成運動計畫的要求

<b>Relatedness</b> <b>關係感</b>
<p>1. My relationships with the people I exercise with are very friendly.            In Chinese: 我跟我一起運動的朋友有非常好的關係            Revision: 在運動的過程中，我和同伴的關係很友善</p>
<p>2. I feel I have excellent communication with the people I exercise with            In Chinese: 我和跟我一起運動的朋友溝通非常良好            Revision: 我認為我與一起運動的朋友有很好的溝通</p>
<p>3. My relationships with the people I exercise with are close            In Chinese: 我和跟我一起運動的朋友關係非常密切            Revision: 我和一起運動的朋友關係更為緊密</p>
<p>4. I feel comfortable with the people I exercise with            In Chinese: 我和跟我一起運動的朋友相處非常愉快            Revision: 我和一起運動的朋友相處非常愉快/自在</p>

**SECTION IV: Exercise Behavior**

**Direction:** Please focus your attention on your exercise behavior and answer the question below:

**Godin Leisure-Time Exercise Questionnaire**

1. During a typical **7-Day period** (a week), how many times on the average do you do the following kinds of exercise for **more than 15 minutes** during your free time (write on each line the appropriate number).

Times Per Week

a) **STRENUOUS EXERCISE(HEART BEATS RAPIDLY)**

\_\_\_\_\_

(e.g., running, jogging, hockey, football, soccer, squash, basketball, cross country skiing, judo, roller skating, vigorous swimming, vigorous long distance bicycling)

b) **MODERATE EXERCISE (NOT EXHAUSTING)**

\_\_\_\_\_

(e.g., fast walking, baseball, tennis, easy bicycling, volleyball, badminton, easy swimming, alpine skiing, popular and folk dancing)

c) **MILD EXERCISE (MINIMAL EFFORT)**

\_\_\_\_\_

(e.g., yoga, archery, fishing from river bank, bowling, horseshoes, golf, snow-mobiling, easy walking)

2. During a typical **7-Day period** (a week), in your leisure time, how often do you engage in any regular activity **long enough to work up a sweat** (heart beats rapidly)?

OFTEN

SOMETIMES

NEVER/RARELY

1.

2.

3.

**In Chinese :**

**Godin 閒暇運動問卷**

1. 一個禮拜七天之中，針對下列運動，您於閒暇時間平均運動超過 15 分鐘有幾次? 請於空格中填入項目代號。

每周運動

次數

**(1) 激烈運動** \_\_\_\_\_

跑步，慢跑，曲棍球，橄欖球，足球，壁球，籃球，越野滑雪，柔道，輪滑，游泳旺盛，蓬勃向上的長途騎自行車)

**(2) 中度運動** \_\_\_\_\_

快步走，棒球，網球，騎自行車方便，排球，羽毛球，游泳方便，高山滑雪，流行和民族舞蹈

**(3) 和緩運動** \_\_\_\_\_

瑜伽，射箭，從河岸釣魚，保齡球，馬掌，高爾夫，輕鬆步行

2. 一個禮拜七天之中，您於閒暇時間，平均從事幾次讓您感到會流汗的運動?  
(心跳加速的運動)

1.  經常

2.  有時候

3.  從不/稀少

## Revision

### 餘暇時間從事運動問卷

3. 過去的七天之中，您於閒暇時間運動超過 15 分鐘有幾次？請針對下列運動，於空格中填入項目代號。

每周運動

次數

**(1) 激烈運動** \_\_\_\_\_

跑步(快速)、慢跑(長距離)、曲棍球、橄欖球、足球、壁球、籃球、柔道、直排輪、游泳(競速)、長途騎自行車(多上坡路段)

**(2) 中強度運動** \_\_\_\_\_

快步走、棒球、網球、輕鬆騎自行車、排球、羽毛球、游泳、民族舞蹈

**(3) 和緩運動** \_\_\_\_\_

瑜伽、射箭、釣魚(堤岸上)、保齡球、高爾夫(坐車)、散步

4. 過去的七天之中，您於閒暇時間所從事的運動會讓您感到會流汗的機會？(心跳加速的運動)

1.  經常

2.  有時候

3.  從不/稀少

## **Appendix D: Formal Questionnaire of Study**

## **SECTION I: PERSONAL INFORMATION**

### **1. Sex**

1.  Male                      2.  Female

### **2 Year of age**

1.  19                      2.  20                      3.  21                      4.  More than 21

### **3. Grade**

1.  1<sup>st</sup> year                      2.  2<sup>nd</sup> year                      3.  3<sup>rd</sup> year                      4.  4<sup>th</sup> year

## SECTION II: Personality traits

**Direction:** Please focus your attention on your personality traits. Using the following scale to indicate the extent to which you agree or disagree with each statement.

Scale score as: 1. Strongly disagree; 2 Disagree; 3 Neutral; 4 Agree; 5 Strongly agree.

### Personality Inventory (NEO-PI-R)

#### Emotional stability

1. I am easily bothered by things	1	2	3	4	5
2. I am seldom feel blue	1	2	3	4	5
3. I feel comfortable with myself	1	2	3	4	5
4. I rarely get irritated.	1	2	3	4	5
5. I am very pleased with myself.	1	2	3	4	5

#### Extraversion

1. I am the life of party.	1	2	3	4	5
2. I am skilled in handling social situation.	1	2	3	4	5
3. I make friends easily.	1	2	3	4	5
4. I know how to captivate people.	1	2	3	4	5
5. I feel comfortable around people.	1	2	3	4	5

#### Openess

1. I tend to vote for conservative political candidates.	1	2	3	4	5
2. I believe in the important of art.	1	2	3	4	5
3. I have a vivid imagination.	1	2	3	4	5
4. I carry conversation to higher level.	1	2	3	4	5
5. I enjoy hearing new ideas.	1	2	3	4	5

#### Agreeableness

1. I respect others.	1	2	3	4	5
2. I have a good word for everyone.	1	2	3	4	5
3. I believe that others	1	2	3	4	5
4. I accept people as they are.	1	2	3	4	5
5. I make people feel at ease.	1	2	3	4	5

#### Conscientiousness

1. I am always prepared.	1	2	3	4	5
2. I make plans and stick to them.	1	2	3	4	5
3. I carry out my plans.	1	2	3	4	5
4. I pay attention to details.	1	2	3	4	5
5. I get chores done right away.	1	2	3	4	5

### SECTION III: EXERCISE MOTIVATION

**Direction:** Please focus your attention on your exercise motivation. Using the following scale to indicate the extent to which you agree or disagree with each statement.

Scale score as: 1. Strongly disagree; 2 Disagree; 3 Neutral; 4 Agree; 5 Strongly agree.

#### The Behavioural Regulation in Exercise Questionnaire-2 (BREQ-2)

	1	2	3	4	5
<b>Amotivation</b>					
1. I don't see why I should have to exercise	1	2	3	4	5
2. I can't see why I should bother exercising	1	2	3	4	5
3. I don't see the point in exercising	1	2	3	4	5
4. I think exercising is a waste of time					
<b>External regulation</b>					
1. I exercise because other people say I should	1	2	3	4	5
2. I take part in exercise because my friends/family/partner say I should	1	2	3	4	5
3. I exercise because others will not be pleased with me if I don't	1	2	3	4	5
4. I feel under pressure from my friends/family to exercise	1	2	3	4	5
<b>Introjected regulation</b>					
1. I feel guilty when I don't exercise	1	2	3	4	5
2. I feel ashamed when I miss an exercise session	1	2	3	4	5
3. I feel like a failure when I haven't exercised in a while					
<b>Identified regulation</b>					
1. I value the benefits of exercise	1	2	3	4	5
2. It's important for me to exercise regularly	1	2	3	4	5
3. I think it's important to make the effort to exercise regularly	1	2	3	4	5
<b>Intrinsic motivation</b>					
1. I exercise because it's fun.	1	2	3	4	5
2. I enjoy my exercise sessions	1	2	3	4	5
3. I find exercise a pleasurable activity	1	2	3	4	5
4. I get pleasure and satisfaction from participating in exercise.	1	2	3	4	5

## SECTION IV: The Basic Psychological Needs in Exercise

**Direction:** Please focus your attention on your basic psychological needs in exercise.

Using the following scale to indicate the extent to which you agree or disagree with each statement.

Scale score as: 1. Strongly disagree; 2 Disagree; 3 Neutral; 4 Agree; 5 Strongly agree.

### The Basic Psychological Needs in Exercise Scale (BPNES )

#### Autonomy

- |   |   |   |   |   |   |
|---|---|---|---|---|---|
| 1. The way I exercise is in agreement with my choices and interests.                    | 1 | 2 | 3 | 4 | 5 |
| 2. I feel that the way I exercise is the way I want to.                                 | 1 | 2 | 3 | 4 | 5 |
| 3. I feel that the way I exercise is a true expression of who I am                      | 1 | 2 | 3 | 4 | 5 |
| 4. I feel that I have the opportunity to make choices with regard to the way I exercise | 1 | 2 | 3 | 4 | 5 |

#### Competence

- |   |   |   |   |   |   |
|---|---|---|---|---|---|
| 1. I feel I have made a lot of progress in relation to the goal I want to achieve | 1 | 2 | 3 | 4 | 5 |
| 2. I feel I perform successfully the activities of my exercise program.           | 1 | 2 | 3 | 4 | 5 |
| 3. I feel exercise is an activity which I do very well.                           | 1 | 2 | 3 | 4 | 5 |
| 4. I am able to meet the requirements of my exercise program.                     | 1 | 2 | 3 | 4 | 5 |

#### Relatedness

- |  |   |   |   |   |   |
|--|---|---|---|---|---|
| 1. My relationships with the people I exercise with are very friendly.   | 1 | 2 | 3 | 4 | 5 |
| 2. I feel I have excellent communication with the people I exercise with | 1 | 2 | 3 | 4 | 5 |
| 3. My relationships with the people I exercise with are close            | 1 | 2 | 3 | 4 | 5 |
| 4. I feel comfortable with the people I exercise with                    | 1 | 2 | 3 | 4 | 5 |

**SECTION IV: Exercise Behavior**

**Direction:** Please focus your attention on your exercise behavior and answer the question below:

**Godin Leisure-Time Exercise Questionnaire**

1. During a typical **7-Day period** (a week), how many times on the average do you do the following kinds of exercise for **more than 15 minutes** during your free time (write on each line the appropriate number).

Times Per  
Week

**b) STRENUOUS EXERCISE(HEART BEATS RAPIDLY)**

\_\_\_\_\_

(e.g., running, jogging, hockey, football, soccer, squash, basketball, cross country skiing, judo, roller skating, vigorous swimming, vigorous long distance bicycling)

**b) MODERATE EXERCISE (NOT EXHAUSTING)**

\_\_\_\_\_

(e.g., fast walking, baseball, tennis, easy bicycling, volleyball, badminton, easy swimming, alpine skiing, popular and folk dancing)

**c) MILD EXERCISE (MINIMAL EFFORT)**

\_\_\_\_\_

(e.g., yoga, archery, fishing from river bank, bowling, horseshoes, golf, snow-mobiling, easy walking)

2. During a typical **7-Day period** (a week), in your leisure time, how often do you engage in any regular activity **long enough to work up a sweat** (heart beats rapidly)?

OFTEN	SOMETIMES	NEVER/RARELY
1. <input type="checkbox"/>	2. <input type="checkbox"/>	3. <input type="checkbox"/>

## **Appendix E: Formal Questionnaire of Study Chinese Version**

親愛的同學，您好：

首先感謝您撥冗填寫此份問卷。這是一份學術問卷，主要在於了解個人特質、運動動機與心理需求之間的關係，為使本研究順利進行，期盼能夠得到您的協助，您所填答的資料對本研究有莫大的幫助，其統計結果將作整體分析並不單獨對外進行發表，最後，再度感謝您對本研究的協助。敬祝

身體健康

課業順利

國立臺灣體育運動大學運動管理學系(所)

### 第一部分：個人資料

1. 請問您的性別是：男 女
2. 今年：\_\_\_\_\_歲
3. 目前就讀\_\_\_\_\_大學/學院；\_\_\_\_\_科系；\_\_\_\_\_年級
4. 父親的教育程度：1. 博士 2. 碩士 3. 學士/專士 4. 高中 5. 國中  
6. 小學(含以下)
5. 母親的教育程度：1. 博士 2. 碩士 3. 學士/專士 4. 高中 5. 國中  
6. 小學(含以下)
6. 父親的職業：1. 軍公教 2. 經商 3. 農漁牧 4. 勞工 5. 自由業  
6. 餐飲 7. 家管 8. 其他\_\_\_\_\_
7. 母親的職業：1. 軍公教 2. 經商 3. 農漁牧 4. 勞工 5. 自由業  
6. 餐飲 7. 家管 8. 其他\_\_\_\_\_

## 第二部分:人格特質

說明：本部份旨在了解您的個人特質，請詳讀下列題目並依題意在您認為最適合方格中打「✓」。

	非常同意	同意	沒意見	不同意	非常不同意
1. 我是一個容易被瑣事所打攪的人					
2. 我是一個不易感到悲傷的人					
3. 我是一個對自己感到自在的人					
4. 我是一個不易心急的人					
5. 我對自己感到很愉悅					
6. 在宴會中，我能成為核心人物					
7. 我能夠掌握社交情況					
8. 我容易結交朋友					
9. 我懂得如何去吸引別人的注意					
10. 在人群中我感到很自在					
11. 我傾向把票投給較保守的政治人物					
12. 我相信藝術的重要性					
13. 我有豐富的想像力					
14. 我能夠和高層進行溝通					
15. 我喜歡聽到新的想法					
16. 我會尊重別人					
17. 每個人都誇獎我					
18. 我容易相信別人					
19. 我能夠接受他人真實的面貌					
20. 我讓旁人感到輕鬆自在					
21. 我隨時隨地都準備就緒					
22. 我能夠設定並堅持計劃					
23. 我能夠確實執行計劃					
24. 我能注意到細節					
25. 我能馬上做好繁瑣的事情					

### 第三部分：運動動機

說明：本部份旨在了解您從事運動的動機，請詳讀下列題目並依題意在您認為最適合方格中打「✓」。

	非常同意	同意	沒意見	不同意	非常不同意
1. 我不知道我為何要運動					
2. 不知道我為何要在乎運動這件事					
3. 我不認為運動是重要的					
4. 我認為運動是在浪費時間					
5. 我運動是因為別人告訴我應該運動					
6. 我運動是因為我的朋友/家人/夥伴告訴我要運動					
7. 我從事運動，因為我若不運動我周遭的人會因此而不高興					
8. 我是在朋友/家人的壓力下才運動					
9. 當我沒有運動時，我會有罪惡感					
10. 當我於錯過我的運動計劃時，我會有羞愧感產生					
11. 當我有一段時間沒有運動，我會有失敗/挫折的感覺					
12. 我相信運動所帶來的好處					
13. 對我而言，規律的運動是重要的					
14. 我認為致力於規律運動是很重要的					
15. 我運動因為運動是有趣的					
16. 我享受我運動的期間					
17. 我認為運動是一項令人愉悅的活動					
18. 我從參與運動中得到滿足感和愉悅感					

#### 第四部分：基本心理需求

說明：本部份旨在了解您對運動的基本心理需求，請詳讀下列題目並依題意在您認為最適合方格中打「✓」。

	非常同意	同意	沒意見	不同意	非常不同意
1. 我運動的方式符合自己選擇與喜好					
2. 我採用自己希望的運動方式來運動					
3. 我運動的方式可以充分表達出真實的自我					
4. 我可以選擇自己所喜歡的運動方式					
5. 我對於我自己所想要達成目標有很大的進展					
6. 我覺得我能成功地完成我運動計畫中的活動					
7. 我覺得運動是我的強項之一					
8. 我有能力完成運動計畫的要求					
9. 在運動的過程中，我和同伴的關係很友善					
10. 我認為我與一起運動的朋友有很好的溝通					
11. 我和一起運動的朋友關係更為緊密					
12. 我和一起運動的朋友相處非常愉快/自在					

## 第五部分：運動行為

說明：本部份旨在了解您的運動行為，請詳讀下列題目並依題意回答問題。

過去的七天之中，您於閒暇時間運動超過 15 分鐘有幾次？請針對下列三個等級的運動，於右方空格中填入運動次數。

每周運動次數

### 激烈運動

\_\_\_\_\_

包括：跑步(快速)、慢跑(長距離)、曲棍球、橄欖球、足球、壁球、籃球、柔道、直排輪、游泳(競速)、長途騎自行車(多上坡路段)等..。

### 中強度運動

\_\_\_\_\_

包括：快步走、棒球、網球、輕鬆騎自行車、排球、羽毛球、游泳、民族舞蹈等和緩運動

\_\_\_\_\_

包括：瑜珈、射箭、釣魚(堤岸上)、保齡球、高爾夫(坐車)、散步等..

過去的七天之中，您於閒暇時間所從事的運動會讓您感到會流汗的機會？(心跳加速的運動)

1. 經常(4 次以上) 2. 有時候 (2-3 次) 3. 從不/稀少(1 或少於 1 次)

**Appendix F: Formal Questionnaire of Study Vietnamese Version**

Kính gửi các bạn sinh viên:

Cảm ơn bạn đã dành thời gian để điền vào bảng phỏng vấn này. Đây là một cuộc khảo sát học thuật, chủ yếu là để hiểu được mối quan hệ giữa các đặc điểm cá nhân, động cơ tập luyện và nhu cầu tâm lý. Để nghiên cứu được thực hiện suôn sẻ, mong có thể nhận được sự giúp đỡ của bạn, ý kiến của bạn trả lời trong nghiên cứu này là hữu ích, các kết quả phân tích thống kê sẽ được xuất bản nước ngoài. Và cuối cùng, một lần nữa cảm ơn bạn đã giúp đỡ của bạn trong nghiên cứu này. chân thành

Kính chúc sức khỏe

Khoa Quản lý trường Đại Học Thể Thao Quốc Gia Đài Loan

Người hướng dẫn : Tiến sĩ Doris Wang

Người thực hiện: Phạm Thanh Anh Khoa

### **Phần I: Thông tin cá nhân**

1. Giới tính của bạn là gì : Nam Nữ
2. Bạn bao nhiêu tuổi : \_\_\_\_\_ tuổi
3. Bạn đang theo học trường Đại Học:.....
4. Bạn đang theo học chuyên ngành:.....
5. Bạn đang học năm thứ:.....

## Phần II: Tính cách

Lưu ý: Phần này là để hiểu những tính cách cá nhân của bạn, xin vui lòng đọc kỹ và đánh dấu “V” vào mục miêu tả đúng nhất về bạn.

	Hoàn Toàn Đồng ý	Đồng ý	Trung Lập	Không Đồng Ý	Hoàn Toàn Không Đồng ý
1. Tôi dễ bị các thứ làm phiền					
2. Tôi ít khi cảm thấy chán nản					
3. Tôi cảm thấy thoải mái với bản thân					
4. Tôi hiếm khi bực mình					
5. Tôi rất ngại lòng với bản thân					
6. Tôi thích cuộc sống ngoài trời					
7. Tôi có kỹ năng xử lý các tình huống xã hội					
8. Tôi kết bạn dễ dàng					
9. Tôi biết cách thu hút người khác					
10. Tôi cảm thấy thoải mái quanh mọi người					
11. Tôi có xu hướng bầu những người chính trò bầu thủ					
12. Tôi tin vào tầm quan trọng của nghe hiểu					
13. Tôi có trí tưởng tượng sáng tạo					
14. Tôi mang cuộc trò chuyện lên mức nào cao hơn					
15. Tôi thích nghe ý tưởng mới					
16. Tôi toàn trọng người khác					
17. Tôi nói nhiều quá về mọi người					
18. Tôi tin vào người khác					
19. Tôi chấp nhận mọi người nhờ nhiều trợ giúp					
20. Tôi lo lắng cho mọi người cảm thấy dễ chịu					
21. Tôi luôn trong tư thế sẵn sàng cho mọi việc					
22. Tôi lập kế hoạch và bám sát nó					
23. Tôi thích hiện các kế hoạch của mình ra.					
24. Tôi chịu trách nhiệm những việc chi tiết					
25. Tôi lo lắng công việc vất vả ngay lập					

tòuc					
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### Phần III: Động cơ tập luyện thể thao

Mô tả: Phần này là để hiểu được động cơ mà bạn tham gia vào các môn thể thao, xin vui lòng đọc kỹ và đánh dấu “V” vào mục miêu tả đúng nhất về bạn.

	Hoàn Toàn Đồng ý	Đồng ý	Trung Lập	Không Đồng Ý	Hoàn Toàn Không Đồng ý
1. Tôi không biết tại sao tôi phải tập luyện					
2. Tôi không hiểu tại sao tôi phải e ngại việc tập luyện					
3. Tôi không thấy nổi trội gì trong việc tập luyện					
4. Tôi ghét việc tập luyện lãng phí thời gian					
5. Tôi tập luyện vì người khác nói là tôi nên làm					
6. Tôi tham gia vào việc tập luyện vì các bạn của tôi / gia đình / người yêu nói là nên làm					
7. Tôi tập luyện vì những người khác sẽ không vui lòng nếu tôi không làm vậy					
8. Tôi cảm thấy có áp lực từ bạn bè/ gia đình nên tập luyện					
9. Tôi cảm thấy có lỗi khi không tập luyện					
10. Tôi cảm thấy xấu hổ khi bỏ một buổi tập					
11. Tôi cảm thấy thất bại khi không tập luyện trong một khoảng thời gian					
12. Tôi coi trọng lợi ích của tập luyện					
13. Nhiều quan trọng với tôi là tập luyện thường xuyên					
14. Tôi ghét việc nói dối tập luyện thường xuyên là quan trọng					
15. Tôi tập luyện vì nó vui					
16. Tôi thích các buổi tập					
17. Tôi thấy tập luyện là một hoạt động vui thích					

18. Toái còu ñôôïc nieàm vui vaø söï haøi loøng khi tham gia taäp luyeän					
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#### Phần IV: Nhu cầu tâm lý cơ bản

Mô tả: Đây là một phần của cuộc phỏng vấn để hiểu nhu cầu tâm lý cơ bản của bạn, xin vui lòng đọc kỹ và đánh dấu “V” vào mục miêu tả đúng nhất về bạn.

	Hoàn Toàn Đồng ý	Đồng ý	Trung Lập	Không Đồng Ý	Hoàn Toàn Không Đồng ý
1. Cách thức mà tôi tập luyện phục hồi vùi lữa chọn và sở thích thu của tôi					
2. Cách tôi tập luyện lại cách mà tôi muốn					
3. Cách tôi tập luyện lại sở biểu hiện thật của bản thân					
4. Tôi có thể hồi lại lữa chọn về cách mà tôi tập luyện					
5. Tôi cảm thấy có nhiều tiến bộ khi thời gian mục tiêu mà tôi muốn đạt được					
6. Tôi làm việc tốt các bài tập của chương trình tập luyện					
7. Tôi cảm thấy việc tập luyện lại một hoạt động mà tôi làm rất tốt					
8. Tôi có thể giúp ông các yêu cầu về chương trình tập luyện của mình					
9. Các mối quan hệ với những người mà tôi tập cường lại rất thân thiện					
10. Tôi cảm thấy tôi có sự giao tiếp tuyệt vời với những người tập với tôi					
11. Các mối quan hệ với những người mà tôi tập cường lại rất gần gũi.					
12. Tôi cảm thấy thoải mái với những người mà tôi tập cường					

## **Phần V: Thói quen tập luyện**

Lưu ý: Phần này là để hiểu được thói quen của việc tập luyện, xin vui lòng đọc các chủ đề sau và trả lời câu hỏi theo ý nghĩa của vấn đề: °

5. Trong 7 ngày vừa qua, bạn có bao nhiêu lần tập luyện các môn thể thao dưới đây ( ít nhất 15 phút/ 1 lần) trong thời gian rảnh? °

Số lần/ 1

tuần

**(1) Các bài tập thể thao cường độ cao:**

\_\_\_\_\_

Ví dụ: chạy (nhanh), chạy bộ (đường dài), bóng đá, bóng rổ, judo, bơi lội ( huấn luyện đội tuyển) , đi xe đạp đường dài (vượt chướng ngại vật), vv.. °

**(2) Các bài tập thể thao cường độ trung bình:**

\_\_\_\_\_

Ví dụ: đi bộ nhanh, bóng chày, tennis, đi xe đạp nhẹ nhàng, bóng chuyền, cầu lông, dễ dàng bơi lội, trượt tuyết núi cao, khiêu vũ và nhảy,...

**(3) Các bài tập thể thao cường độ yếu:**

\_\_\_\_\_

ví dụ :yoga, bắn cung, câu cá, bowling, golf, đi bộ nhẹ nhàng,...

6. Trung bình 1 tuần, trong thời gian rảnh bạn có thường tham gia vào bất kỳ các hoạt động nào đủ lâu khiến cơ thể đổ mồ hôi không?

1.  Thường(4 hoặc nhiều hơn) 2.  Đôi khi (2-3 lần) 3.  Ít/ không(1 hoặc không)