MOTIVES FOR TAKING UP TAI CHI

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ABSTRACT

For many centuries one of China's major sports and exercise activities, Tai Chi has recently experienced a world-wide boom, its popularity rising rapidly in Australia. Khor (1990) estimates an increase from 2,000 Australian participants in 1980 to 100,000 in 1990 and proposes health promotion and therapeutic benefits as major reasons for the current interest. There is, however, no systematic research. This study examined motives for initial involvement in Tai Chi and how these motives varied with respect to demographic factors. Two hundred and twenty-three subjects (M=65, F=158), ranging in age from 12 to 82 years, were included in the study. They were all the beginners in Term 1, 1991, who had no previous Tai Chi experience at all. At the start of the first session, these subjects completed a 40 item modified version of the Gill et al. (1983) Participation Motivation Questionnaire (PMQ) which was preceded by five demographic and one Tai Chi background question items. The results revealed that there were over twice as many females as males initiating participation in Tai Chi; most Tai Chi participants were between the ages of 21 and 50, mainly 21 to 30; there were approximately equal numbers of married and single participants; many Tai Chi participants had achieved high levels of education; and people who participated in Tai Chi were mainly professionals, para-professionals, clerks and members of the non-occupational category, Others, such as housewives and retired people. Analysis of the ranking of mean importance ratings indicated that the most important reasons for taking up Tai Chi were those specific to the activity, including mental relaxation, to release tension, to exercise mind and body together, a peaceful atmosphere, a gentle way to exercise and to get more energy, along with general health reasons, such as to keep healthy, to improve flexibility and to become physically fit. There was little difference between the rank orders produced by males and females. Significant differences in the 40 items were found in each demographic grouping. For example, males considered martial-related motives to be more important than did females who ranked the gentle way to exercise and movements involved more highly than did males. Eleven factors

were derived from a factor analysis with oblique rotation. The items with high loadings on five factors and consequently the identity of these factors resembled those found in the previous PMQ research (e.g. Gill et al., 1983 and Gould et al., 1985), these factors being Challenge and Skill Development, Physical Health and Fitness, Social, Fun and Excitement, and Status. Six new factors were also derived, which appeared to be specific to this study with the exception of Miscellaneous. These were Philosophical, Mental Relaxation, Aesthetic Nature of Tai Chi, Medical and Non-competitive. The majority of the highest ranking items, that is the most important motives for initiation, were associated with these new factors. A second order factor analysis was completed because of some noteworthy correlations existing between first order factors. This produced four general underlying factors which were identified as General Characteristics of Sports and Exercise Activities, Specific Characteristics of Non-Competitive Exercise Activities, Physical and Spiritual Wellbeing and a Miscellaneous factor. This result supported the proposition that there were general themes underlying the factors determined by the first order factor analysis. One such theme appears to relate to the factors typically found in studies of competitive sports. At least one other theme seemed to be specific to Tai Chi, grouping several first order factors original to this study. The present research has produced new information in the area of participation motivation. It applies to initiation as opposed to current participation and to non-competitive exercise activities and martial arts as opposed to competitive sports. The results suggest that there are specific reasons for people starting to participate in a particular sport or exercise activity, like Tai Chi, as opposed to general reasons that seem to apply across all sports and exercise activities. Future research in a range of sports and exercise activities should employ the questionnaire which combines the original PMQ with the 17 items added to the present study to permit comparisons of competitive sport and exercise activities to be carried out more sensitively.

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CHAPTER ONE: INTRODUCTION

Tai Chi is a branch of Wushu (Chinese Martial Arts). Tai Chi has been known by different names, such as Taijiquan, Taiji, Taiji Boxing, or Shadow Boxing. Although Taijiquan is a more accurate translation from Chinese, Tai Chi is used in this study as it is the more commonly used term in Western Countries. Tai Chi, as a means of keeping fit and preventing and curing diseases, has been widely practised among the Chinese people since the 16th century (Qu Mianyu, 1980). In the middle part of the 20th century, Tai Chi has begun to be taught in Western countries, including Australia. It is perceived as an interesting form of exercise and relaxation by people of different ages and levels of fitness. Its growth in popularity has been particularly notable in the past ten years in Australia (personal communication from Gary Khor, the founder and President of the Australia Academy of Tai Chi, 1990). Khor stated that the number of people who have practised Tai Chi in Australia has increased dramatically from about 2,000 in 1980 to about 100,000 in 1990.

The reasons for the recent growth in the popularity of Tai Chi are currently unclear. It is possible that it is due to a greater concern with maintaining good health, or to advertising campaigns, or to a greater awareness of Asian exercise activities as more Asian people migrate to Australia. Other factors may also be involved. In order to understand the growth in popularity, it is necessary to investigate the motives of people for taking up Tai Chi.

As there has been no research of participation motivation conducted in Tai Chi, it is useful to evaluate studies of participation motivation in other sports and exercise activities for guidance. In Chapter Two, the participation motivation research with competitive sports, exercise activities and martial arts is reviewed. The relevance of this literature to participation motivation in Tai Chi is discussed. As much of the previous participation motivation research relates to competitive sports, it may have limited application to the non-competitive activity of Tai Chi. Therefore, a study was proposed to investigate those factors that are specific to the motives for taking up Tai Chi. It was anticipated that this study would provide important and

useful knowledge that could contribute to the effectiveness of methods of promotion and teaching of Tai Chi in Australia, and broaden the understanding of participation motivation in sport and exercise activity.

CHAPTER TWO: REVIEW OF LITERATURE

This chapter reviews the history of Tai Chi, its benefits, and its dissemination from China to other countries, including Australia. In an effort to understand the factors associated with participation in Tai Chi, participation factors in other sports, exercise activities and martial arts are reviewed. Finally the rationale for the current study is presented.

2.1 GENERAL INFORMATION ABOUT TAI CHI

The word Tai Chi means "Supreme Ultimate" in Chinese (Gu Liuxin, 1982). It first appeared in the Book of Changes compiled during the Zhou Dynasty (11th century, 256 B.C.), upon which Confucianism is based. At that time the word Tai Chi was used to denote "Universe" and was first used by Wang Zongyue, a Wushu master in Shanxi Province during the 18th century to explain the philosophical theories of the martial arts (Du Fengshan, 1990). On the basis of the Jingluo theory of traditional Chinese medicine (the English translation of Jingluo is meridian. Meridians are those channels through which vital energy circulates and along which the acupuncture points are distributed) and the classic Chinese philosophy of "YIN" and "YANG" ("YIN" and "YANG" means the two opposing principles in nature, the former feminine and negative, and the latter masculine and positive, such as night and day), the traditional Chinese marital arts were combined with the techniques of Daojin (the concentrated exertion of inner force) and Tuna (deep breathing exercises) to form a new traditional routine of health-promoting exercise and martial art (Gu Liuxin, 1984).

This new routine was named "Tai Chi" because most of its movements were circular and reminiscent of the symbol of the universe as conceived by the ancients - a circle intersected by a curved 'S' line, with one half black and the other half white, representing respectively YIN and YANG (Xi Yuntai, 1985).

A variety of tales have been told about its origin. One example is that some people

claim that it was created by Zhang Sanfeng, a Taoist in the Wudang Mountains in the 12th century. Others attribute it to Xu Xuanping or Li Daozi in the 18th century. However, it appears from available historical data that Tai Chi was first devised by Chen Wangting in Chenjiago in Henan Province, China, some 300 years ago in the late Ming and early Qing Dynasties. This style was named Chen style. In the process of its development, an additional four different styles have evolved: Yang style, Wu style, Woo style, and Sun style (Xi Yuntai, 1985).

Although each of the five different styles of Tai Chi has its own characteristic features, all have the following essentials in common:

- the posture is natural and relaxed;
- motion remains even and fluid, with the muscles neither stiff nor rigid;
- breathing should be deep and regular;
- the mind should be tranquil but alert with consciousness commanding the body in order to achieve stillness within movement - a unit of stillness and motion; and
- the body movements are well co-ordinated throughout the entire exercise period.

(China Sports and New World Press, 1984).

The movements of Tai Chi are usually done in a fixed sequence, slowly, smoothly, and continuously without apparent effort from the beginning to the end of a complete set. A complete set may take about 5 - 8 minutes for the shortest, condensed version, and 20 - 40 minutes for the longer versions (Wu Tunan, 1983).

Tai Chi is suitable for all people regardless of age, sex or level of fitness. It is also suitable for the promotion of health among the disabled. For instance, in Japan in 1987, eight physically disabled individuals led a group demonstration of Tai Chi at the All Japanese Tai Chi Competition. The Arthritis Foundation of Victoria has recommended Tai Chi as a form of

exercise for people with arthritis and back pain. (The Arthritis Foundation of Victoria, 1989).

Over 20 years experience of involvement in Wushu have suggested that the majority of Tai Chi practitioners participate in Tai Chi non-competitively for the intrinsic enjoyment of the activity and the refreshing feeling it produces. A small proportion of practitioners engage in Tai Chi competitively in order to develop their skills to a high standard, to demonstrate those skills in a competitive environment, to learn form others, and to promote mutual understanding and friendship among the competitors.

Forming an important part of the treatment often prescribed in medical centres in China, Tai Chi has proved its effectiveness in treating chronic diseases such as high blood pressure, neurasthenia and pulmonary tuberculosis (Qu Mianyu, 1980). In addition, the results of a study by Qu Mianyu (1980) involving Tai Chi practitioners aged 50 - 89 showed that Tai Chi training contributed to general improvements in cardiovascular and respiratory functioning as well as osseous and metabolic systems.

Other benefits of Tai Chi have been reported by Adler (1983), a clinical psychologist and Tai Chi teacher in the United States. She has noted that:

> with regular Tai Chi exercise one's health improves. Blood circulation is stimulated. Body weight becomes regulated, heavy persons lose weight whereas thin persons gain. Tai Chi's movements strengthen the legs for better balance, let the body become more flexible, and loosen the joints. Co-ordination and graceful motion are developed so that the youthfulness of a skilled Tai Chi player's movements belies his or her years. From a psychological point of view, Tai Chi facilitates the letting go of emotional tensions, increases concentration and awareness, and decreases stressful psychological and physiological reactions. One becomes more centred - more at peace within oneself and less subject to outside influences. At the same time, one becomes more open to new

options for living and experiences improvements in the quality of daily life as a whole. (P2).

Those benefits that she has particularly observed among aged people practising Tai Chi include: better sleeping; relief from pain; ability to walk further without getting out of breath; increased mental and physical relaxation; improved physical balance; better hearing; a stronger grasp with the hands; more energy; and less mental confusion.

Because of its health-promoting value Tai Chi has now become the most popular physical exercise in China. Tens of millions of people practice Tai Chi every day. For example, in Beijing there are about 220 class locations and more than 100,000 people participate because Tai Chi makes them feel refreshed and energised (Du Fengshan, 1990).

With the practice of exchanging international sports competitors increasing throughout the world, Tai Chi is becoming better known and appreciated by people outside of China. Over the past three centuries, the popularity of Tai Chi has increased and spread far beyond China's borders to Southeast Asia, Japan, Europe and America (Yang Zhenduo, 1988). In Japan, Tai Chi is a rapidly-growing popular activity. There are nearly one million people practising Tai Chi in Japan. Since 1985, three international Wushu invitationals and two Asian Wushu invitationals have been held in China, Hong Kong and Japan, featuring Tai Chi as a major event. For the first time Wushu was included as a competitive event in the official programme of the 11th Asian Games held in Beijing in September, 1990, with Tai Chi as one of the three Wushu events for both genders. In addition, fourteen hundred Tai Chi practitioners, half of whom were from Japan, led a mass demonstration of Tai Chi as a prelude to the opening ceremonies of the Games (Du Fengshan, 1990).

Tai Chi has also become popular in Australia. Thousands of Australian people have chosen Tai Chi and other Chinese health systems for a variety of reasons. These include health promotion, therapeutic benefits, and social reasons (Khor 1990). Khor also stated that the

number of people who have practiced Tai Chi in Australia has increased dramatically from about 2000 in 1980 to about 100,000 in 1990. The Australian Academy of Tai Chi has taught Tai Chi for about 11 years and is reputed to have had over 70,000 students pass through its classes. In 1982, the largest Tai Chi school in Melbourne, The Australian Academy of Tai Chi, conducted ten classes per week and about 300 people participated in those classes. By comparison, the current largest Tai Chi school in Melbourne, the Tai Chi and Chi Kung Academy, conducts 40 class per week and there are about 1,250 people in those classes (personal communication from Brad Thompson, the Director of the Tai Chi and Chi Kung Academy, 1990).

However, the full potential of Tai Chi has not been recognised outside China because of the significant social and cultural differences in life-style that exist between China and other countries. Tai Chi is China's cultural gift to the world, and the China Sports Council would like to see Tai Chi, with its health giving properties, spread and grow throughout the world.

Although China is the birthplace of Tai Chi, no research has been published about how Tai Chi has been effectively promoted in China. Similarly, a computer search (using Sports Discus) conducted in 1990 found no research internationally pertaining to the promotion and acceptance of, or motivation to, participate in Tai Chi.

A review of research into participation factors in other forms of sport and exercise may provide some ideas about the reasons why people may initiate participation in Tai Chi.

2.2 PARTICIPATION FACTORS IN SPORTS, EXERCISE, AND MARTIAL ARTS

There has been research into participation factors in relation to general sport and exercise - both competitive and recreational, as well as research into those participation factors that specifically relate to martial arts.

The principle interest of this study was to investigate the reasons for initiating participation in Tai Chi. Participation motivation is a general topic that addresses the factors that influence why people initiate, continue, and discontinue involvement in a physical activity. Research on participation motivation can therefore be divided into the three areas of initiation, current participation and drop-out.

The second area of participation motivation has been variously described in the previous research as continuance, participation or involvement. These three terms are used synonymously by the previous researchers. In order to clarify the confusion of different terms, a clear definition of the three areas of participation motivation is warranted. In this study, initiation will be used to refer to situations where people have just started an activity. Current participation will be used to refer to situations where people continue to be involved in the activity that they commenced some time ago. Drop-out will be used to refer to situations where people have stopped doing the activity in which they were previously involved.

Although initiation research has the highest relevance to the present study, a review of current participation and drop-out research may also provide some insight for initiation. For instance, from knowing that an individual continued participation in an activity in order to improve a medical condition, and then later dropped out because the person thought that his or her medical condition had improved, one might infer that the person initiated the activity in order to improve his or her medical condition.

The most common area of previous research has been related to current participation; that is research of those people who had been participating in the activity for some time at the time of the study. The subjects in these studies were asked why they participate or why they liked to participate in the activity. As will be seen in the review of these studies, this question has a degree of ambiguity, such that it has been unclear whether subjects' responses relate to initial or current motivation to participate in the activity or whether current motives can be

inferred to reflect reasons for initiation. These studies are grouped under the heading current participation in Section 2.2.1.

The research that has investigated why people initiated an activity is reviewed in Section 2.2.2: initiation. This area has been less widely researched than current participation. All of these studies were retrospective, that is, the researchers asked people who had been participating in the activity for a while, or who had already ceased participation why they initiated the activity. The methodological problems in these studies are that the intervening time and subjects' experience of the activity during that time may affect the accuracy of recall. Finally, Section 2.2.3 reviews research into why people ceased participation in an activity - drop-out. All of these studies were retrospective and had the same methodological problems as those in initiation.

A research method that has frequently been used in this area involves providing participants with a list of possible motives for engaging in an activity, and asking them to rate the degree of importance of each of these motives. A conference of key researchers in this area (Crandall, 1980) generated the list of motivational categories presented in Table 1.

This range of categories appears to be comprehensive in that it covers a wide variety of possible motives for participation. It seems that significant emphasis was placed on social factors in participation (five categories 6-9 and 12). The majority of these categories have been used in the construction of the questionnaires to assess participation motivation in sport, exercise, and martial arts reviewed in Sections 2.2.1, 2.2.2 and 2.2.3. As will be seen in this review, certain categories were omitted from these questionnaires when it was clear that they had no relevance to the activity studied.

Table 1: **ITEMS AND CATEGORIES OF POSSIBLE MOTIVES FOR ENGAGING IN AN ACTIVITY (AFTER CRANDALL 1980)**

1.	ENJOYING NATURE, ESCAPING CIVILISATION To get away from civilisation for awhile To be close to nature
2.	ESCAPE FROM ROUTINE AND RESPONSIBILITY Change from my daily routine To get away from the responsibilities of my daily life
3.	PHYSICAL EXERCISE For the exercise To help keep me in shape
4.	CREATIVITY To be creative
5.	RELAXATION To relax physically So my mind can slow down for a while
6.	SOCIAL CONTACT So I could do things with my companions To get away from other people
7.	MEETING NEW PEOPLE To talk to new and varied people To build friendships with new people
8.	HETEROSEXUAL CONTACT To be with people of the opposite sex To meet people of the opposite sex
9.	FAMILY CONTACT To be away from the family for a while To help bring the family together more
10.	RECOGNITION, STATUS To show others I could do it So others would think highly of me for doing it
11.	SOCIAL POWER To have control over others To be in position of authority
12.	ALTRUISM To help others
13.	STIMULUS SEEKING For the excitement Because of the risks involved
14.	SELF-ACTUALISATION (FEEDBACK, SELF-IMPROVEMENT, ABILITY UTILISATION) Seeing the results of your efforts Using a variety of skills, talents
15.	ACHIEVEMENT, COMPETITION To develop my skills and ability Because of the competition To learn what I am capable of
16.	KILLING TIME, AVOIDING BOREDOM To keep busy To avoid boredom
17.	INTELLECTUAL AESTHETICISM To use my mind To think about my personal values

(Crandall, 1980. p.49)

2.2.1 CURRENT PARTICIPATION

Over the last decade, there has been a proliferation of studies of factors associated with continued participation in competitive sports and recreational activities. These studies are reviewed as well as one study of martial arts.

Gill, Gross and Huddleston (1983) conducted an investigation of participation motivation of young athletes. Seven hundred and twenty boys and four hundred and eighteen girls (age 8-18) attending University of Iowa Summer Sport schools in a wide range of sports, including basketball, baseball, golf, gymnastics, football, wrestling, tennis, track, soccer, and cheerleading were administered questionnaires consisting of a list of 30 possible reasons for participating in sports. The subjects were asked to rate the importance of each reason for participating in their sport on a 3-point Likert scale. The 30 items were selected by reviewing existing youth sport literature and on the basis of two pilot projects. It was found that skill improvement, having fun, learning new skills, challenge and being physically fit were the most important reasons for participation. Factor analysis suggested achievement and status (19.4% of the variance), team atmosphere (16.4%), fitness (12.7%), energy release (11.7%), situational factors (10.3%), skill improvement (10.2%), friendship and affiliation (10%), and fun (9.2%) as dimensions of participation motivation.

Gould, Feltz and Weiss (1985) conducted an investigation of motives for participating in competitive youth swimming in the United States. Three hundred and sixty-five male and female swimmers (age 8-19) completed a modified form of the Gill et al. (1983) participation motivation questionnaire. This questionnaire assessed on a 3-point Likert scale, the importance of 30 motives that children may have for participating in sports. The results revealed similar findings to those reported by Gill and her colleagues (1983). Gould et al. (1985) found that fun, fitness, skill development, team atmosphere and excitement and challenge were rated as the most important motives. Factor analysis of these motives resulted in a seven-factor solution, the factors being labeled achievement and status (49% of the variance), team atmosphere (17.3%), excitement and challenge (11.7%), fitness (8.1%), energy release (5.1%), skill development (4.9%), and friendship (3.7%).

A similar set of factors was found by Klint and Weiss (1986) in their study of 106 American competitive, recreational and former competitive youth gymnasts (age 7 - 25).

The mean length of years of participation in competitive gymnastics was given for two of these three groups: competitive gymnasts (3.60 ± 1.7 years) and former competitive gymnasts (3.78 ± 1.89 years). No data was provided for the participation time of recreational gymnasts. A questionnaire was developed based on the instrument used by Gill et al. (1983) with ratings of importance made on a 5-point Likert scale. The results showed that the most important reasons were competence, fitness, and challenge for the competitive gymnasts; competence, fitness, fun and situational for the recreational gymnasts; and competence, action, challenge and fun for the former competitive gymnasts. A factor analysis was conducted and revealed seven categories of motivational factors similar to those found by Gill et al. (1983). They were competition (54.4% of the variance), action (11.8%), fitness (10.2%), team atmosphere (5.2%), situation (4.8%), social recognition (3.6%), and challenge (3.4%). These results should be reviewed with caution because of methodological problems inherent in this study. Subjects were asked to rate the degree of importance of question items for their participation. As they had been participating in gymnastics for some years, it could be assumed that their responses were indicative of current participation motivation. However, in discussion of the results, Klint and Weiss (1986) described subjects as being "motivated into" (P108, 112 & 113) the activity, thus implying that the subjects were asked about their motivation for initiation. The ambiguity of the question did allow the subjects to respond in terms of either initial or current motivation. This appears to constitute a significant flaw in their interpretation of the results. Thus, Weiss and Petlichkoff's (1989) assertion that "the Klint and Weiss (1986) investigation was one of the few studies to assess...motives for initial involvement of current and former gymnasts" (P200) seems unfounded. A second methodological problem is that Klint and Weiss (1986) asked the former competitive gymnasts about motives for participation after they dropped out. This retrospective study of memory of motives for participation may be inaccurate and may be coloured by reasons for dropping out.

Longhurst and Spink (1987) conducted a study examining the participation motives of 404 Australian youths (age 8 - 18) in five sports: athletics, swimming, netball, cricket, and football. Pilot testing of a 30-item participation motivation questionnaire developed by Gill et

al. (1983) revealed comprehensive difficulties with three of the items. Accordingly, these three items "I want to stay in shape", "I want to release tension" and "I want to gain status or recognition" were deleted. The item "I like the coach" was also deleted because the presence of the coach may have affected the response. Another item was added to the questionnaire ("I like to have a uniform and good equipment") on the advice of the coaches. These modifications resulted in a 27-item final questionnaire. The results revealed that skill improvement, fitness, competition, skill acquisition, and challenge were primary motives for participation. Factor analyses suggested team and achievement (58.9%), situational (17.4%), status (8.3%) and fitness (6.4%) as dimensions of participation motivation.

Brodkin and Weiss (1990) conducted an investigation of motives for participating in competitive swimming in different age groups. Sixty-two male and 38 female swimmers (age 6-74) from YMCAs in Oregon, U.S.A., completed the Participation Motivation Questionnaire (PMQ) modified for swimmers by Gould et al. (1985). Responses to each of the 35 items on the PMQ were given on a 5-point Likert scale of importance. A factor analysis identified seven motivational factors. They were labeled characteristics of competitive swimming (38.1%), health and fitness (12.5%), social status (5.9%), affiliation (4.2%), energy release (3.7%), significant others (3.4%), and fun (3.2%); which accounted for 71.0% of the total variance. When the sample was divided into six age groups, only three items, all concerned with health and fitness ("I want to improve my health", "I want to stay in shape", "I want to get in shape or get stronger"), were ranked among the ten most important motives for participation by all groups. This finding is important as it suggests that motives related to health and fitness appear to be very important for participation for all age groups.

Most of the PMQ studies did not examine participation motives in different age groups, as they mainly used adolescents and children as subjects. In Brodkin and Weiss' study (1990), subjects were divided into six age groups across the lifespan. It would be more appropriate to compare the results of the current study with the study by Brodkin and Weiss (1990), rather than with other PMQ studies because participation in Tai Chi covers a wide age range and a

version of the PMQ will be used in the current study. Therefore, similar findings of motives related to health and fitness being rated as most important for participation are also expected in the present study of Tai Chi. However, it is not known whether motives related to health and fitness will be rated highly for Tai Chi participation.

Apart from the PMQ developed by Gill et al. (1983), other measuring instruments or methods have also been used. Harris (1981) conducted a survey of 409 runners in the U.S.A. to assess their reasons for participation. Subjects answering the brief questionnaire ranged in age from 10 to 71 years and it was found that feeling better physically (92.5%), feeling better psychologically (87.3%), weight control (58.4%) and relaxation (55.5%) were the major reasons for their participation in running.

Strollenwerk (1983) conducted a study of reasons for participation in aerobics in West Germany. One hundred and twenty subjects (F=100, M=20) were asked to identify which point on a 5-point scale, ranging from "Strongly Agree" to "Strongly Disagree", represented their reactions to statements concerning possible motives. These 19 statements were created by workers at the sport institute, Deutsche Sporthochschule in Cologne. The results revealed that fun, health, stamina, and relaxation were the major reasons, and that fashion (such as associated clothing and music) and curiosity were minor reasons.

Ewert (1985) conducted an investigation of motives for participation in mountain climbing in the U.S.A.. Four hundred and sixty climbers (age 14 - 65) were asked to complete a 40-item questionnaire measuring motivations for climbing mountains. The items were derived from previous participant motivation research by Crandall (1980), and each was rated on a 5-point Likert scale. Factor analysis revealed six categories of motivation: challenge and risk (40% of the variance); catharsis (16%); recognition (10%); creativity (7%); locus of control (7%); and physical setting (5%).

Heitmann (1986) conducted a study of reasons given by 50 older adults (age 50 - 82) for participating in physical activity programs in the U.S.A.. The results were classified into six categories by order of importance according to the respondents: health, social relations, autonomy, appearance, accomplishment, and aesthetics.

Clough, Shepherd and Maughan (1989) investigated the motives for taking part in recreational running in Scotland. A questionnaire was developed in which 357 subjects were asked to rate the degree of influence (on a 5-point scale) of 70 possible reasons for participation. Factor analytic techniques showed that there were six motivational categories underlying their participation: well being, social, challenge, status, fitness and health, and addiction. These 6 categories accounted for 51% of the variance in responses.

Tai Chi is a branch of Chinese martial arts. The participation factors that relate to martial arts may have a higher degree of relevance to the understanding of Tai Chi because of their greater similarity to Tai Chi. Tai Chi is similar to other martial arts in a number of ways:

- it originated in an Eastern culture and as such is regarded as innovative in Western culture;
- it may be practised for the self-defence and self-discipline purposes;
- it is considered an exciting and demanding form of exercise;
- the physical movements and mental concentration allows relief from tension and stress; and
- it benefits people internally when they achieve a high standard (i.e. energy flow and purity of mind).

Karate, Kung-Fu, Aiki-do, Tae Kwon-do and other martial arts have become firmly established in countries outside China, Japan, and other oriental countries over the last 30 years. These arts have become a popular form of exercise and relaxation. One example is in

the U.K., where the number of karate participants increased to around 50,000 in 1980 from a few participants in the late 1950s (James and Jones, 1982). The increased popularity of martial arts seems to be general across the population and not restricted to particular occupational groups. For instance, Kroll (1977) found that martial arts appealed to a broad range of people, such as psychologists, dentists, auto mechanics, and waiters.

Melton (1987) summarised from his teaching experience some of the more common reasons for people participating in Karate classes in the United States. These included; self-discipline, the experience of pleasure that followed rigourous training, catharsis, the aesthetic experience, health and fitness, self-defence, socialising and competing with other students. The majority of these reasons, with the exceptions of self-discipline, self-defence and the competitive aspect, are similar to those mentioned by Adler (1983) and Khor (1990), in section 2-1, in their descriptions of Tai Chi. Unfortunately, as there is only one study of continuance factors in martial arts, it is difficult to draw any more general conclusions.

Of the 11 current participation studies, approximately equal numbers investigated recreational activities and competitive sports, with only one relating to martial arts. All of them were conducted in Western countries. The majority used both adults and youth as subjects, but studies of competitive sports mainly used children as subjects. All of them, with the exception of the martial arts study, chose to use the questionnaire approach to collect data, with modifications of the Gill et al. (1983) questionnaire being the most commonly used. A summary of the motivational factors identified in the current participation research is presented in Section 2.2.4.

2.2.2 INITIATION

In contrast to research that investigates reasons for continuing to participate in an activity, other studies have specifically investigated reasons for commencing as opposed to

continuing an activity. Wankel (1979) stated that reasons for initial involvement in an activity are often quite different from reasons for continuing, or not continuing in the activity.

Stiles (1967) interviewed adult skiers in the U.S.A. to find out why they skied. Subjects had been involved in skiing for a period of time (no specific indication of length of time). They were asked to recall the initial motives for participation in skiing. It was found that the initial motivating factors were: desire for good health, fear of incapacitation by disease, and competitive drive. According to the participants, the important factors in continuing sports participation were: a feeling of well-being during and after participation, the challenge of mastering difficult techniques, maintaining health and youthful vigour, escaping from crowds and problems, companionship, and the enjoyment of nature.

Carmack and Martens (1979) studied reasons for running in a group of 315 adult runners (250 males and 65 females) in the U.S.A.. Male subjects' average length of running experience was 6.3 years; female subjects was 1.8 years. Subjects were asked to give three responses to each of two open-ended questions: why they began running; and why they presently run. The five most frequent reasons given for beginning running were: to get in shape (14%); enjoyment (8%); to lose weight (8%); to maintain fitness (6%); and "was good at it" (5%). The five most frequent reasons for presently running were: to maintain fitness (19%); enjoyment (12%); competition (6%); weight control (5%); and to feel better (5%). Thus, although there were similar reasons for beginning and continuing, these reasons assumed different importance for the runners over time. Maintenance of fitness, for instance, was three times more frequently noted as a reason for continuing, in contrast to beginning running.

A similar study was conducted by Johnsgard (1985). He assessed the motivations to begin and to continue endurance training of 180 runners (149 males and 31 females) over the age of 50 years in the U.S.A.. The average length of running experience was ten years for males and six years for females. Subjects nominated which of the ten possible motives were

most relevant to these two decisions. The 5 motives identified as most important for beginning and continuing were: Fitness (the cardiovascular and general physical fitness which follow regular endurance training); challenge (to challenge or improve myself through participation or to gradually perform better than I did in the past); Slim (to control appetite and weight through regular endurance training); Feeling good (the various rewarding physical experiences while training. The training itself feels good to me); and Afterglow (the elevated mood and reduced tension which follow endurance training. It makes me feel good). There was a mean rank-order correlation of 0.55 between the initial and current motives. It was noted, however, that fitness and weight control became slightly less important motives over time, while psychological factors such as "afterglow" and "identity" became more important.

A survey was conducted by Dean (1987) of 500 American men in aerobics and dance-exercise programs. The subjects had been attending aerobic classes for different lengths of time, ranging from less than one year to more than three years. All subjects were asked to rate their motivations for joining and continuing aerobics on a scale ranging from one (not important) to four (very important). The results revealed that the very important reasons for joining aerobics classes were: improvement to cardiovascular strength (72%), flexibility improvement (50%), change or variety of exercises (30%), weight loss (29%), improvement in co-ordination (29%), and fun and excitement (19%). The very important reasons for continuing with aerobics were ranked in the following order; strengthening the cardiovascular system (70%), improving endurance (59%), improvement of flexibility (48%), increased energy during the day (40%), weight loss (35%), improvement in participation in other sport (31%), improvement in co-ordination (29%), fun and excitement in class (23%), and meeting women (5%). Although there were similar reasons for beginning and continuing, improving endurance, increased energy during the day, and improvement in participation in other sports became more important for continuing with aerobics.

Fritschner (1978) studied adults and children who took classes in karate in the United States. Most of the data in her study was collected by "ethnographic" procedures. She found

that the adults, most of whom were men from working class backgrounds, with little education and employment in semi-skilled or unskilled jobs, tended to participate in order to achieve dignity and power, and for social reasons. The adult women mostly enrolled in order to learn self-defence. It appeared that it was the parents' motivation, rather than the child's, that determined children's attendance at karate classes. Some parents cited development of self-defence strategies as the reason for enrolling their children in classes.

Deaton and Furney (1985) studied over 300 members of martial arts training programs in the United States. Subjects' average length of training was 2.5 years. They were asked to indicate which of the six possible reasons were influential in their decision to initially start martial arts training. The results revealed that the initial motives for joining were the benefits of exercise (88.3%), self-defence (83.3%), discipline (70.6%), tension release (53.9%), sport (48.8%), and spiritual development (47.6%). It was found that most people began training for exercise benefits, and continued training because they were seeing the positive effects of exercise in their lives. Of the over 300 subjects, 210 responded to this question describing briefly the changes in their lives resulting from training. The most common response involved: improved health and fitness (42.3%), modified or better diet (14.2%), and less tension or stress (5%).

From the previous research, it appears that there are reasons for people participating in martial arts which are different from the reasons which were indicated by the competitive sports studies. The main reasons for participating in martial arts appeared to be self-defence, self-discipline and spiritual development. This is an important issue for the current study to consider. Are the reasons for taking up Tai Chi different from those for initial involvement in competitive sports because Tai Chi is a non-competitive exercise activity in Australia, or are they similar to those for initial involvement in martial arts because Tai Chi is a branch of Chinese martial arts?

Approximately half of these initial motives, such as the benefits of exercise and tension release, are similar to those mentioned by Adler (1983) and Khor (1990) in their descriptions of Tai Chi in Section 2.1. Again, there are only two studies of initial motives for participation in martial arts, so it is hard to draw any more general conclusions between the two studies. However, there is a common reason "Self-defence" in the comparison of these two studies. This suggests that the essential nature of martial arts may also be an important motive for Tai Chi participation as Tai Chi is a branch of Chinese martial arts.

Over the six initiation studies, the majority investigated recreational activities. All of them were conducted in the U.S.A., and used both adults and youth as subjects. Most of these studies employed a questionnaire approach for data collection. A summary of the motivational factors identified in the initiation research is presented in Section 2.2.4.

In all of the above-mentioned studies of motivation for initiation (Stiles, 1967; Carmack and Martens, 1979; Johnsgard, 1985; Dean, 1987; Fritschner, 1978; and Deaton and Furney, 1985), the methodology may be seriously questioned. Subjects were asked to recall their motives for starting the activity, at some time after taking up the activity. For instance, subjects in Johnsgard's study were asked to recall reasons for initiation after an average of ten years' experience of that activity for males and six years' experience for females. This method assumed that neither the intervening time nor subjects' experience of the activity during that time affected the accuracy of recall. Past research has shown that initial motives for participation may change in importance as an individual develops greater skills and experience in an activity, acquires more knowledge about the activity and as other life circumstances change (Bryan, 1979 cited in Ewert, 1985; Crandall, 1980; Ewert, 1985; and Johnsgard, 1985). Thus it appears that both of the assumptions underlying the methodology used in these studies may be invalid. If the methodology is invalid, then the interpretation of results is also invalid. In order to avoid this methodological problem, future research should assess initiation motivation at the time of initiation of the activity.

In addition to self-report studies into initiation factors, other theorists have written about more general societal factors that may influence the decision to initiate participation in sport and recreational activities. As these societal factors may affect participation in Tai Chi, they are also reviewed.

It could be speculated that people have chosen to increase their participation in different sports because of social changes in work practices and leisure time. These changes include the general decreases in working hours, increased mechanisation of the workplace, and the concomitant decrease in physical labour required in many jobs, as well as high levels of unemployment (Owen and Lee, 1984). People's lifestyles have become more sedentary (Wankel, 1979); the automobile is the most common means of transportation (Roth, 1974); and the pressure and tempo of everyday life are growing (Khoud Adov, 1982). Smith (1982) described how there is now more time available for leisure because of the move from three to four weeks' annual leave, long-service leave, the availability of early retirement , and the introduction of flexible working hours. She estimated that between 1947 and 1981 there was a 26 percent increase in available leisure time in Australia. Along with decreased physical activity associated with work and increased available leisure time, there has been an increased recognition of the positive health benefits of exercise in Australia (Owen and Lee, 1984).

2.2.3 DROP-OUT

In contrast to research that has identified reasons for people initiating and continuing participation in a sport or an exercise, other research has investigated drop-out factors, that is, those factors that are associated with people dropping out of a sport or an exercise program.

Orlick (1974) conducted one of the early investigations to examine why young athletes dropped out of competitive youth sports. In interviews with 60 cross-country skiing, ice hockey, soccer, baseball and swimming dropouts (age 7 - 19) in Canada, he found that 67% of the respondents dropped out for reasons related to the competitive emphasis of the program.

Specifically, 50% of the subjects indicated that they discontinued participation because of an over-emphasis on winning (i.e. the seriousness of the program, lack of enjoyment, emphasis on being best), while the remaining 17% mentioned the coach as the primary reason for leaving (i.e. left people out of games, criticised players too often, pushed too hard). It was also found that 21% of the subjects indicated that they dropped out of sport because it conflicted with other non-sport interests, 10% because of interests in other sports, and 2% because of injury.

From a review of sports related literature, Hyland and Orlick (1975) reported that the main reasons for attrition of young children in Canada were lack of exposure (playing time), lack of enjoyment, and lack of success.

A survey undertaken by Robertson (1982) to assess reasons for discontinuing sport participation in 405 male and 353 female year seven former athletes in South Australia found that 51% of the boys and 39% of the girls dropped out because of the program emphasis (i.e. too rough, boring); 14% of the boys and 17% of the girls rated general life conflicts (i.e. no free time, social life); and 12% of the boys and 1% of the girls related other sport conflicts as major motives for withdrawal.

While the above studies were designed to examine reasons for dropping out in athletes across a variety of sports, four studies were conducted to assess reasons for dropping out of particular sports - swimming (McPherson et al., 1980; Gould, Feltz, Horn and Weiss, 1982), wrestling (Burton and Martens, 1986), and gymnastics (Klint and Weiss, 1986).

McPherson, Marteniuk, Tihanyi, and Clark (1980) conducted an investigation of motives for attrition in competitive youth swimming in Canada. One thousand eight hundred and eighty (1,880) subjects completed the questionnaire developed by the researchers based on the review of literature . The results revealed that exercise pressure, lack of progress, lack of fun, losing, too time consuming, and conflict with the coach were the primary attributions for attrition.

Gould, Feltz, Horn, and Weiss (1982) conducted an investigation of motives for attrition in competitive swimming in the United States. Fifty subjects (age 10 - 18) were asked to rate 32 reasons for discontinuing swimming on a 3-point Likert scale in a questionnaire which was a modification of an instrument used by Gill et al. (1981) to assess participation motives in young athletes. The results revealed that their most important reasons for attrition were: had other things to do (42%); not enough fun (28%); wanted to play another sport (28%); not as good as I wanted to be (24%); did not like the pressure (16%); and it was boring (16%).

Burton and Martens (1986) conducted an investigation of motives for attrition in wrestling among children in the U.S.A.. Subjects were divided into five groups: Participants (N=83); Drop-outs (N=26); Participants Parents' (N=83); Drop-outs' Parents (N=26); and Coaches (N=69). These 287 subjects were asked to rate the importance of each of the 23 items in assessing why children dropped out of wrestling. All ratings were on 3-point Likert scales, with 1 indicating a Very Important, and 3 a Not Important reason. The results revealed that the consensus among all five groups was that conflict of interest (e.g. finding other things to do) was the number one reason children dropped out of wrestling. Three other reasons reflecting general motivational deficiencies also were rated highly by all groups. These items were not caring any more, stopping being fun, and not motivated any more. Unfortunately, finding other things to do gives no information about the actual reason for dropping out. Similarly the other two cited items (not caring any more and not motivated any more) are not informative. There is no clear explanation about which aspects of wrestling became negative or non-sustaining for these children, or alternatively why they discovered other activities to be more positively motivating than wrestling.

Attrition in youth gymnastics in the United States was found by Klint and Weiss (1986) to be due to having other things to do, injuries, not liking the pressure, not having enough fun, and the activity being too time consuming. When asked to indicate the single most important reason for discontinuing involvement in gymnastics, 19% of the former gymnasts cited injury,

14% not enough fun, 11% disliked the pressure, and 11% found it too time consuming. It was also found that there was not any direct relationship of reasons for entry and reasons for dropping out, but reasons for entry were examined retrospectively as previously noted.

Although presenting a different perspective on the dropout problem, Guppy (1974) found a high attrition rate from youth sport programs in Canada. Based upon the finding that over 50% of the dropouts studied continued to participate at the intramural level, Guppy concluded that many dropouts continue their sport involvement at a different level of intensity. He suggested that the high attrition rate may be a reflection of shifting involvement from one level of organised sport to another.

Gould et al. (1982) supported Guppy's conclusion in their study of 50 dropouts from competitive youth swimming programs in the United States. While 80% of the entire sample stated that they were planning to re-enter swimming in the upcoming year, they found that 68% of the swimming dropouts had continued sport involvement with other programs. Klint and Weiss (1986) also found that after initially dropping out, of the 37 former gymnasts studied, only two individuals discontinued sport participation completely, while the remaining 35 either returned to gymnastics at a lower level of intensity or became involved in other sports.

The majority of the eight drop-out studies investigated competitive sports. All of them were conducted in Western countries, and used youth as subjects. The questionnaire approach was chosen for data collection in half of these studies, whereas the rest of the studies employed other approaches to collect data, such as interview. A summary of the motivational factors identified in the drop-out research is presented in Section 2.2.4.

2.2.4 CONCLUSIONS

Table 2 summarises the factors that are significant in the decision to initiate, continue, and cease participation in a variety of competitive sports, recreational sports and exercise

Table 2: **MOTIVATIONAL FACTORS ASSOCIATED WITH INITIATION OF, CURRENT PARTICIPATION IN AND DROP-OUT FROM COMPETITIVE SPORTS, EXERCISE ACTIVITIES AND MARTIAL ARTS: SUMMARY OF RESEARCH**

Stages / Activities	INITIATION		CURRENT PARTICIPATION		DROPOUT	
	General	Specific	General	Specific	General	Specific
Martial Arts Fitschner (1978) (Karate)	Social reasons	Achieve dignity and power Self-defence				
Deaton & Furney (1985) (Martial Arts)	Benefits of exercise Tension release Sport	Self-defence Discipline Spiritual development	Improved health and fitness Modified or better diet Less tension or stress			
Melton (1987) (Karate)			Health/Fitness Socialising Competing with other students	Self-discipline The experience of pleasure that follows vigorous training Catharsis Self-defence Aesthetic		

Table 2: **MOTIVATIONAL FACTORS ASSOCIATED WITH INITIATION OF, CURRENT PARTICIPATION IN AND DROP-OUT FROM COMPETITIVE SPORTS, EXERCISE ACTIVITIES AND MARTIAL ARTS: SUMMARY OF RESEARCH**

Stages / Activities	INITIATION		CURRENT PARTICIPATION		DROPOUT	
	General	Specific	General	Specific	General	Specific
Strollenwerk (1983) (Aerobics)			Fun Health Stamina Relaxation			
Johnsgard (1985) (Running)	Challenge Fitness Feeling good	Slim Afterglow	Fitness Challenge Feeling good	Afterglow Slim		
Ewert (1985) (Mountain Climbing)			Recognition Locus of control	Challenge/Risk Catharsis Creativity Physical setting		
Heitmann (1986) (Exercises)			Health Social relations Accomplishment	Autonomy Appearance Aesthetics		
Dean (1987) (Aerobics)	Improvement in cardio-vascular strength Change or variety of exercises Fun/Excitement	Flexibility improvement Weight loss Improvement in coordination	Strengthening the cardio-vascular system Improving endurance Improvement in participation in other sports Fun/Excitement	Weight loss Improvement of flexibility Increased energy during the day Improvement in coordination Meeting women		
Clough et al. (1989) (Running)			Well-being Social reasons Challenge Status Fitness/Health	Addiction		

Table 2: **MOTIVATIONAL FACTORS ASSOCIATED WITH INITIATION OF, CURRENT PARTICIPATION IN AND DROP-OUT FROM COMPETITIVE SPORTS, EXERCISE ACTIVITIES AND MARTIAL ARTS: SUMMARY OF RESEARCH**

Stages / Activities	INITIATION		CURRENT PARTICIPATION		DROPOUT	
	General	Specific	General	Specific	General	Specific
Guppy (1974) Gould et al. (1982) Klint & Weiss (1986)					Shifting involvement from one level of organised sport to another	
Exercise Activities Stiles (1967) (Skiing)	A desire for good health Fear of incapacitation by disease Competitive drive		A feeling of well-being during and after participation The challenge of mastering difficult techniques Companionship	Enjoyment of nature		
Carmack & Martens (1979) (Running)	Getting in shape Enjoyment Maintaining fitness "Was good at it"	Losing weight	Maintaining fitness Enjoyment Competition Feeling better	Weight control		
Harris (1981) (Running)			Feeling better physically Feeling better psychologically Well-being Social reasons Challenge Status Fitness/Health Relaxation	Weight control Addiction		

Table 2: **MOTIVATIONAL FACTORS ASSOCIATED WITH INITIATION OF, CURRENT PARTICIPATION IN AND DROP-OUT FROM COMPETITIVE SPORTS, EXERCISE ACTIVITIES AND MARTIAL ARTS: SUMMARY OF RESEARCH**

Stages / Activities	INITIATION		CURRENT PARTICIPATION		DROPOUT	
	General	Specific	General	Specific	General	Specific
Competitive Sports General Sport Orlick (1974) (5 general sports)					Over-emphasis on winning (lack of enjoyment) Dislike of the coach (criticised players too often) Conflicted with other non-sport interests Interests in other sports Injury	
Hyland & Orlich (1975) (General sport)					Lack of exposure (playing time) Lack of enjoyment Lack of success	
Robertson (1981) (General sport)					Program emphasis (too rough, boring) General life conflict Other sport conflict	
Gill et al. (1983) (10 general sports)			Skill improvement Fun Learning new skills Challenge Being physically fit			

Table 2: **MOTIVATIONAL FACTORS ASSOCIATED WITH INITIATION OF, CURRENT PARTICIPATION IN AND DROP-OUT FROM COMPETITIVE SPORTS, EXERCISE ACTIVITIES AND MARTIAL ARTS: SUMMARY OF RESEARCH**

Stages / Activities	INITIATION		CURRENT PARTICIPATION		DROPOUT	
	General	Specific	General	Specific	General	Specific
General Sport Longhurst & Spink (1987) (5 general sports)			Skill improvement Fitness Competition Skill acquisition Challenge			
Specific Sports: McPherson et al. (1980) (Swimming)			Skill improvement Having fun Learning discipline Learning to cope with stress		Exercise pressure Lack of progress Lack of fun Losing Too time consuming Conflict with coach	
Gould et al. (1982 & 1985) (Swimming)			Fun Fitness Skill development Team atmosphere Excitement/Challenge		Have other things to do Not having enough fun Interest in other sports Not as good enough Disliking the pressure Boring	
Burton & Martens (1986) (Wrestling)					Conflict of interest Doesn't care anymore Stopped being fun No longer motivated	
Klint & Weiss (1986) (Gymnastics)			Competence Fitness Challenge Fun Situational Action		Has other things to do Injuries Disliking the pressure Not having enough fun Too time consuming	
Brodkin & Weiss (1990) Swimming			Health/Fitness Competition Energy Release Significant Others Affiliation Fun Social status			

activities, as well as martial arts. The table has been structured into three categories: initiation, current participation and drop-out corresponding to the three areas of participation motivation that have been studied. In addition, the distinction was made between general and specific factors because it seems to be suggested in the literature that some of the factors were constantly appearing in many of these studies, while others were rather specific to the activity such as Risk in Mountain Climbing and Self-defence in Martial Arts. From this table several general conclusions can be drawn. These conclusions are presented below.

Initiation

In a comparison of the research into motives for initiating an activity there seems little similarity between those motives relevant to recreational sports and exercise activities and those relevant to martial arts. The most important motives for the former seem to be fitness improvement, well-being and weight control; while for the latter, achieving dignity and power, the development of self-defence strategies, discipline and spiritual development are most important. It should be noted that there is a relative lack of research into initiation factors in competitive sports which is methodologically sound.

Current Participation

The current participation in an activity seems, by contrast, to involve a number of factors that are common to all competitive sports, recreational sports and exercise activities, and martial arts. These common motivational factors are improvement in fitness and development of social contacts. For both competitive sports and recreational sports and exercise activities, but not for martial arts, fun and challenge are frequently mentioned motives for current participation. The motives of health and well-being are often noted for recreational sports and exercise activities and martial arts, but not so frequently for competitive sports. This suggests that motives associated with health and well-being may also be common important motives for Tai Chi participation as Tai Chi is a non-competitive activity in Australia.

There are other motivational factors that seem specific to each of these three current participation categories: that is, competition, skill development and improvement and a sense of competence in competitive sports; weight control and relaxation for recreational sports and exercise activities; and self-defence and discipline for martial arts. It may also be the case in Tai Chi that the essential nature of Martial Arts is a specific factor for initial involvement.

Drop-out

In reviewing reasons for dropping out of an activity, it is only possible to focus on competitive sports. No studies of dropping out of recreational sports and exercise activities or martial arts were available. The most frequently mentioned factors for dropping out of a competitive sport included conflict of interest, interest in other sports, lack of fun, and disliking the pressure.

These conclusions need to be viewed with caution. As previously mentioned (Section 2.2.2), there were methodological problems in the design of those studies that retrospectively assessed the motives for initiation, participation and drop-out. Most studies only examined one of the three stages of initiation, current participation, and drop-out. Those studies that examined initiation and current participation stages or all three stages used a retrospective design, and thus time and age effects may be confounded with motivational changes. An ideal design would involve the longitudinal study of a number of cohorts of subjects as they pass through the three stages.

A number of other methodological issues related to sample selection should be considered in drawing conclusions from the research described in Section 2.2. Participation motivation may be affected by other factors such as age and sex. With regard to age, the studies of competitive sport mostly used children as subjects, studies of martial arts mostly used adults. Studies of recreational sports and exercise activities used both children and adults. Of the studies that included both children and adults, only a minority completed an analysis of

age effects. For instance, Harris (1981) found that younger runners were more likely to have begun running to help with other sports. The results of the developmental study by Brodkin and Weiss (1990) revealed an overall significant difference within the six age groups in their motivation for involvement in swimming.

Gender may be another factor that influences the decision to initiate, continue, or discontinue an activity. An example of this may be seen in a study by Johnsgard (1985). He found that weight control was more important for women in their decision to start running than for men.

2.2.5 PURPOSE OF THE PRESENT STUDY

This literature review has identified a number of factors relating to participation motivation in general sports, exercise activities and martial arts. Since there has been a rapid growth in participation in Tai Chi in Australia and no research has been conducted into participation motivation in Tai Chi, it is important to find out why people are taking up Tai Chi in such large numbers. The current study was designed to focus on why people initiate participation in Tai Chi, as an aspect of the broader investigation of participation motivation factors in Tai Chi. The range of motives that may influence the decision to initiate participation, as well as demographic factors will be investigated.

2.2.6 HYPOTHESES AND PREDICTIONS

From the literature review it appears that in general people tend to participate in competitive sports for the reasons related to skill development and improvement, fitness, competition, fun and challenge. It is important to discover whether these factors are also rated as most important for taking up Tai Chi. As most of the PMQ studies of competitive sports used adolescents and children as subjects and skill development was often rated as most important for participation, it would also be important for the current study to follow up by

using a version of the PMQ as has been used in the previous research to see whether skill development is a more important motive for taking up Tai Chi for young people than for old people.

It also appears from the literature review that there are different motives for people participating in exercise activities to those found in the competitive sports studies. Previous research indicates that people tend to participate in exercise activities in order to keep healthy, to improve fitness and to relax. This is an important issue which can be followed up specifically in the current study by investigating whether motives related to health, fitness and relaxation are most important for Tai Chi initiation as Tai Chi is a non-competitive activity in Australia and has health-promoting values.

Previous research also indicates that motives for participating in martial arts are different from those for participating in competitive sports. It appears that the self-defence is a specific factor that came out of the three martial arts studies. As Tai Chi is a branch of Chinese martial arts, the essential nature of Martial Arts may also be an important motive for initial involvement in Tai Chi, especially for males as there were more males than females participating in martial arts (Fritschner, 1978; and Daley, 1991).

As Tai Chi has its own characteristics, certain factors that are specific to the initiation of Tai Chi are also expected.

The research questions for this study were:

1. What are the motives for people to initiate participation in Tai Chi and the general patterns into which these motives can be grouped?

Based on the previous research in the literature review, it is appropriate to make the following four general predictions in relation to research question number 1:

(1) The high ranking motives for initial involvement in Tai Chi are different from motives for participation in competitive sports, but similar to those associated with recreational sports and exercise activities. Specifically, health, fitness improvement and relaxation are significant initiation factors in Tai Chi.

(2) The essential nature of Martial Arts is a significant initiation factor in Tai Chi.

(3) There are motives that are specific to initiation of Tai Chi, such as the gently way to exercise, the mental relaxation and to exercise mind and body together.

This prediction is also based on the exploratory study involving an interview of 30 Tai Chi participants at the Tai Chi and Chi Kung Academy which will be discussed further in the Method section.

(4) The factor analysis of the PMQ items in the current study will produce a different factor structure to those found in the studies of competitive sports.

This prediction is also based on the exploratory study leading to the addition and the deletion of items to the PMQ. These items seemed to be different in nature from those in the original PMQ, suggesting that specific physical activities might have attractions not shared with sport and exercise in general.

2. How do these motives vary with respect to demographic factors?

Based on the literature review, two hypotheses are proposed in relation to research question number 2:

(1) The martial arts aspect of Tai Chi is a significantly more important factor for initiation for males than for females.

(2) The skill development aspect of Tai Chi is a significantly more important factor for initiation for young people than for old people.

In order to answer the two main research questions, demographic variables of Tai Chi participants were investigated. Thus, the third research question is:

3. What are the major demographic characteristics of Tai Chi participants?

These hypotheses and predictions were tested using a modified version of the PMQ.

CHAPTER THREE: METHODS

The questionnaire approach was considered to be the most appropriate method of collecting data for two reasons. Firstly, in a previously unresearched field, the questionnaire approach allows the study of general motivational factors in a large sample, rather than in depth study of a small number of individuals. Secondly, as most research in participation motivation in other sports and exercise activities employed a questionnaire approach, it would be possible to compare the results of the current study with the results of the previous research.

The participation motivation questionnaire (PMQ) used in this investigation was a modified version of an inventory developed by Gill et al. (1983). This measure has been widely used in sport psychology in a number of modified forms, thus providing substantial comparative data.

Although Gill et al.'s (1983) questionnaire is the most widely used measure to date, it has some limitations for the present study. The Gill et al. (1983) questionnaire was designed to study general competitive sports and mostly used with children and youth. Tai Chi, by contrast, is non-competitive in Australia, and most participants are adults. For example, at the Tai Chi and Chi Kung Academy, the students were mostly in the 35 to 45 age group (Thompson, 1990). As a result, it was necessary to modify the Gill et al. (1983) questionnaire to suit the present study.

Modifications to increase the relevance of the questionnaire to Tai Chi are difficult because Tai Chi, as an innovative activity, is relatively new in Western countries. There was no research on participation motivation in Tai Chi available and the research on participation motivation in martial arts was limited. It was considered to be appropriate to conduct a qualitative exploratory study to investigate, in a more open-ended way, the initial motives for participation in Tai Chi so that it could be ensured that the questionnaire finally developed

would cover the whole range of motives. The primary research method was an open-ended interview.

3.1 EXPLORATORY STUDY

3.1.1 SUBJECTS

Subjects for the exploratory study were selected from the Tai Chi and Chi Kung Academy. Thirty (M = 10, F = 20) current Tai Chi participants volunteered to participate in the interview in April, 1990. They were divided into six age groups. The sex and age distributions of the subjects in the exploratory study are presented in Table 3. The sample represented the current Tai Chi participants in various age groups. However, it should be noted that only one subject under 20 volunteered to participate in the interview though there were many Tai Chi participants under 20 at the time of the interviews. These subjects were selected from five different areas: Bentleigh, Brighton, Chelsea, City and Footscray. The subjects' experience of Tai Chi ranged from less than three months, to more than three years.

Table 3: **SEX AND AGE DISTRIBUTIONS OF THE SUBJECTS IN THE EXPLORATORY STUDY**

AGE	Under 20	21-30	31-40	41-50	51-60	Over 60	TOTAL
Male		2	1	3	3	1	10
Female	1	2	4	6	3	4	20
TOTAL	**1**	**4**	**5**	**9**	**6**	**5**	**30**

3.1.2 INTERVIEW CONTENTS

The subjects were asked three questions "Who or what convinced you to try Tai Chi?",

"What did you expect from Tai Chi before you came to the first lesson?" and "Why did you like to participate in Tai Chi?". These three questions appeared to have face validity to explore human motivation to participate in Tai Chi. They were deliberately broad questions designed to engage the subjects in discussion about their initial motivations for Tai Chi participation.

3.1.3 PROCEDURE

Consent to interview was obtained from the Director of the Tai Chi and Chi Kung Academy, each subject's Tai Chi instructor and the subjects themselves. The interviews were conducted before or after the classes, or in the subject's spare time. The objectives of the exploratory study were explained and the subjects were asked to recall the factors which influenced their decision of initial involvement in Tai Chi. The questions were open-ended, and addressed to subjects by the interviewer. The interviewer noted the responses verbatim. Each interview took between 20 to 30 minutes.

3.1.4 RESULTS

The exploratory study was intended to generate open-ended reasons why people initiated participation in Tai Chi. The results of the three questions asked in the interviews are presented in Appendices 1, 2 and 3. Responses from the interviews were content analysed in order to arrive at possible descriptive categories of motivators. Table 4 presents summary information of these categories of possible motivators. Table 4 shows that most of the subjects gave more than one reason in their response to each question (an average of 1.54 reasons).

It was found that the range of reasons given by the subjects for initiating Tai Chi seemed to be consistent with previous research and the Gill et al. (1983) questionnaire. They fell into categories of Health and Fitness, Social Reasons (e.g. to meet new friends), Challenge, Significant Others and Achievement. Brodkin and Weiss (1990) indicated similar reasons to these and reported that earlier research had shown several factors being derived from

research using the Participation Motivation Questionnaire (Gill et al., 1983), such as Health and Fitness, Affiliation or Friendship, Challenge, Significant Others, Achievement and Status,

Table 4: **FACTORS INFLUENCING THE DECISION TO TAKE UP TAI CHI: PERCENTAGE OF SAMPLE OFFERING EACH RESPONSE**

IDENTITY OF FACTORS	NUMBER M	NUMBER F	TOTAL (%)
Health/Fitness	22	41	63 (45%)
Perceived Advantage of Tai Chi	11	15	26 (19%)
Medical Reasons		10	10 (7%)
Curiosity	4	4	8 (6%)
Social Reasons	2	4	6 (4%)
Challenge	1	4	5 (4%)
Significant Others	1	4	5 (4%)
Achievement	1	3	4 (3%)
Looking for an Alternative	3	1	4 (3%)
Others	2	6	8 (6%)
TOTAL	**47**	**92**	**139 (100%)**

Aspects of Competition, Team Orientation, Energy Release, Situational Factors and Skill Development (Gill et al., 1983; Gould et al., 1985; Klint and Weiss, 1986; and Brodkin and Weiss, 1990).

There also seemed to be some specific reasons for initiating participation in Tai Chi which were not prominent in the previous research, for example, Perceived Advantage of Tai Chi, which included seven reasons that seemed to identify certain intrinsic qualities of Tai Chi practice, was a frequently mentioned reason. These seven reasons were the gentle way to exercise, martial arts, philosophy, movements with nature, keeping good posture, a sense of energy flow and non-competitive. Medical Reasons was another frequently mentioned motive. Curiosity was also one of the factors which influenced people's decision to initiate participation in Tai Chi. None of these motives were included in the Gill et al. (1983) questionnaire. They seem to represent characteristics of non-competitive activities in general, and Tai Chi in particular, as opposed to the types of competitive sports for which the Gill et al. (1983) questionnaire was used. It would therefore be important that any questionnaire used with non-competitive activities, such as Tai Chi, should incorporate a range of motives appropriate to those activities. This information provided the basis for the modifications to the Gill et al. (1983) questionnaire for the current study.

The findings of the exploratory study can be used as an indication of why people initated participation in Tai Chi, and provided useful information leading to the modification of the questionnaire.

3.2 MODIFICATION OF THE QUESTIONNAIRE

Based on the exploratory study and the previously cited literature, fifteen new items which had some relevance to Tai Chi were added to the Gill et al. (1983) questionnaire. These 15 items are presented in Table 5.

Table 5: **ITEMS ADDED TO THE ORIGINAL QUESTIONNAIRE AS A RESULT OF THE EXPLORATORY STUDY**

NUMBER	ITEM
1	I like to keep healthy
2	I like to improve flexibility
3	I like the mental relaxation
4	I like to exercise my mind and body together
5	I like the philosophy
6	I like the martial arts
7	I like the movements involved
8	I like the gentle way to exercise
9	I want to do something that is non-competitive
10	I like a peaceful atmosphere
11	I want to improve my medical condition
12	I like to satisfy my curiosity
13	I like to try something unusual
14	I like to expend my interests
15	I like to do something which keeps me busy

On the other hand, six items deemed to be irrelevant to the present study of Tai Chi were deleted from the original questionnaire. These six items are presented in Table 6.

Table 6: **ITEMS DELETED FROM THE ORIGINAL QUESTIONNAIRE AS A RESULT OF THE EXPLORATORY STUDY**

NUMBER	ITEM
1	I like to compete
2	I like to win
3	I like the rewards
4	I like the action
5	I like the coach
6	I like to travel

Items 1 to 3 were deleted because Tai Chi is non-competitive and involves no material awards (such as medals, trophies or pennants). Item 4 was deleted because it was actually somewhat ambiguous. "Action" was thought to imply fast and vigorous activity, whereas Tai Chi movements are usually done slowly, gently and smoothly. This item was replaced by item 7 in Table 5 "I like the movements involved". Item 5 was deleted because subjects would not know the coach very well on the first night when they enroll in the Tai Chi class. Item 6 was deleted because no travelling is involved except to and from the Tai Chi classes.

Some changes in wording were also made to ensure relevance and clarity to Tai Chi subjects:

"Team" is not relevant to Tai Chi because Tai Chi is usually practised in a class group. As a result the word "Team" was replaced by "Group" in three items where "Team" was originally used.

Again the word "Team" is inappropriate so the term "Team Spirit" has little meaning in relation to Tai Chi. However, there is a possibility of developing some sort of group feeling. It was therefore decided to replace "Team Spirit" by "Group Atmosphere" which would appear to be an equivalent term in this non-team activity.

"Parents" was replaced by "Family" because the original questionnaire was mainly designed for children in sports, whereas most of the Tai Chi participants were adults.

"I want to be with my friends" was altered to "I want to be with my family and friends" because some people attended Tai Chi classes with their family.

The word "Play" was replaced by "Participate" because people do not play Tai Chi, but participate in Tai Chi classes, practise or do Tai Chi.

"I like to be physically fit" appeared to be ambiguous. It could mean that people who were fit wanted to participate in a sport or an exercise to keep fit or stay fit. It did not apply to the people who were not fit, but wanted to become fit by participating in a sport or an exercise. As this study was going to investigate the initial motives for Tai Chi participation, it was thought to be clearer to replace "to be" by "to become". As a result, "I want to be physically fit" was altered to "I want to become physically fit".

"I like to get exercise" was more American English because the original questionnaire was developed in America. It was therefore changed into "I like to exercise" which seemed to be clearer for the Australian audience.

"I like to do something I am good at" was altered to "I like to do something I can be good at" because people would not know whether or not they were good at Tai Chi if they had never experienced it before.

The studies by Gill et al. (1983) and Gould et al. (1985) employed a 3-point Likert scale ranging from Not Important to Very Important. However, more recent studies, such as Klint and Weiss (1986), Longhurst and Spink (1987), and Brodkin and Weiss (1990) have used a 5-point Likert scale ranging from Not At All Important to Extremely Important to increase sensitivity. The current study has similarly chosen to employ a 5-point Likert scale. After the modification of the Gill et al. (1983) questionnaire, a revised questionnaire was produced and it was subjected to further examination.

3.3 EXAMINATION OF THE REVISED QUESTIONNAIRE

Following the modifications, the revised questionnaire was produced in draft form and was examined by the Director and 24 instructors at the Tai Chi and Chi Kung Academy based on their understanding of Tai Chi experiences and motives in Tai Chi. Each item was evaluated for relevance to Tai Chi motivation and for clarity. These evaluations were used as a guide in the decision to retain, delete, add or modify items. The Director and the instructors suggested no additions. However, deletion of two items was suggested. One of these two items "I like to use the facilities or equipment" was deleted from the draft form because there were no facilities or equipment involved in Tai Chi classes. The other item "I want to get rid of energy" was kept in the draft form. Although some people would be told by friends or relatives who had experienced Tai Chi that Tai Chi did increase energy, it was considered that others who were totally naive and felt that they experienced an excessive amount of energy or agitation may choose Tai Chi as a way of energy release and being more relaxed. This left 38 items in the questionnaire.

3.4 PRE-TEST OF THE QUESTIONNAIRE

Once the suggested revision had been made, the questionnaire was pre-tested with 54 current Tai Chi students (M=23, F=31) at the Tai Chi and Chi Kung Academy. The questionnaire was administered to the subjects by the investigator before or after their Tai Chi classes. The subjects were also asked to give suggestions on modifying items when necessary. These subjects expressed no difficulties in interpretation of the questionnaire and thus there were no items deleted. A number of additional items were suggested, two of which were added to the final copy of the questionnaire. The first one was "I want to increase energy" because doing Tai Chi increases energy for most of the people. These people told their friends or relatives who, in turn, would like to participate in Tai Chi to increase energy. The second one was "I like the beauty and grace" because some of the subjects were actually motivated into Tai Chi by having seen Tai Chi demonstrations. They felt pleasant and relaxed just by watching the slow, graceful and beautiful Tai Chi movements. On completion of all these revisions with a total of 17 new items added in (see Appendix 4) and seven items deleted from the original questionnaire (see Appendix 5), a questionnaire consisting of 40 items was constructed for use in the current study. The 40 items in the final questionnaire were randomised to minimise response bias. This random order was chosen to ensure that a group of items referring to similar characteristics did not occur together thus biasing the ratings and factor analysis in the direction of such groups. This final form of the questionnaire required 15-20 minutes to complete.

3.5 MAIN STUDY

3.5.1 SUBJECTS

The sample comprised 85 males and 213 females. The subjects participating in this study were students who enrolled in the Beginner Class at the Tai Chi and Chi Kung Academy in Term 1, 1991. As this study investigated initial motives for Tai Chi participation, only those

people who had never experienced Tai Chi were included in the current study. Upon the return of all completed questionnaires, they were reviewed by the researcher. All subjects who answered "Yes" to the question "Have you ever done any Tai Chi before?" were excluded because research has shown that initial motives for participation may change as an individual develops experience in an activity (for instance, Ewert, 1985). Therefore, it is important to obtain subjects at the beginning of the first lesson. Subjects with missing data were excluded because complete data was needed for the factor analysis. As a result, 20 males and 55 females were excluded from the sample because of previous experience of Tai Chi or missing data. The experimental sample thus comprised 65 males and 158 females.

The subjects were divided into six age groups with the following distributions: "Under 20" 21 subjects (M=7, F=14); "21 to 30" 73 subjects (M=22, F=51); "31 to 40" 50 subjects (M=16, F=34); "41 to 50" 43 subjects (M=11, F=32); "51 to 60" 20 subjects (M=3, F=17); "Over 60" 16 subjects (M=6, F=10). The modal group was 21 to 30.

3.5.2 QUESTIONNAIRE

The questionnaire consisted of two parts: the first part included six items regarding demographic and Tai Chi background information. It is displayed in Appendix 6. Demographic variables regarding Sex, Age, Marital Status, the Highest Level of Education Completed and Occupation were covered in the present study. The first two were included as most participation motivation research has assessed the relationship between sex, age and motivation. In view of research (Brown and Curtis, cited in Smith and Theberge, 1984; and Fritschner, 1978) which showed that marital status, education and occupation could also influence participation motivation, the latter three demographic variables were also included. An item regarding Tai Chi background - "Have you ever done any Tai Chi before?" - was included in the current study because research has shown that initial motives for participation may change in importance as an individual develops greater knowledge, skills and experience in an activity, and as other life circumstances change (Bryan, 1979 cited in Ewert, 1985;

Grandall, 1980; Ewert, 1985; and Johnsgard, 1985). As this research was concerned with reasons for initiation, this question was used to exclude from the study, those subjects who had previous Tai Chi experience. The second part consisted of the modified PMQ, containing 40 possible reasons subjects might give for participating in Tai Chi. It is displayed in Appendix 7. Subjects were asked to rate the degree of importance that each of the 40 reasons had for their decision to initiate participation in Tai Chi on a 5-point Likert scale ranging from 1 = Not At All Important to 5 = Extremely Important.

3.5.3 PROCEDURE

Consent to administer the questionnaire was obtained from the Director of the Tai Chi and Chi Kung Academy. The Director organized a meeting with the instructors of the Academy. The objectives of the study, the nature of the questionnaire, the meaning of each item and how the questionnaire should be administered were explained to the instructors, who then agreed to administer it. The instructors requested the students to complete the questionnaire on the night when they enrolled in the Beginner Class of Term 1, 1991. The students were asked to read the covering letter (see Appendix 8) before they completed the questionnaire to inform them of the objectives of the study, the nature of the questionnaire, how to complete it and the way in which the results of the research will be used to promote Tai Chi. Instructors assisted the younger subjects (under 12 years) to complete the questionnaire when necessary by explaining the meaning of any item which they did not understand. Subjects were thanked for their assistance and the questionnaires were returned to their instructors after their completion, or returned to the researcher by mail if the subjects were unable to complete them on that first night. In fact, there were only three subjects who returned their questionnaires to the researcher by mail in the following week.

Questionnaire results were coded according to Van Moorst (1990) for the purpose of analyses using the Statistical Package For The Social Sciences (SPSS, 1988).

CHAPTER FOUR: RESULTS

4.1 INTRODUCTION TO RESULTS SECTION

This study had three major purposes corresponding to the three research questions that were described in the Literature Review (see Section 2.2.6). The first was to identify the motives for initial involvement in Tai Chi and the general patterns into which these motives could be grouped. The second was to investigate whether there were different motives for participation for different types of participants. In order to achieve these two purposes as well as to investigate what factors were important in characterising Tai Chi participants, this study thirdly examined a number of participants' demographic variables that research suggests are associated with exercise activities.

The diverse information collected by the questionnaire was analyzed from several perspectives in order to answer the three research questions. In Section 4.2, demographic data was used to examine some of the characteristics of the Tai Chi participants to address research question number 3. Section 4.3 addresses the initial part of research question number 1, as well as research question number 2. Firstly, mean responses to the 40 item PMQ were ranked to determine the relative importance of the motives (research question number 1). Secondly, the relationship between the demographic data and the PMQ data was assessed by evaluating which motives were significant in differentiating between groups within each of the demographic factors (research question number 2). Finally, in both Section 4.4 and Section 4.5, the second part of research question number 1 was examined by means of a first-order factor analysis of the responses to the 40 items in the PMQ (Section 4.4) and a second-order factor analysis (Section 4.5). The results therefore are presented in four sections:

4.2. Descriptive demographic characteristics of the Tai Chi participants.

4.3. Ranking of mean importance rating and relationship between demographic factors and motives.

4.4. First-order factor analysis of the responses to the items in the PMQ.

4.5 Second-order factor analysis.

4.2 DESCRIPTIVE DEMOGRAPHIC CHARACTERISTICS OF THE TAI CHI PARTICIPANTS

The 223 subjects in the current study were students who enroled in the BEGINNER class at the TCCKA in Term 1, 1991. They were selected from over 20 different suburbs in Melbourne, and two country areas in Victoria: Gippsland and Horsham. The subjects were asked a number of questions regarding demographic information in order to find out what features characterized the group of Tai Chi participants. Most participation motivation research has assessed only the relationship between sex, age and motivation. In view of research (Brown and Curtis, cited in Smith and Theberge, 1984; and Fritschner, 1978) that showed that marital status, education and occupation could also influence participation motivation, these three demographic variables were included in the present study. Sex, Age, Marital Status, the Highest Level of Education Completed and Occupation were covered. Responses to these questions were summarised and these results are presented and noteworthy patterns are observed.

There has been no demographic research in Tai Chi in either Australia or other countries. The 1986 Australian Census data was used in order to determine how the present sample compares with the general population on the five demographic variables. In order to test for any differences between the Tai Chi sample and the general population, the Chi-square statistic was employed. The conventional significance level of 0.05 was adopted for Chi-square testing.

The sex distribution of the sample is displayed in Table 7. It can be seen that there were more than twice as many females as males in the sample group. There were nearly equal proportions of males (49.5%) and females (50.5%) in the general population of Victoria in the

1986 Census. A Chi-square test revealed that there were significantly more females than males within the group of Tai Chi participants studied, compared to the proportion of males and females in the general population (χ^2 = 36.33, P<.05).

Table 7: **SEX DISTRIBUTION OF SAMPLE PARTICIPANTS**

SEX	NUMBER	PERCENTAGE
Male	65	29.1
Female	158	70.9
TOTAL	**223**	**100**

The age distribution of the sample is displayed in Table 8. Of the six age groups (Under 20 to Over 60), the modal group was 21-30, with 73 participants which represented 32.7% of the total sample. Over half of the sample (55.1%) can be accounted for by combining the 21-30 and 31-40 age groups. The smallest age group was the Over 60 group with only 16 participants (7.2%).

A Chi-square test showed that there were no significant differences in the proportions of male and female participants in each age group (χ^2=3.17, P>.05).

There is a problem in the comparison between the sample participants in the Under 20 and the Over 60 groups and those in the general population in the 1986 Census. The Census figures in these two groups included all people under 20 and over 60, whereas the sample did not include very young children (under 12) and very old people (over 82), because the people under the age of 12 includes infants, babies and very young children who were clearly not capable of attending Tai Chi classes and would not be allowed to go out for Tai Chi at night as well, and the people over the age of 82 were mainly those old people who were infirm, ill, senile or institutionalized, therefore they would not be able to attend Tai Chi classes. As a

result, these two extreme groups might be under-represented in the present sample. It was decided to discount those two groups, leaving the other four groups to be compared with population statistics.

Table 8: **AGE DISTRIBUTION OF MALE AND FEMALE SAMPLE PARTICIPANTS (N=223)**

AGE	MALE		FEMALE		TOTAL		1986 CENSUS
	No.	%	No.	%	No.	%	%
Under 20	7	10.8	14	8.9	21	9.4	33.3
21-30	22	33.8	51	32.2	73	32.7	16.6
31-40	16	24.6	34	21.5	50	22.4	15.6
41-50	11	16.9	32	20.3	43	19.3	11.2
51-60	3	4.6	17	10.8	20	9.0	9.4
Over 60	6	9.2	10	6.3	16	7.2	13.9
TOTAL	**65**	**100**	**158**	**100**	**223**	**100**	**100**

The Census figures in these four groups represented the real percentages in the population. In order to make a direct comparison simply with those four groups, it was necessary to convert those percentages of the general population between the ages 21 and 60 to proportions of 100 percent. These percentages were then used to find the expected frequencies by raising percentages to numbers that would be expected in each cell in a 186 total.

Table 9 presents the figures after the conversion in each of the four age groups. A Chi-square test revealed that there were significant differences between the sample participants and the general population in the 1986 Census in the four age groups (χ^2=9.57, P<.05). From inspection of Table 9, it appears that there is a reversal trend which shows that there was a higher proportion of young people in the sample than would be expected from the general population, while there was a smaller proportion of old people in the sample than in the general population. It seems that in this sample, Tai Chi is appealing more to younger adults than older adults.

Table 9: **OBSERVED AND EXPECTED FREQUENCIES FOR AGE GROUPS FROM 21 TO 60**

	21-30	**31-40**	**41-50**	**51-60**	**TOTAL**
Observed	73	50	43	20	186
Expected	58.48	54.96	39.45	33.11	186
χ^2	3.61	0.45	0.32	5.19	9.57

Table 10 illustrates the distribution of marital status of the sample. It can be noted from Table 10 that the majority of the sample participants (80.7%) were either Married or Single.

There did not appear to be a large difference in the percentages of participants among the four remaining groups. A Chi-square test revealed that there were no significant differences in the proportions of male and female participants within the six groups (χ^2=2.96, P>.05), even though it appeared that there were proportionally more males than females in the De Facto and Separated groups, whereas there were substantially more females than males in the Widowed group.

Table 10: **MARITAL STATUS OF MALE AND FEMALE SAMPLE PARTICIPANTS (N=223)**

MARITAL STATUS	MALE		FEMALE		TOTAL	
	No.	%	No.	%	No.	%
Single	27	41.5	58	36.7	85	38.1
Married	25	38.5	70	44.3	95	42.6
De Facto	6	9.2	7	4.4	13	5.8
Divorced	2	3.1	7	4.4	9	4.0
Separated	4	6.2	5	3.2	9	4.0
Widowed	1	1.5	11	7.0	12	5.4
TOTAL	**65**	**100**	**158**	**100**	**223**	**100**

Table 11 shows the highest level of education completed by the male and female participants. Of the six education level groups, the modal group was Tertiary, with 87 participants which represented 39% of the total sample. The smallest education level group was Primary with only 4 participants (1.8%). Some differences among education groups were observed. The majority of the sample participants had either Years 11-12 or Tertiary qualifications.

Although there were more males than females in the proportions of Years 7-8 and TAFE groups, a Chi-square test revealed that there were no significant differences in the proportions of male and female participants in the six groups (χ^2=1.98, P>.05). It should be

noted, however, that the very small group of participants who finished education at primary level was comprised totally of females.

Table 11: **EDUCATIONAL LEVEL OF MALE AND FEMALE SAMPLE PARTICIPANTS (N=223)**

EDUCATIONAL LEVEL	MALE		FEMALE		TOTAL	
	No.	%	No.	%	No.	%
Primary			4	2.5	4	1.8
Years 7-8	4	6.2	5	3.2	9	4.0
Years 9-10	7	10.8	23	14.5	30	13.5
Years 11-12	22	33.8	52	32.9	74	33.2
TAFE	8	12.3	11	7.0	19	8.5
Tertiary	24	36.9	63	39.9	87	39.0
Total	**65**	**100**	**158**	**100**	**223**	**100**

It should be noted that, out of the 223 subjects, 21 identified themselves as students; they were still in the education system. It might be that any of them below tertiary could be moving on to the next higher level of education. Thus, they have yet to attain their highest level of education. It is also interesting to note that the early school leavers those in the Primary and the Years 7-8 groups) were predominantly people from the older age categories (over 50). This might reflect the historical changes in educational patterns whereby more of the population have had more years of education in the last few decades than before, while these older people (over

50) in the sample went to school at the time when it was common for people to leave school in their early teenage years.

Occupation was coded according to the Australian Standard Classification of Occupation (ASCO) used in the 1986 Population Census to allow comparison of the sample with the general population.

> "ASCO is a skilled-based classification of occupations developed in Australia as a national standard for the production and analysis of labour force statistics, human resources management, education planning, the listing of job applicants and vacancies, the provision of occupational information and for vocational guidance" (Castles, 1986. P. 3).

In the Census, all employed persons aged 15 years and over were required to report their occupations. The ASCO contained eight major groups, 52 minor groups, 282 unit groups and 1079 distinct occupations covering all jobs in the Australian Labour force. During data coding in this study, each person's occupation was coded from the index of occupation which was derived from the ASCO into eight major groups for the convenience of statistical analysis. Students, Home Duties, Pensioner and so on were not included in ASCO as they were not regarded as occupations. Therefore persons who reported an occupation of Student in the present study were grouped under the heading Students, while persons who reported an occupation of Housewife, Home Duties, Retired, Pensioner and Unemployed were grouped into the Others category because of the small numbers in each group that were not appropriate for the statistical analysis on their own. At the same time, all these groups have something in common, for example, people in these groups were all not involved in either a paid job or as a student. Therefore, this might affect their everyday life pattern because these people might have a large amount of free time to spare and they might like to look for something to do to fill up their time.

Table 12 depicts the occupations of the sample. As seen in Table 12, Professionals, Para-Professionals, Clerks and Others together constituted the majority of the sample participants (65.4%). The minority group was Plant and Machine Operators with only one participant which represented 0.4% of the total sample. A Chi-square test revealed that there were significant differences in the proportions of male and female participants in some of the ten occupation groups (χ^2=30.81, P<.05). It appeared that there was a substantially larger

Table 12: **OCCUPATION DISTRIBUTION OF MALE AND FEMALE SAMPLE PARTICIPANTS (N=223)**

OCCUPATION	SAMPLE						1985 CENSUS					
	MALE		FEMALE		TOTAL		MALE		FEMALE		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Managers/Administrators	8	12.3	13	8.2	21	9.4	151624	7.6	48903	2.4	200527	5.0
Professionals	11	16.9	28	17.7	39	17.5	130028	6.5	86489	4.3	216517	5.4
Para-Professionals	12	18.5	20	12.7	32	14.3	60379	3.0	48933	2.4	109312	2.7
Tradespersons	11	16.9	1	0.6	12	5.4	242004	12.2	26058	1.3	268062	6.7
Clerks	3	4.6	29	18.4	32	14.3	77850	3.9	210814	10.4	288664	7.2
Sale/Personal Services	4	6.2	9	5.7	13	5.8	82288	4.1	127069	6.3	209357	5.2
Plant/Machine Operators	1	1.5			1	0.4	117312	5.9	36877	1.8	154189	3.8
Labourers/Related Workers	5	7.7	4	2.5	9	4.0	150682	7.6	88346	4.3	239028	5.9
Students	5	7.7	16	10.1	21	9.4	979302	49.2	1354520	66.8	2333822	58.1
Others	5	7.7	38	24.1	43	19.3						
TOTAL	65	100	158	100	223	100	1991469	100	2028009	100	4019478	100

proportion of males than females in the Tradespersons and Labourers and Related Workers groups, whereas a substantially larger proportion of females than males was in both Clerks and Others groups.

As the Students and the Others groups were not identified as occupations in the Census, it was decided to discount these two groups when making a comparison in occupation between the sample and the general population. For the purposes of statistical analysis, the numbers of male or female subjects in the groups of Tradespersons, Clerks, Sale and Personal Services, Plant and Machine Operators, and Labourers and Related Workers were small, therefore it was decided to combine the Tradespersons and the Clerks with the Sale and Personal Services to form one group Light Manual because the subjects falling into these three groups performed relatively light manual work compared with those in the Plant and Machine Operators, and the Labourers and Related Workers groups. These latter two groups were combined together to form the Heavy Manual group. As a result of the exclusion of the two groups Students and Others and the combinations of the five groups into two, there were five categories used in the comparison between the sample and the general population. These five groups were Managers and Administrators (N=21), Professionals (N=39), Para-Professionals (N=32), Light Manual (N-57), and Heavy Manual (N=10), comprising 159 subjects in all. The Census figures of males and females in these five groups represented the real percentages in the population. In order to make a direct comparison with those five groups in the sample, it was necessary to convert these percentages of the general population in the five groups to proportions of 100 percent. These percentages were then used to find the expected frequencies by raising them to numbers that would be expected in each cell in a 159 total.

Table 13 presents the new figures of both sex groups after the conversion in each of the five occupation groups. A Chi-square test revealed that there were significant occupation differences between the sample and the general population (Male: $\chi^2=30.85$, $P<.05$; Female: $\chi^2=57.67$, $P<.05$). Inspection of Table 13 reveals that there was a substantially larger proportion of Professionals and Para-Professionals and a smaller proportion of Heavy Physical

Workers in both males and females in the sample than in the general population. In addition, it appears that there was a larger proportion of female Managers and Administrators and a smaller proportion of females in the Light Manual group in the sample than in the general population.

The most important findings of the analysis of the demographic data are: there were more females than males initiating participation in Tai Chi; most Tai Chi participants were between the ages of 21 to 50, nearly a third being 21 to 30; approximately equal numbers were

Table 13: **OBSERVED AND EXPECTED FREQUENCIES FOR OCCUPATIONAL GROUPINGS**

		Manager/ Administrators	Professionals	Para Professionals	Light Manual	Heavy Manual	Total
Male	Observed	8	11	12	18	6	55
	Expected	8.22	7.03	3.25	21.87	14.61	55
	$\chi 2$	0.01	2.24	23.56	0.68	4.36	30.85
Female	Observed	13	28	20	39	4	104
	Expected	7.52	13.43	7.52	56.39	19.10	104
	χ_2	3.99	15.67	20.71	5.36	11.94	57.67

married and single; many Tai Chi participants had achieved high levels of education; and people who participated in Tai Chi were mainly Professionals, Para-Professionals, Clerks and members of the non-occupational category, Others.

4.3 ANALYSES OF PARTICIPATION MOTIVATION QUESTIONNAIRE

In order to test the two hypotheses and the first two general predictions for the current study, responses to the 40 item PMQ were analyzed to determine the relative importance of the motives, and the relationship between the demographic data and the PMQ data was assessed by

evaluating which motives were significant in differentiating between groups within each of the demographic factors.

The first step in the analysis of ratings of motives for taking up Tai Chi was to determine the relative importance of each of the 40 items in the PMQ. Mean ratings and their standard deviations were calculated on the individual items for the overall and each of the five demographic variables, and they are displayed in Appendices 9 to 14.

In order to investigate whether there were item rating differences between the levels of demographic variables, such as sex, age, marital status, educational level and occupation, all 40 items were examined separately. One-way Analysis of Variance (ANOVA) was used to compare group means, followed by the Scheffe post hoc method of multiple comparisons where necessary. The Likert scale used in the PMQ generated ordinal data. Although ANOVA typically requires date that is interval in nature, it may be argued that ANOVA remains the most effective test of the significance of differences across these demographic groups. When the data approximates a normal distribution, as it does in this instance, there is little effect on the results. Furthermore, ANOVA has frequently been used in PMQ research that is based on ordinal data. Some examples of this include studies by Gould et al. (1985) and Longhurst and Spink (1987).

As a great number of potential significant differences between the 40 PMQ items and the different levels of the five demographic variables were tested for, there is a danger of Type 1 error, that is significant results could be found purely by chance if the conventional significance level of 0.05 is used. To protect for Type 1 error and to increase confidence that the statistical analysis would identify genuine effects, it was decided to adopt a conservative significance level of 0.01 for the ANOVA, while a 95% overall confidence level was used for the Scheffe comparisons.

4.3.1 RANKING OF MEAN IMPORTANCE RATING AND RELATIONSHIP BETWEEN DEMOGRAPHIC FACTORS AND MOTIVES

Full rank orderings of all 40 items for the overall sample and for each of the five demographic variables are presented in Appendices 9 to 14. The top ten motives overall and for each of the five demographic groups are presented and discussed in this section because the focus of the present study is on the most important motives for initiation.

4.3.1.1 Overall

Table 14 displays the top ten ranking motives in terms of mean importance rating for the sample overall. At the descriptive level, the most notable finding was the importance placed on Health and Fitness, and Relaxation by the Tai Chi participants. Inspection of Table 14 reveals

Table 14: MEANS AND STANDARD DEVIATIONS OF TOP TEN PARTICIPATION MOTIVES (N=223)

ITEM	M	SD	RANKING
1. I LIKE THE MENTAL RELAXATION	4.08	.94	1
2. I WANT TO RELEASE TENSION	4.00	.96	2
3. I LIKE TO KEEP HEALTHY	3.99	.92	3
4. I WANT TO EXERCISE MY MIND AND BODY TOGETHER	3.96	.93	4
5. I WANT TO IMPROVE FLEXIBILITY	3.87	.99	5
6. I WANT TO GET MORE ENERGY	3.86	1.00	6
7. I WANT TO BECOME PHYSICALLY FIT	3.73	1.11	7
8. I LIKE A PEACEFUL ATMOSPHERE	3.71	1.11	8
9. I LIKE THE GENTLE WAY TO EXERCISE	3.70	1.12	9
10. I WANT TO LEARN NEW SKILLS	3.56	.95	10

that nine out of the top ten motives for the overall group were concerned with Health and Fitness, and Relaxation. The mean scores for these nine items were over 3.70, which lies well above Important on the 5-point Likert Scale. Skill Development (I want to learn new skills) was also rated as being very important.

4.3.1.2 Sex

Table 15 presents the rankings of mean importance rating of the top ten motives for the male and female groups with the overall ranking included for comparison. It can be seen from Table 15 that, although there was considerable consistency across the two sex groups in the mean importance placed on the top ten motives, some sex differences in the rank ordering of

Table 15: **RANKING OF MOTIVES BY SEX GROUPS (N=223)**

ITEM	OVERALL	GROUPS	
		MALE	FEMALE
I LIKE THE MENTAL RELAXATION	1	2	1
I WANT TO RELEASE TENSION	2	3	2
I LIKE TO KEEP HEALTHY	3	4	3
I WANT TO EXERCISE MY MIND AND BODY TOGETHER	4	1	6
I WANT TO IMPROVE FLEXIBILITY	5	5	5
I WANT TO GET MORE ENERGY	6	7	4
I WANT TO BECOME PHYSICALY FIT	7	10	7
I LIKE A PEACEFUL ATMOSPHERE	8	8	9
I LIKE THE GENTLE WAY TO EXERCISE	9	-	8
I WANT TO LEARN NEW SKILLS	10	6	10
I LIKE TO EXERCISE	-	9	-

these items were observed. Males rated "I want to exercise my mind and body together" more highly than females placing it as first in importance, followed by "I like the mental relaxation", "I want to release tension", "I like to keep healthy" and "I want to improve flexibility". Females, on the other hand, rated "I like the mental relaxation" as first in importance, followed by "I want to release tension", "I like to keep healthy", "I want to get more energy" and "I want to improve flexibility". In terms of the motives in the top ten, some other differences emerged. "I want to become physically fit" was ranked higher by females (seventh in mean ratings) than by males, who ranked it tenth. "I want to learn new skills" was rated higher by males (sixth in mean ratings) than by females, where it was ranked tenth in their motives for taking up Tai Chi. The other notable sex differences were that "I like the gentle way to exercise" was in the top ten mean ratings of females, but not of males, whereas "I like to exercise" was rated as being one of the top ten motives by males, but not by females.

Although some minor sex differences have been found, it appeared that the overall motive pattern of males and females was quite similar. This pattern also emerged in the motives that ranked near the bottom of the item list. Specifically, "My family or close friends want me to participate", "I like to feel important", "I want to be popular" and "I want to gain status or recognition" were the motives rated as least important by both sex groups. In terms of mean rankings, there was very little difference between the two groups. These findings are consistent with previous Australian data which indicated that the motives related to status or significant others were rarely rated highly as reasons for participation in sports (Longhurst and Spink, 1987; and Spink and Longhurst, 1990).

The relationship between sex of participants and the PMQ was assessed by evaluating which motives were significant in differentiating between males and females. Table 16 presents the significant sex differences of the 40 items. It can be seen that only five of the 40 items significantly differentiated male and female participants. Specifically, One-way ANOVA revealed that males rated "I like the martial arts", "I want to go to a high level" and "I like the philosophy"

as being more important than the females. In contrast, females rated "I like the gentle way to exercise" and "I like the movements involved" as being more important than the males.

Table 16: **SIGNIFICANT SEX DIFFERENCES IN PMQ ITEMS (N=223)**

ITEM	MALE MEAN	MALE SD	FEMALE MEAN	FEMALE SD	F RATIO	PROB.
I LIKE THE MARTIAL ARTS	2.95	1.46	2.19	1.25	15.50	.0001
I WANT TO GO TO A HIGH LEVEL	3.17	1.54	2.44	1.36	12.41	.0005
I LIKE THE PHILOSOPHY	3.42	1.10	2.99	1.03	7.46	.0068
I LIKE THE GENTLE WAY TO EXERCISE	3.34	1.19	3.85	1.05	9.98	.0018
I LIKE THE MOVEMENTS INVOLVED	2.92	1.16	3.36	1.02	7.83	.0056

4.3.1.3 Age

Table 17 shows the rankings of mean importance rating of the top ten motives for the six age groups, while the overall ranking is also included for comparison. It can be seen from Table 17 that there was some consistency in that six items concerned with Health and Fitness, and Relaxation were found to be common high ranking items for all six age groups even though their rank orders were different.

However, there also appeared to be more variations across age groups than sex groups. Skill development items were found to be more important for young groups (under 40 years), whereas older people (over 41 years) did not seem to be particularly interested in skill. Older people appeared to take up Tai Chi more for the improvement of medical conditions which was not a main reason for the young groups. " I want to exercise my mind and body together" was ranked relatively higher by the Under 20 group (first in mean ratings) than the other five groups. "I want to get more energy" was ranked relatively higher by the 21-30 group (second

Table 17: **RANKING OF MOTIVES BY AGE GROUPS (N=223)**

ITEM	OVERALL	GROUPS					
		UNDER 20	21-30	31-40	41-50	51-60	OVER 60
I LIKE THE MENTAL RELAXATION	1	2	3	1	1	1	6
I WANT TO RELEASE TENSION	2	4	1	2	3	9	10
I LIKE TO KEEP HEALTHY	3	5	5	3	2	3	1
I WANT TO EXERCISE MY MIND/BODY TOGETHER	4	1	4	6	4	7	7
I WANT TO IMPROVE FLEXIBILITY	5	3	6	7	5	5	4
I WANT TO GET MORE ENERGY	6	-	2	4	8	10	8
I WANT TO BECOME PHYSICALY FIT	7	6	10	8	9	4	5
I LIKE A PEACEFUL ATMOSPHERE	8	-	9	10	7	2	9
I LIKE THE GENTLE WAY TO EXERCISE	9	10	-	5	6	6	3
I WANT TO LEARN NEW SKILLS	10	7	8	9	-	-	-
I WANT TO IMPROVE MY SKILLS	-	8	-	-	-	-	-
I LIKE TO EXERCISE	-	9	-	-	-	-	-
I LIKE TO EXPAND MY INTERESTS	-	-	7	-	-	-	-
I WANT TO IMPROVE MY MEDICAL CONDITION	-	-	-	-	10	8	2

in mean ratings) than the other five groups, while it was ranked tenth by the 51-60 group. "I like a peaceful atmosphere" was ranked relatively higher by the 51-60 group (second in mean ratings) than the other five groups. "I like the gentle way to exercise" was ranked relatively higher by the oldest group (over 60) (third in mean ratings)than the younger groups; and older people (over 51 years) ranked "I want to release tension" relatively lower (ninth or tenth in mean ratings) than the other groups.

The relationship between age of participants and the PMQ was assessed by evaluating which motives were significant in differentiating between the six age groups. One-way ANOVA revealed that significant age differences were found on seven of the 40 items as

presented in Table 18. The first three significantly different items were rated over 3 on the 5-point Likert scale, falling above Important. Specifically, the Scheffe Post hoc test revealed that the Under 20 group rated martial arts as a more important reason for participation than the

Table 18: **SIGNIFICANT AGE DIFFERENCES IN PMQ ITEMS (N=223)**

ITEM	UNDER 20 MEAN	SD	21-30 MEAN	SD	31-40 MEAN	SD	41-50 MEAN	SD	51-60 MEAN	SD	OVER 60 MEAN	SD	F RATIO	PROB.
I like the martial arts	3.24	1.18									1.69	1.35	4.80	.0004
I want to improve my skills	4.00	.95			3.02	.91					2.69	.95	4.18	.0012
I want to go to a high level	3.14	1.39	3.05	1.53							1.50	1.10	4.45	.0007
Family/friends want me to	2.10	1.41					1.14	.41			2.19	1.05	4.75	.0004
I want to gain status/recognition	2.05	1.47					1.14	0.41					3.54	.0043
I want to be in a group	2.95	1.50					1.84	0.92					3.53	.0044
I like the group atmosphere	2.90	1.55					1.74	0.93					3.39	.0057

Over 60 group. This youngest group, Under 20 also rated improvement of skills as a more important reason than the oldest group Over 60 and the 31-40 group. The Over 60 group rated going to a high level significantly lower in importance than did the Under 20 and the 21-30 groups.

The Scheffe Post hoc test also revealed significant differences which showed that the 41-50 group rated "Family or friends want me to participate" significantly lower in importance than did the youngest group, Under 20 and the oldest group, Over 60. The Under 20 group rated being in a group, group atmosphere, and status or recognition as more important reasons for Tai Chi initiation than the 41-50 group. It can be seen clearly from Table 18, however, that neither the 41-50 nor the Under 20 group placed a large amount of importance on these four items since they rated the items below important on the 5-point Likert Scale.

4.3.1.4 Marital Status

It was considered that relationship status may influence people's decision to take up Tai Chi. As a result, the marital status data was coded into two groups Alone (Single, Divorced, Separated and Widowed) and Partners (Married and De Facto). There were 115 people in the Alone group and 108 people in the Partners group.

Rankings of mean importance rating of the top ten motives for the Alone and the Partners groups and the overall ranking for comparison are displayed in Table 19. Inspection of the results in Table 19 reveals that there was considerable consistency between the two

Table 19: **RANKING OF MOTIVES BY MARITAL STATUS GROUPS (N=223)**

ITEM	GROUPS		
	OVERALL	ALONE	PARTNERS
I LIKE THE MENTAL RELAXATION	1	1	1
I WANT TO RELEASE TENSION	2	3	2
I LIKE TO KEEP HEALTHY	3	4	3
I WANT TO EXERCISE MY MIND AND BODY TOGETHER	4	2	4
I WANT TO IMPROVE FLEXIBILITY	5	5	7
I WANT TO GET MORE ENERGY	6	6	5
I WANT TO BECOME PHYSICALY FIT	7	7	9
I LIKE A PEACEFUL ATMOSPHERE	8	8	8
I LIKE THE GENTLE WAY TO EXERCISE	9	-	5
I WANT TO LEARN NEW SKILLS	10	9	-
I LIKE TO EXPAND MY INTERESTS	-	10	-
I WANT TO IMPROVE MY MEDICAL CONDITION	-	-	10

groups. Eight out of the top ten motives for the overall group were found to be common in the two marital status groups and their ranking orders were also very much the same. There were a few differences in that "I like the gentle way to exercise" and "I want to improve my medical condition" were rated as being two of the top ten motives by the Partners group, but not by the Alone group, whereas "I want to learn new skills" and "I like to expand my interests" were in the top ten mean ratings of the Alone group, but not the Partners group.

There is a relationship between marital status and age in that 61% of the subjects in the Alone group were under the age of 30, whereas, 78% of the subjects in the Partners group were over the age of 31. The subjects in the Partners group were much older than those in the Alone group. It was those older people in the Partners group that considered the gentle way to exercise and the improvement of a medical condition as more important reasons for their initial involvement in Tai Chi than did the younger people in the Alone group. Similarly, it was the younger people in the Alone group who rated learning new skills and expanding interests as more important than the older people in the Partners group.

The relationship between marital status and the PMQ was assessed by evaluating which motives were significant in differentiating the Alone and the Partners groups. One-way ANOVA revealed that three of the 40 items significantly differentiated the Alone and the Partners groups as shown in Table 20. Only the first significantly different item was rated over 3 on the 5-point Likert scale, falling above Important. Specifically, the Scheffe Post hoc test revealed that the Partners group rated "I want to improve my medical condition" as being more important than the Alone group. In contrast, the Alone group rated "I want to get rid of energy" and "I like to meet new friends" significantly higher in importance than did the Partners group. Again, it can be seen from Table 20 that even though the Alone group rated these two items significantly higher than the Partners group, the mean scores for these two items for the Alone group were less than 3, which, on the 5-point Likert scale, fell somewhat below Important.

Table 20: **SIGNIFICANT MARITAL STATUS DIFFERENCES IN PMQ ITEMS (N=223)**

ITEM	ALONE MEAN	ALONE SD	PARTNERS MEAN	PARTNERS SD	F RATIO	PROB.
I WANT TO IMPROVE MY MEDICAL CONDITION	3.17	1.44	3.66	1.30	6.90	.0092
I WANT TO GET RID OF ENERGY	2.19	1.30	1.74	1.05	8.00	.0051
I WANT TO MEET NEW FRIENDS	2.50	.99	2.18	.86	6.61	.0108

4.3.1.5 Educational Level

For the purposes of statistical analysis, the numbers of subjects in the two lowest groups of education level classification were too small, therefore they were combined with the third lowest group to form one group Years 1-10. There were 43 people in the Years 1-10 group, 74 people in the Years 11-12 group, 19 people in the TAFE group, and 87 people in the Tertiary group.

Table 21 depicts the rankings of mean importance rating of the top ten motives for the four education level groups and the overall ranking for comparison. It can be seen in Table 21 that there appeared to be some consistency, in that eight out of the top ten motives overall were found to be common to all four education level groups even though their ranking orders were different. "I want to release tension", which was ranked very highly by Years 11-12, TAFE and Tertiary groups, did not seem to be very important for the Years 1-10 group. In contrast, this group with the lowest level of education rated "I want to improve my medical condition" as being one of the top ten motives for participation, but the rest of the three groups did not seem to be particularly interested in it at all. "I like to keep healthy" was ranked relatively lower by the TAFE group than the other groups, and "I want to become physically fit" was not in the top ten mean ratings of the Tertiary group.

Table 21: **RANKING OF MOTIVES BY EDUCATION LEVEL GROUPS (N=223)**

ITEM	OVERALL	GROUPS			
		Y1-10	Y11-12	TAFE	TERTIARY
I LIKE THE MENTAL RELAXATION	1	1	3	1	1
I WANT TO RELEASE TENSION	2	8	1	3	2
I LIKE TO KEEP HEALTHY	3	3	2	8	4
I WANT TO EXERCISE MY MIND/BODY TOGETHER	4	2	4	5	3
I WANT TO IMPROVE FLEXIBILITY	5	4	6	2	6
I WANT TO GET MORE ENERGY	6	5	5	7	5
I WANT TO BECOME PHYSICALY FIT	7	9	7	4	-
I LIKE A PEACEFUL ATMOSPHERE	8	10	9	6	7
I LIKE THE GENTLE WAY TO EXERCISE	9	6	8	10	8
I WANT TO LEARN NEW SKILLS	10	-	10	-	9
I WANT TO IMPROVE MY MEDICAL CONDITION	-	7	-	-	-
I LIKE TO EXPAND MY INTERESTS	-	-	-	9	-
I LIKE TO EXERCISE	-	-	-	-	10

The relationship between education levels of participants and the PMQ was assessed by evaluating which motives were significant in differentiating between the four education level groups. One-way ANOVA revealed that significant educational level differences were found on ten of the 40 items as shown in Table 22. Five items were rated over 3 on the 5-point Likert scale, falling above Important. Specifically, the Scheffe Post hoc test revealed that the Years 11-12 group rated becoming physically fit and going to a high level as more important reasons for initiation than the Tertiary group. The Years 1-10 group rated improving a medical condition, non-competitive and having something to do significantly higher in importance than did the Tertiary group.

Table 22: **SIGNIFICANT EDUCATIONAL LEVEL DIFFERENCES IN PMQ ITEMS (N=223)**

ITEM	YEARS 1-10 MEAN	SD	YEARS 11-12 MEAN	SD	TAFE MEAN	SD	TERTIARY MEAN	SD	F RATIO	PROB.
I want to become physically fit			3.95	1.03			3.40	1.09	4.43	.0048
I want to go to a high level			3.08	1.50			2.33	1.34	3.81	.0108
I like the martial arts			2.86	1.42			2.08	1.25	5.21	.0017
I want to improve my medical condition	3.95	1.05					3.08	1.47	4.59	.0039
I want to do something that is non-competitive	3.26	1.26					2.55	1.25	4.57	.0040
I like to have something to do	3.09	1.27					2.22	1.19	4.94	.0025
I Like to do something which keeps me busy	2.84	1.13					1.99	1.07	5.14	.0019
I like to get out of the house	2.60	1.48					1.78	1.04	5.22	.0017
My family/friends want me to participate	2.07	1.16					1.36	.79	5.00	.0022
I want to be popular	2.16	1.21	1.61	.81			1.38	.70	7.75	.0001

The Scheffe Post hoc test also revealed significant differences which showed that the Years 11-12 group rated the martial arts as a more important reason for participation than the Tertiary group, and that the Years 1-10 group rated doing something which keeps me busy, getting out of the house, and family or friends want me to significantly higher in importance than did the Tertiary group. This Years 1-10 group also rated being popular as a more important reason for participation than the Years 11-12 and the Tertiary groups. However, as previously noted, with respect to age differences, this latter result is of minimal importance as the items were scored less than 3, which fell below Important on the 5-point Likert scale.

4.3.1.6 Occupation

Occupation data was coded according to the criteria used in the 1986 Census in Australia for the purpose of comparison of the sample with the general population. It seemed that there were too many subgroups of occupation for the relatively small sample of this study,

for example there was only one subject in the Plant and Machine Operators group. This made statistical analysis using ANOVA (see section 4.3) not viable. As a result, the occupation data was recoded according to Daniel's (1983) classification system. This classification was based on the ratings of prestige of various occupations in Australia. The instructions in Daniel's study simply remarked on the relative status of occupations in the community and, suggesting an equivalence of meaning for status and social standing, invited respondents to rate an alphabetically ordered list of occupations on a scale from 1 to 7. All these occupations were then drawn into six comprehensive categories. In the first and highest status category appeared nine occupations. These are the leaders of powerful social institutions and the most eminent practitioners of the traditional great professions. The next status category 2 is people who are members of the established professions and the heads of departments and organisations in public and private enterprise. In category 3 are occupations requiring substantial intellectual skills and training, some literary and artistic pursuits and some management and entrepreneurial work. In category 4 are found skilled people involved in both blue collar and white collar work. In category 5 are found occupations, manual and non-manual, judged to require less expertise and training. Category 6, the least prestigious is comprised of semi-skilled to unskilled manual workers, the least respected entertainers and one white-collar occupation, that of debt collector. Daniel then groups these six categories into three further levels: upper-level occupations (category 1 and 2), middle-level occupations (category 3 and 4), and lower-level occupations (category 5 and 6). In the present study Students and Others groups were not changed because they were not identified as occupations. This yielded the results presented in Table 23.

Table 23: RECODED OCCUPATION DISTRIBUTION OF MALE AND FEMALE TAI CHI PARTICIPANTS (N=223)

	MALE		FEMALE		TOTAL	
ITEM	NO.	%	NO.	%	NO.	%
UPPER LEVEL	9	13.8	13	8.2	22	9.9
MIDDLE LEVEL	36	55.4	75	47.5	111	49.8
LOWER LEVEL	10	15.4	16	10.1	26	11.7
STUDENTS	5	7.7	16	10.1	31	9.4
OTHERS	5	7.7	38	20.1	43	19.2
TOTAL	**65**	**100**	**158**	**100**	**223**	**100**

Table 24 exhibits the rankings of mean importance rating of the top ten motives for the five occupation groups and the overall ranking for comparison. Inspection of the results in Table 24 reveals that there again appeared to be some consistency in that seven of the top ten motives for overall groups were found to be common in all five occupation groups even though their ranking orders were different.

Among the five groups, "I want to release tension" was ranked relatively lower by Others group which mainly consisted of housewives or older retired women. In contrast, this group ranked "I like the gentle way to exercise" much higher (third in mean ratings) than the other four groups. Furthermore, this group, together with the Upper group which mainly consisted of older adult females who were in a Partner relationship, identified "I want to improve my medical condition" as one of the top ten motives for Tai Chi participation. "I want to get more energy" was not in the top ten mean ratings of the Students group, but was for the

other four groups. Students seemed to be more interested in "I like to exercise" and "I want to stay in shape".

Table 24: **RANKING OF MOTIVES BY OCCUPATION GROUPS (N=223)**

ITEM	OVERALL	GROUPS				
		UPPER	MIDDLE	LOWER	STUDENTS	OTHERS
I LIKE THE MENTAL RELAXATION	1	3	1	3	2	1
I WANT TO RELEASE TENSION	2	1	4	1	1	6
I LIKE TO KEEP HEALTHY	3	4	3	3	4	2
I WANT TO EXERCISE MY MIND/BODY TOGETHER	4	2	2	6	3	7
I WANT TO IMPROVE FLEXIBILITY	5	6	6	2	6	4
I WANT TO GET MORE ENERGY	6	5	5	7	-	5
I WANT TO BECOME PHYSICALY FIT	7	7	9	5	5	8
I LIKE A PEACEFUL ATMOSPHERE	8	10	7	9	7	10
I LIKE THE GENTLE WAY TO EXERCISE	9	8	-	8	10	3
I WANT TO LEARN NEW SKILLS	10	-	8	-	-	-
I WANT TO IMPROVE MY MEDICAL CONDITION	-	9	-	-	-	9
I LIKE TO EXERCISE	-	-	10	-	9	-
I LIKE TO EXPAND MY INTERESTS	-	-	-	10	-	-
I WANT TO STAY IN SHAPE	-	-	-	-	8	-

The relationship between occupation of participants and the PMQ was assessed by evaluating which motives were significant in differentiating between the five occupation groups. One-way ANOVA revealed that significant occupation differences were found on six of the 40 items as shown in Table 25. Three items were rated over 3 on the 5-point Likert scale, falling above Important. Specifically, the Scheffe Post hoc test revealed that the Others group rated "I like the gentle way to exercise" as a more important reason for participation than the Middle group which mainly consisted of younger adult females who were in the Alone group. This Others group also rated "I like to do something that is non-competitive"

significantly higher in importance than did the Upper group. The Students group rated "I like to try something unusual" significantly higher than did the Middle group.

Table 25: **SIGNIFICANT OCCUPATION DIFFERENCES IN PMQ ITEMS (N=223)**

ITEM	UPPER MEAN	UPPER SD	MIDDLE MEAN	MIDDLE SD	LOWER MEAN	LOWER SD	STUDENTS MEAN	STUDENTS SD	OTHERS MEAN	OTHERS SD	F RATIO	PROB.
I like the gentle way to exercise			3.41	1.16					4.21	.89	5.10	.0006
I want to be with my family/friends			1.92	1.10					2.70	1.19	3.74	.0058
I want to do something non comp.	2.14	1.21							3.44	1.24	4.51	.0016
I like being in a group	1.82	1.10					2.90	1.58			3.46	.0091
I like to try something unusual			2.36	1.13			3.38	1.47			3.58	.0075
I want to gain status or recognition	1.27	.88	1.35	.72	1.23	.59	2.19	1.50			4.55	.0015

The Scheffe Post hoc test also revealed some significant differences which showed that the Others group rated being with family or friends as a more important reason for participation than the Middle group, the Students group rated being in a group as a more important reason for participation than the Upper group, and that this Students group also rated gaining status or recognition significantly higher in importance than did the Upper, the Middle and the Lower groups. Even though these significant differences existed, this result, as previously noted with respect to age differences, is of minimal importance as the items were rated as having only marginal relevance to the participants.

4.3.1.7 Summary of the Analyses of Participation Motivation Questionnaire Responses

The most important findings of the analysis of the responses to the 40 item PMQ and the relationship between the demographic data and the PMQ data can be summarised as follows:

The most important overall motives for taking up Tai Chi were mainly concerned with Health and Fitness, and Relaxation. Skill Development was also a very important motive for initial involvement in Tai Chi. Motives associated with Status were ranked at the bottom of the 40 item list in the PMQ.

Only five of the 40 items significantly differentiated between the sexes. It appears that the motives that discriminate females from males include a desire to participate in an activity that involves gentle movements, is not competitive and does not emphasize philosophy and martial arts aspects, or going to a high level.

Seven of the 40 items significantly differentiate among the six age groups. Four of them are of minimal importance as the items were rated as having only marginal relevance to the participants. Of the other three important items, it appears that the oldest group (Over 60) was significantly less interested in skill development, martial arts and going to a high level than the youngest age group, while the older subjects ranked improving a medical condition notably higher than the younger subjects.

Although three of the 40 items significantly differentiate between the marital status groups, two of them are of minimal importance. It appears that the Partners group was significantly more interested in the improvement of a medical condition than the Alone group.

Ten of the 40 items significantly differentiate among the four education level groups. Half of them are of minimal importance. Of the important items, it appears that the highest level of education group Tertiary was significantly less motivated by improvement of a medical condition, something non-competitive and having something to do than the lowest level of education group Years 1-10. Becoming physically fit and going to a high level also seem to be less important for this Tertiary group than for the Years 11-12 group.

Six of the 40 items significantly differentiate among the five occupation groups. Half of them are of minimal importance. Regarding two of the three important items "I like the gentle way to exercise" and "I want to do something that is non-competitive", no clear interpretation seems to be possible from the Post hoc analysis or the significance of occupation differences without considering the composition of the Other group. This Other group comprised Housewife, Home Duties, Retired, Pensioner and Unemployed people. It may be these people were less motivated by the competitive aspects than the people in the Upper group and more interested in the gentle way to exercise than the persons in the Middle group. The Students group can be characterised by enjoying doing something unusual more than the Middle group.

4.4 FACTOR ANALYSIS OF THE RESPONSES TO THE ITEMS IN THE PARTICIPATION MOTIVATION QUESTIONNAIRE

Because a large number of reasons for Tai Chi participation was assessed and correlations existed between some items, factor analysis was used to examine the underlying motivational categories or factors associated with initiation of Tai Chi. Since a principal component factor analysis is most widely used in this sphere of participation motivation research, principal component factor analyses with both varimax (orthogonal) and oblimin (oblique) rotations were performed using the responses from the 40 items of the PMQ. Those factors with eigenvalues of 1.0 or greater were retained for the final rotation. Both factor analyses produced similar nine factor solutions. Although most of the items loaded on several identifiable factors, it appeared that a large number of items loaded on Factor One which seemed like it covered a wide range of motives. Also, a small number of items appeared to load on unexpected factors. In order to try to break up Factor One and refine some other item loadings, it was decided to reduce the eigenvalue. A reduction of the eigenvalue to 0.85 using varimax rotation produced an 11 Factor solution which broke up Factor One in a meaningful way, but still left some anomalies. Therefore, oblimin rotation with the same eigenvalue of 0.85 was performed. That produced very similar results to the varimax rotation, but where most of the major anomalies seemed to be resolved. As a result, the use of an oblimin rotation

with the eigenvalue of 0.85 is reported here because it provides the best fit to the data. All of the factor analytic methods employed produced substantially similar factors, so it was felt that most factors were relatively robust. Therefore, the factor analysis presented in detail in this study was the oblimin rotation with an eigenvalue of 0.85. The SPSS assigned items to factors on the basis of highest loading on that item.

Eleven interpretable factors, which accounted for 71.9% of the total variance, were identified. Of these 11 factors identified, Factor 1 appeared to be a major factor as it accounted for 31.9% of the variance, almost half of the total amount of variance accounted for (71.9%). Factors 1, 2 and 3 between them accounted for 46.5%, well over half of the total amount of variance accounted for. The other seven factors accounted for less than 5% of the variance each. The nature of these factors were identified on the basis of the pattern of the highest loading items within them and the factors were named accordingly. Table 26 presents the results of the first-order factor analysis.

Factor 1 consisted of six items: like the challenge, like to try something unusual, want to improve skills, like to expand interests, like to do something I can be good at, and want to learn new skills. This factor was labeled Challenge and Skill Development, as items loading heavily on this factor reflected motives associated with challenges Tai Chi offers and the quest for skill development.

Factor 2 contained three items: want to go to a high level, like the philosophy and like the martial arts, which seemed to identify certain philosophical objectives of Tai Chi. For this reason it was named Philosophical.

Factor 3 loaded highly on items reflecting a general positive psychological state of relaxation and tension release. It therefore was labeled Mental Relaxation. It was comprised of four items: like the mental relaxation, like a peaceful atmosphere, want to release tension, and want to exercise mind and body together.

Table 26: **RESULTS OF FIRST-ORDER FACTOR ANALYSIS (N=223)**

FACTOR	FACTOR LOADINGS										
	1	2	3	4	5	6	7	8	9	10	11
CHALLENGE/SKILLS DEVELOPMENT											
Like the challenge	.68	.01	.05	.00	.11	.09	-.02	-.04	.41	-.17	-.01
Try something unusual	.60	.01	-.15	.00	-.07	.01	.20	.14	.02	.05	.25
Improve skills	.59	.28	.01	.06	.09	.03	.10	.10	-.07	.16	-.10
Do something I can be good at	.53	.01	-.04	.11	.02	-.02	.14	.12	.11	.06	.26
Learn new skills	.52	.24	-.04	.04	.39	.21	.08	-.09	-.02	.05	-.22
Expand interest	.49	-.11	-.14	.18	-.03	.23	-.02	.19	.16	.03	-.21
PHILOSOPHICAL											
Go to a high level	.07	.76	-.07	.09	-.04	-.11	-.03	.18	.07	-.03	-.03
Like the marital arts	.10	.71	-.06	.22	-.11	-.18	-.07	.21	.00	.06	.15
Like the philosophy	-.08	.71	-.08	-.04	.10	.34	-.03	-.08	.08	.00	-.14
MENTAL RELAXATION											
Like the mental relaxation	-.04	.02	-.89	.03	.01	.04	.10	.01	.04	-.04	-.04
Like a peaceful atmosphere	.02	-.03	-.73	-.03	.01	-.01	.08	.16	.07	.04	-.22
Release tension	-.02	.02	-.72	.04	.02	.06	-.20	-.09	.05	.05	.48
Exercise mind and body together	.14	.33	-.45	.05	.33	-.02	.09	-.16	.10	-.15	-.13
PHYSICAL HEALTH AND FITNESS											
Stay in shape	.08	-.02	-.00	.76	-.03	.15	-.03	.08	-.06	-.01	.04
Keep healthy	.02	.04	-.18	.71	.17	-.04	.12	-.08	-.00	-.02	-.04
Become physically fit	-.01	.04	-.03	.71	.16	-.08	-.01	.03	.06	.10	.08
Exercise	-.06	.17	-.05	.66	-.13	.07	.20	-.12	.13	-.39	.07
Get more energy	.04	.04	-.02	.54	.10	.19	-.33	.02	.11	.30	.27
Improve flexibility	.17	.16	-.06	.47	.28	-.23	.06	-.02	-.10	.35	-.21
MEDICAL											
Improve medical condition	.05	-.09	-.07	.17	.79	-.07	-.14	.11	-.01	.01	.08
FUN AND EXCITEMENT											
Have fun	.28	-.11	-.19	.05	-.11	.65	.04	.08	-.19	.05	.09
Meet new friends	-.12	.03	-.12	.11	-.03	.60	.39	.10	-.11	.02	-.02
Like the excitement	.13	.06	.10	.07	.08	.56	.03	.27	.17	.06	.09
SOCIAL											
Being in a group	-.00	.00	-.07	.07	-.02	.10	.75	.14	.05	.08	-.03
Like the group atmosphere	.11	.10	-.03	.02	-.08	.15	.72	-.03	.03	.16	.10
Like the group work	.12	.01	-.07	.12	-.14	.11	.69	.03	.12	.07	.11
Get out of the house	.10	-.18	.05	-.04	.25	.09	.57	.10	.03	.14	.03
Do seomething which keeps me busy	.31	-.14	-.15	.09	-.01	-.17	.51	.24	-.09	.04	.20
Be with family or friends	.10	-.11	.00	.00	.36	.14	.43	.21	.14	-.03	.20
STATUS											
Be popular	-.01	.09	.03	-.03	.15	.07	.02	.84	-.00	-.04	-.01
Feel important	.01	.22	-.06	-.07	.01	.07	.03	.80	-.03	-.01	.06
Satisfy curiosity	.33	-.09	-.19	.08	-.16	.12	-.04	.69	.07	.10	-.13
Have something to do	.09	-.21	.08	.16	-.05	-.07	.41	.46	.07	.09	-.06
Gain status or recognition	-.10	.26	.01	-.09	.24	.13	.24	.34	.18	-.14	.27
AESTHETIC											
Like the movements involved	.15	.12	-.09	-.05	.01	-.17	.06	-.13	.80	.04	.11
Like the beauty and grace	.12	-.03	-.10	.17	-.09	.09	.02	.20	.59	.07	-.20
Like the gentle way to exercise	-.23	-.06	-.20	.02	.08	.01	-.03	.11	.50	.47	-.04
NON-COMPETITIVE											
Do something non-competitive	-.00	.05	.02	-.05	-.05	.07	.27	-.07	.10	.78	.00
MISCELLANEOUS											
Family or friends want me to	-.02	-.16	.11	.13	.11	.07	.24	.08	-.00	-.03	.57
Get rid of energy	.14	.29	-.01	-.06	.16	.06	.20	.09	-.02	.12	.44
EIGENVALUE	12.74	3.78	2.08	1.82	1.68	1.42	1.28	1.11	1.01	0.97	0.86
PERCENT OF VARIANCE	31.9	9.4	5.2	4.6	4.2	3.6	3.2	2.8	2.5	2.4	2.2
CUMULATIVE PERCENT	31.9	41.3	46.5	51.0	55.2	58.8	62.0	64.8	67.3	69.7	71.9

Factor 4 was labeled Physical Health and Fitness because the six items within it were related to a number of aspects of physical health and fitness that were anticipated to result from practising Tai Chi. These items were: want to stay in shape, like to keep healthy, want to become physically fit, like to exercise, want to get more energy and want to improve flexibility.

Factor 5 contained only one item "I want to improve my medical condition" which suggested the anticipated medical benefits resulting from Tai Chi practice and was thus named Medical.

Factor 6 consisted of three items: like to have fun, like to meet new friends, and like the excitement. This factor was named Fun and Excitement because the items which loaded on this factor described general qualities of any recreational activities associated with excitement and enjoyment and were not specific to Tai Chi.

Factor 7 was named Social because the six items within it were, for the most part, related to what a group environment could offer. It was made up of these six items: like being in a group, like the group work, like the group atmosphere, like to get out of the house, like to do something which keeps me busy, want to be with family or friends.

Factor 8 consisted of such items as want to be popular, like to feel important, want to gain status or recognition, like to have something to do, and like to satisfy my curiosity. Because most of the items loading on this factor suggested approval and positive evaluation from significant others, it was identified as a Status Factor.

Factor 9 was comprised of three items: like the movements involved, like the beauty and grace, and like the gentle way to exercise. It was named Aesthetic because these three items seemed to identify certain aspects of the aesthetic nature of Tai Chi.

Factor 10 was named Non-competitive on the basis of the meaning of the only item within it: want to do something that is non-competitive.

Finally, two items: family or close friends want me to participate and want to get rid of energy loaded together. Factor analysis proceeds by identifying the grouping which explains the greatest amount of variance and then considers the remaining unexplained variance. This process means that problematic items are progressively excluded from coherent and interpretable factors, remaining to be explained. These two items appeared to have little in common that suggested an interpretable factor. They seemed to represent the items remaining once all others had been assigned meaningfully. Therefore, this factor was labeled Miscellaneous, Factor 11.

It was found that four complex motive items loaded significantly on more than one factor: like the challenge loaded on Challenge and Skill Development, and Aesthetic; like to have something to do loaded on both Status and Social; like the gentle way to exercise loaded on Aesthetic as well as Non-competitive; and want to release tension loaded on Mental Relaxation and Miscellaneous.

The factor weights in the current study indicated 11 relatively clear and unambiguous factors with some reservations expressed above concerning the integrity of Factor 11, Miscellaneous. These included Challenge and Skill Development, Philosophical, Mental Relaxation, physical Health and Fitness, Medical, Fun and Excitement, Social, Status, Aesthetic, Non-competitive, and Miscellaneous.

4.4.1 INTERNAL CONSISTENCY OF FACTORS

Previous studies (Gill et al., 1983; Brodkin and Weiss, 1990) have considered the internal consistency of the factors generated. Gill et al. (1983) cited mean interitem correlations

and Cronbach's (1951) Alpha coefficients for the items constituting each factor. Brodkin and Weiss (1990) cited Alpha coefficients only.

In research methodology it is questionable practice to perform reliability analyses on the same data which is employed to test hypotheses. Nonetheless, the mean inter item correlations and Cronbach Alpha coefficients for each factor were calculated to allow comparisons with Gill et al. (1983) and Brodkin and Weiss (1990). These results are presented in Table 27. No mean interitem correlations and Cronbach Alpha coefficients were calculated for Factor 5, Medical and Factor 10, Non-competitive as there was only one item in each of the two factors.

The mean interitem correlations in Table 27 are generally high with the correlation between the two items making up the Miscellaneous factor the only one below 0.40. Similarly, the Cronbach Alpha coefficients are all above 0.6, a generally used guide to sound internal consistency, with the exception of the value of 0.43 for the Miscellaneous factor.

Table 27: **INTERNAL CONSISTENCY OF FACTORS**

FACTOR	MEAN INTERITEM CORRELATION	CRONBACH'S ALPHA
CHALLENGE/SKILL DEVELOPMENT	.52	.86
PHILOSOPHICAL	.53	.77
MENTAL RELAXATION	.48	.78
PHYSICAL HEALTH/FITNESS	.44	.83
MEDICAL	--	--
FUN/EXCITEMENT	.54	.78
SOCIAL	.60	.90
STATUS	.49	.82
AESTHETIC	.44	.70
NON-COMPETITIVE	--	--
MISCELLANEOUS	.23	.43

As reported in the description of the factor analysis process the Miscellaneous factor appears to consist of the two items remaining when all other items had been clearly identified with one of the previous ten factors. It is, therefore, not surprising that the internal consistency of this factor is weak.

On the whole these reliability analyses indicate a high level of internal consistency of the items forming eight of the eleven factors, supporting the previous results. As the underlying statistical base for both factor analysis and Cronbach's Alpha coefficient is the correlation coefficient, this is not unexpected.

4.5 SECOND-ORDER FACTOR ANALYSIS

One goal of factor analysis is to represent relationships among sets of variables parsimoniously, that is, the observed correlations should be explained using as few factors as possible. Little simplification or summarization occurs if many factors are needed. On the other hand, the factors would usually be expected to be meaningful. A good factor solution is both simple and interpretable. When factors can be interpreted, new insights are possible. The factor analysis produced 11 interpretable factors. It appears from the factor correlation matrix, which is presented in Table 28, that correlations existed between some of the 11 factors. For

Table 28: **FACTOR CORRELATION MATRIX FOR ELEVEN FACTORS IN FIRST-ORDER FACTOR ANALYSIS**

	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11
F1	1.000										
F2	.173	1.00									
F3	-.236	-.128	1.000								
F4	.301	.209	-.226	1.000							
F5	.145	.197	-.160	.189	1.000						
F6	.175	.062	-.181	.131	.062	1.000					
F7	.256	.002	-.133	.141	.122	.269	1.000				
F8	.314	.064	-.178	.180	.124	.262	.376	1.000			
F9	.197	.180	-.292	.193	.153	.109	.152	.168	1.000		
F10	.161	-.031	-.208	.123	.140	.064	.130	.219	.147	1.000	
F11	.015	-.025	.014	.071	.137	-.86	.156	.201	.039	.095	1.000

example, it seemed that there were substantial correlations between Factor 1 and Factor 4 (0.301), Factor 1 and Factor 8 (0.314), and Factor 8 and Factor 7 (0.376). Therefore, it was appropriate and necessary to conduct a Second-order Factor Analysis to see if there were any more general factors underlying the factors determined by the first-order factor analysis.

Principal component factor analyses with both varimax (orthogonal) and oblimin (oblique) rotations were performed on the 11 factor correlation matrix produced by the first-order factor analysis. Those factors with eigenvalues of 1.0 or greater were retained for the final rotation. These factor analyses both resulted in four factor solutions where each first-order factor was assigned to the same second-order factor with only small differences in specific factor loadings. Only the varimax solution is reported in the present study, however, since the factors were readily interpretable and it had the advantage of making the resulting factors independent of one another. The SPSS assigned each of the 11 factors to the four new factors on the basis of highest loading on that factor.

Four new factors, which accounted for 54.4% of the total variance, were identified. These were named on the basis of the pattern of the highest loading old factors within them. Table 29 presents the results of the second-order factor analysis.

Factor 1 contained four first-order factors: Social, Fun and Excitement, Status, and Challenge and Skills Development, which reflected general motivational factors commonly reported in the previous PMQ research on competitive sports. For this reason, this factor was labeled General Characteristics of Sports and Exercise Activities.

Factor 2 loaded highly on three first-order factors: Non-competitive, Psychological Health and Aesthetic. These factors are usually associated with aspects of non-competitive exercise activities in general, and Tai Chi in particular. It was therefore named Specific Characteristics of Non-Competitive Exercise Activities.

Table 29: RESULTS OF SECOND-ORDER FACTOR ANALYSIS

FACTOR	FACTOR LOADINGS			
	1	2	3	4
GENERAL CHARACTERISTICS OF SPORTS AND EXERCISE ACTIVITIES				
Social	.72	.08	-.02	.17
Fun/Excitement	.69	-.02	.09	-.10
Status	.67	.22	.02	.24
Challenge/Skills Development	.47	.30	.35	-.09
SPECIFIC CHARACTERISTICS OF NON-COMPETITIVE EXERCISE ACTIVITIES				
Non-Competitive	.04	.75	-.23	.28
Mental Relaxation	-.17	-.65	-.23	.17
Aesthetic	.11	.52	.33	.-03
PHYSICAL AND SPIRITUAL WELLBEING				
Philosophical	-.02	-.06	.80	-.02
Physical Health/Fitness	.21	.25	.53	.08
MISCELLANEOUS				
Miscellaneous	.20	-.09	-.05	.81
Medical	-.07	.22	.48	.54
EIGENVALUE	2.61	1.31	1.05	1.02
PERCENT OF VARIANCE	23.8	11.9	9.5	9.3
CUMULATIVE PERCENT	23.8	35.6	45.2	54.4

Factor 3 was named Physical and Spiritual Wellbeing because two first-order factors, Philosophical and Physical Health and Fitness, loaded highly on this new factor and they seemed to be elements of participation for the development of wellbeing, either by improving bodily functioning or by expanding mental experience.

Finally, two first-order factors Medical and Miscellaneous, which only represented three of the 40 items in the PMQ loaded together and were labeled Miscellaneous, Factor 4, on a similar basis to the first-order factor analysis, that is, the factors not included in coherent and interpretable second-order factors. While the highest loading for the first-order Medical factor was on Factor 4, a notable loading of 0.48 was achieved on Factor 3. This supported the contention that those with medical conditions may have taken up Tai Chi for health reasons, while those without medical conditions produced "noise" in the scores on this item, forcing it into the Miscellaneous factor.

CHAPTER FIVE: DISCUSSION

5.1 INTRODUCTION TO DISCUSSION SECTION

This study had three major purposes corresponding to the three research questions. The first was to identify the motives for initial involvement in Tai Chi and the general patterns into which these motives could be grouped. The second was to investigate whether there were different motives for participation for different types of participants. This study thirdly attempted to investigate which factors were important in characterising Tai Chi participants.

The first part of the Discussion will be presented in four sections in a similar order to those in the Results Chapter. Section 5.2 provides comment on the characteristics of the Tai Chi participants in relation to research question number 3. Section 5.3 comments on motives by demographic variables and how they relate to the two formal hypotheses associated with research question number 2. Section 5.4 comments on motives, the general patterns of these motives and how they relate to the four general predictions associated with research question number 1. Section 5.5 provides comment on other notable findings not referred to in the hypotheses and general predictions. The second part of the Discussion includes evaluation on the design of the current study (5.6), recommendations for future research (5.7) and final conclusions (5.8).

5.2 CHARACTERISTICS OF TAI CHI PARTICIPANTS

One of the main purposes of the present study was to find out which factors characterised Tai Chi participants in terms of five demographic variables: Sex, Age, Marital Status, Education and Occupation. Since no research related to this question has been conducted previously, no formal hypothesis was suggested. The most notable finding of the analysis of the demographic variables was that there were significantly more females (70.9%) than males (29.1%) in the sample group. It appeared that females were over-represented within

the group of Tai Chi participants studied, compared to the proportion of females in the general population. As such it would appear that sex may be one factor which can be related to a person's decision to take up Tai Chi.

Direct comparison with previous research is difficult as other studies used different methods to select samples. In no other research was an entire cohort of people participating in the activity studied. However, it appears from martial arts research that there were more males than females participating in martial arts classes in Australia (Daley, 1991).

A possible explanation for the greater proportion of females participating in Tai Chi may relate to the socialization of females. The established understanding of traditional gender role stereotypes described by Kawkes et al. (1975), among others, idicates that femininity is associated with dependent, passive, fragile, non-assertive, yielding, non-competitive, receptive, supporting and emotionally-pliable qualities, while masculinity is associated with independent, assertive, strong, enduring, courageous, active, disciplined and emotionally-controlled qualities.

These stereotypes may be noted from early childhood. A study by Goldberg and Lewis (1972) revealed that mothers had different expectations of their six month old infants. Boys were expected to be more noisy, dirty and adventurous, while girls were expected to be relatively quiet, clean and restrained. These differences may be reinforced through school years. In 1984, Senator Ryan, Australian Minister for Education and Youth Affairs, stated that children still learned during their school years that different things were expected of boys and girls. For instance, a primary school girl was not allowed to play soccer or cricket or any sport seen as too vigorous or too aggressive.

It has also been recognised that exercise habits acquired during youth usually carry over into adult life (Australian Sports Commission, 1991). Adult males tend to participate in more active and vigorous sports and recreational activities, whereas adult females tend to be involved

in less active, less vigorous, less competitive, and less dangerous sports and exercise activities (Smith and Theberge, 1987). As Tai Chi has been seen as a slow, gentle, graceful, relaxing and non-competitive recreational activity, it has a higher correspondence with those qualities typically associated with the female role.

Gender stereotypes and activities associated with younger males and females might be changing in the current generation. Many younger women today do not fit this kind of traditional gender stereotype. Girls have started to play many traditionally male sports which are usually more vigorous and aggressive. There appears to be an increasing awareness that sports and exercise activities traditionally considered appropriate for one gender only are now perceived as being suitable for either gender. However, as the western perception of Tai Chi is that of an activity which is slow, gentle and graceful, it might be assumed that females, particularly those who conform to a more traditional gender role stereotype, might be attracted to Tai Chi. It would be informative in future research to include a question asking people about their sporting history to see whether people were following a consistent pattern of being involved in slow, gentle and aesthetic activities; or whether taking up Tai Chi was a switch of activity from highly competitive, vigorous and aggressive activities, which might be based on increasing age, loss of interest or injury caused by these activities. Alternatively, Tai Chi might attract people who did not have much sporting history because competitive sports did not appeal, whereas the nature of Tai Chi did.

The results of this study revealed that Tai Chi appealed more to younger adults than older adults. This finding was unexpected for two reasons. Firstly, it contrasts with the image of Tai Chi presented in the mass media, that is, Tai Chi is an activity mainly for elderly people. Secondly, older people, compared with younger people, tend to drop out of physical activities that are strenuous and require greater stamina, and turn to activities that are more gentle, non-vigorous, slower and less physically demanding, like Tai Chi. Three possible explanations may be advanced to explain the unexpectedly high proportion of younger Tai Chi participants. Firstly, it may be that for many people Tai Chi carries with it an image of being a martial arts

activity, which may appeal more to young people rather than a slow, gentle and therapeutic activity, which would appeal more to old people. However, this explanation is not supported by the results, which showed that female participants differentiated between the martial arts aspects and the health and therapeutic benefits of Tai Chi, and indicated that they took up Tai Chi for the latter benefits. Thus, as the majority of the sample were clearly not attracted to the martial arts aspects of Tai Chi, this seems an unlikely explanation for the high proportion of young participants. Secondly, it may be that the present sample could be an atypical sample; that is not a true representation of the population of Tai Chi participants. Anecdotal evidence from the instructors of some of the Tai Chi academies in Australia supports this explanation, as they have noted that the majority of their participants are over 40 years old. However, this impression held by the Tai Chi instructors does not constitute strong scientific evidence, and therefore may be questionable. The Tai Chi and Chi Kung Academy was asked if they had kept any records of Tai Chi participants' ages. Unfortunately, this kind of record was not available. As a result, it was not possible to obtain this useful data. Finally, the unexpectedly high proportion of younger Tai Chi participants could be explained by the lack of emphasis on health and therapeutic benefits for elderly people in the promotion of Tai Chi. However, this is not a likely explanation because firstly, the Tai Chi and Chi Kung Academy does promote and publicize the health benefits of practising Tai Chi and secondly, the results of the current study indicate that the older people did choose health as the most important reason for their initial involvement in Tai Chi, suggesting that they were aware of the therapeutic potential of Tai Chi. Further research needs to be conducted to establish whether the present sample was atypical, to obtain more general information about the age distribution of Tai Chi participants, and to investigate further what is attracting people of different ages to Tai Chi.

There were no unexpected findings with respect to Marital Status, Education Level and Occupation. It was noted that there were approximately equal numbers of married and single participants; many Tai Chi participants had achieved high levels of education; and most of the Tai Chi participants were Professionals, Para-Professionals, Clerks and members of the non-occupational category, Others, such as Housewives and Retired people.

5.3 HYPOTHESES

The results were considered in relation to the first hypothesis, that is that the martial arts aspect of Tai Chi is a significantly more important factor for initiation for males than for females. It was found that "I like the martial arts" was ranked higher by males (twentieth in mean ratings) than by females who ranked it thirty-fourth in their motives for taking up Tai Chi. One-way ANOVA confirmed that this martial arts item significantly differentiated male and female participants. Specifically, the test revealed that the males rated "I like the martial arts" significantly higher than did the females ($F=15.50$, $P=0.0001$). Therefore, the first hypothesis was supported by the results. Although the present study reveals that two thirds of the participants were females, the other one third who were males still considered the martial aspect of this gentle art as an important motive for their participation. However, it should be noted that even though the item related to martial arts significantly differentiated the males from the females, neither the males nor the females placed a large amount of importance on this item since the average score for this item on the 5-point Likert scale was 2.95 for the males, falling somewhat below Important, and 2.19 for the females, falling well below Important. In addition, the rankings of this item by these two groups were very low, being ranks 20 and 34 respectively.

This finding is inconsistent with the previous research. Daley (1991) reported that other martial arts research indicated that there were more males than females participating in martial arts classes in Australia and the martial aspect was always rated as a very important reason for participation. One possible explanation for this contradictory finding could be that people choose different martial arts for different purposes. For example, people who are more interested in the combative aspect of martial arts would go to a Karate class rather than to a Tai Chi class, and people who are interested in martial arts, but prefer something slow and gentle, would choose Tai Chi rather than Karate. Another possible explanation could be the nature of the question or the context in which people were asked about martial arts. For instance, there were more opportunities in the questions to support the non-combative aspect of Tai Chi, such

as a gentle way to exercise rather than the normal martial arts aspect as only one of the 40 items of the PMQ related to the martial arts aspect of Tai Chi. Respondents might not have identified clearly with the wording of this item, but may still have held initiation motives that related to the martial arts field. They may have responded positively to items such as "I like the spiritual development", "I want to achieve dignity and power", "I like the self-defence" and "I like the self-discipline" if they were included. Inclusion of additional martial arts-related items may have significantly changed the pattern of motives noted. This contradictory finding may also have arisen because the participants were informed by friends or recruitment literature of Tai Chi more as a non-combative martial art form which was good for health and relaxation rather than a pure martial arts form. Finally, there might be some genuine differences which need to be researched further between Tai Chi and other forms of martial arts.

The results also supported the second hypothesis that the skill development aspect of Tai Chi is a significantly more important factor for initiation for young people than for older people. It was found that the two skill-related items "I want to learn new skills" and "I want to improve my skills" were ranked as two of the top ten motives for taking up Tai Chi by the youngest group, Under 20. The mean scores for these two items were exactly 4.00 in each case, which, on the 5-point Likert scale, fell above Very Important. While "I want to learn new skills" was also ranked as one of the top ten motives for initial involvement in Tai Chi by the 21-30 and 31-40 groups, the mean scores for this item for these two groups were 3.68 and 3.52 respectively, which fell somewhat below Very Important on the 5-point Likert scale. The 41-50, 51-60 and over 60 groups did not rank this item as one of the top ten motives for initiation. This finding is consistent with previous PMQ research which indicates that skill development is always rated highly as a motive for participation for young people (Gill et al., 1983; Gould et al., 1985; Longhurst and Spink, 1987; and Brodkin and Weiss, 1990). However, it should be noted that One-way ANOVA revealed that no significant age differences were found on this skill development item. This lack of significant differences could be due to high within groups variability. The other skill-related item "I want to improve my skills" was not ranked as one of the top ten motives for initiation by any of the other five age groups, only

the Under 20 group rating it so highly. The results suggest that the skill development aspect of Tai Chi is a more important reason for initiation for the younger people, especially for the people under 20, than for the older people. The older people like to learn new Tai Chi movements as a means of keeping healthy, improving fitness and relaxing, but they were not keen to improve their skills to get to a high standard. The statistical analysis supported this interpretation in that the older people (Over 60) rated "I want to improve my skills" and "I want to go to a high level" significantly lower than the younger participants.

5.4 GENERAL PREDICTIONS

The results were considered in relation to the first general prediction, that is that the high ranking motives for initial involvement in Tai Chi are different from motives for participation in competitive sports, but similar to those associated with recreational sports and activities. Specifically, it was predicted that health, fitness improvement and relaxation are significant motivational factors in Tai Chi. Most PMQ studies to date (Gill et al., 1983; Gould et al., 1985; Longhurst and Spink, 1987, Spink and Longhurst, 1990; and Brodkin and Weiss, 1990) assessed motives for current participation rather than initiation, making the tacit assumption that initial, continued and sustained motives were the same. Klint and Weiss (1986), however, claimed explicitly that reasons for participation were basically the same as reasons for initiation. Therefore, the reasons for taking up Tai Chi were examined in the light of the previous PMQ research.

The results of this study revealed that the majority of the top ranking motives for Tai Chi were associated with health, fitness and relaxation. These top ranking motives for Tai Chi, except fitness and skill development, were also found to be different from those in the previous research in competitive sports using versions of the PMQ, where fun, challenge and competition were frequently reported as most important. Therefore, the prediction received broad support. It should be noted that because of the deletion of the items related to competition, competitive items, therefore, could not be major motives as they were not

appropriate in the non-competitive Tai Chi environment. However, even though most of the items from the original PMQ were retained, the results of the current study revealed that most of the new items added to the current questionnaire such as mental relaxation, to keep healthy, to exercise mind the body together and to improve flexibility, were selected as the high ranking motives against the range of items which were ranked very highly in the previous PMQ studies, such as fun, challenge and social reasons.

The selection of the health, fitness and relaxation motives as the most important motives for Tai Chi participation may be a reflection of the health and fitness boom of the late 1970s and 1980s, and the current media attention to the role of exercise in maintaining health and fitness (Brodkin and Weiss, 1990; and Heitmann, 1986). The Tai Chi and Chi Kung Academy places emphasis on the benefits to health, fitness and relaxation resulting from the practice of Tai Chi in their promotion of the art. Thus, the advertised benefits of practising Tai Chi are consistent with the most commonly selected motives for participation.

Contrary to the second prediction, the essential nature of Martial Arts was not found to be an important motive for Tai Chi participation. In fact, the mean score for the item "I like the martial arts" was only 2.41, which fell below Important on the 5-point Likert scale. This item was 27th in the rank ordering of importance rating. This unexpected finding may be explained by the fact that, even though Tai Chi is a branch of Wushu, the Chinese Martial Arts, the essential nature of Martial Arts of Tai Chi has rarely been emphasized in the promotion and the teaching of Tai Chi for beginners at the Tai Chi and Chi Kung Academy. However, the results of the current study revealed that young male participants seemed to be particularly interested in this aspect, with a higher mean rating than all the other groups.

The results supported the third prediction that there are motives that are specific to the initiation of Tai Chi, such as the gentle way to exercise, the mental relaxation and to exercise mind and body together. The results revealed that seven of the top ten ranking items were items added to the original PMQ after the pilot study. These items included an emphasis on the

gentle aspects of Tai Chi, its focus on mental and physical health and relaxation and its practice in a peaceful atmosphere. This indicates that there are specific reasons why people initiated participation in Tai Chi which are different from those for taking up or participating in general sports and recreational activities. It is important, if not surprising, to note that people initiate new sport and exercise activities for different reasons. It is quite possible that there would be certain initiation factors for each specific activity. There is a need for further research which will lead to an improved match between participants' needs and what sport or exercise activities provide.

As seven of the top ten ranking items were those specialist items added to the questionnaire, this made it inappropriate to compare the present results directly to the results found in the previous research where the original PMQ or modified versions of the original questionnaire were used. At a descriptive level, there were similarities. For instance, in both previous and present studies, it was found that to be physically active and skill development were frequently rated as being very important motives for participation. This finding demonstrates that participants in both competitive sports and Tai Chi generally share some common motives for involvement. However, there were obvious differences. Specifically, fun, challenge, competition and social factors were frequently reported as the most important motives for participation in research on competitive sports (Gill et al., 1983; Gould et al., 1985; Klint and Weiss, 1986; Longhurst and Spink, 1987; and Brodkin and Weiss, 1990). In the present study these four items were not found to be as the important motives for Tai Chi participation. One possible explanation for this contradictory finding may be that previous studies that used the original PMQ or the modifications of the PMQ were mainly conducted in the competitive sports area, while Tai Chi is a non-competitive activity in Australia. Another possible explanation may be that previous studies mainly used children as subjects, while the present study used a large proportion of adults. However, this sample age distribution explanation is not supported by the results of the present study, which showed that the youngest sample group, Under 20, showed similar top ten motives for Tai Chi initiation to those for the older groups.

One PMQ study that may warrant closer comparison with the present study is that of Brodkin and Weiss (1990). Although their activity of interest was different (i.e. competitive swimming), their sample included a wide cross-section of age groups, similar to the present study. Brodkin and Weiss' age groupings were based on cognitive-developmental and leisure theory, while the present study divided the sample into ten year age blocks, so that the pattern could be compared with the Census data. Table 30 shows the age groups of the two studies. As there was no participant under the age of 12 in the current study, it was necessary to omit the 6-9 group in Brodkin and Weiss' study for the convenience of the comparison between the

Table 30: **AGE GROUPS OF THE TWO STUDIES**

PRESENT STUDY	BRODKIN AND WEISS
	6 - 9*
Under 20	10 - 14
	15 - 22
21 - 30	23 - 39
31 - 40	
41 - 50	40 - 59
51 - 60	
Over 60	60 - 74

* Data from this age group was excluded for comparison.

two studies. At the descriptive level, the results showed that items associated with health and fitness were ranked among the top ten motives for initiation by the subjects in all age groups in

both studies. It should be noted that "I want to improve my health" was an additional item added to the final questionnaire in both studies. In future research it might be useful to consider Brodkin and Weiss' age groupings. This allows comparisons of motives between a wide range of age groupings, especially children. However, a large number of subjects would be required for each age grouping. A disadvantage of this approach would be the difficulty of comparing the data directly with the Australian Census data which used a different breakdown of ages for each grouping.

Skill improvement was also rated as one of the top ten motives by Brodkin and Weiss' subjects under 40 years of age, and by the Tai Chi participants in the Under 20 group, but not the 21-30 and the 31-40 groups in the current study. In contrast, learning new skills was ranked among the top ten motives for initiation by the Tai Chi participants under the age of 40, but not by any group in Brodkin and Weiss' study. These differences may relate to the length of experience in or/and level of expertise reached in the activity of the subjects in the two studies. Firstly, Brodkin and Weiss examined motives for current participation, while the present study identified motives for initiation in subjects' first session. Secondly, the subjects in the Brodkin and Weiss study had several years of experience in swimming and had learned the basic skills, whereas the subjects in the current study were Tai Chi beginners. Finally, to improve skills was the priority for the swimmers in order to compete better, while the priority for the Tai Chi participants was to learn the basic Tai Chi movements in order to keep fit and healthy, and to relax rather than for competing. Therefore, it is not surprising that to improve skills was important to established competitive swimmers, while to learn new skills was important to the motivation of new Tai Chi participants.

Another difference between the two studies was that having fun was rated as being one of the top ten motives for participation by all swimmers, but not by any of the age groups in the current Tai Chi study. "Fun" was a significant motive in the other PMQ studies of competitive sports (Gill et al., 1983; Gould et al., 1985; Klint and Weiss, 1986; and Longhurst and Spink, 1987). It should be noted that there was a slight trend for "Fun" to be rated as more important

by younger people than by older people in the current study. For the six age groups (from the youngest to the oldest), the rankings of mean importance rating were 16, 18, 19, 21, 20 and 25 respectively. There is no clear explanation for this trend or for the difference from previous PMQ research. It may be that, as the majority of the subjects in the current study were adults, these adults were less comfortable than children in admitting to the experience of "Fun". Alternatively, "Fun" may be a less significant motive for adults than for children, or compared with other exercise activities in which adults engage for "Fun", Tai Chi is not enough fun. Further research is needed to investigate whether fun is a significant motive for other non-competitive recreational activities, especially exercise activities designated as beneficial to health, fitness and relaxation.

It is suggested that people could participate in different sports or exercise activities for different reasons. Further research needs to be conducted to investigate more widely the whole range of sports and exercise activities (e.g. aerobics, tennis or martial arts) to find out, using a consistent approach, whether there are general motives or whether the pre-eminent motives are specific in some way which relates to the type of sports, exercise activities or martial arts. If motives are specific, one could understand people's motives as a means to more accurately inform and guide them into an activity that is suitable for their present motives. The questionnaire in these investigations could be used in a broader version because the version in the present study includes other reasons why people might do these activities, which may be particularly relevant to the non-competitive sports and exercise activities, but it has omitted some items related to competitive sports and has modified all the team-related items. The form of the questionnaire used in this study would not be appropriate for competitive and team-related sports and exercise activities.

The results may indicate that the PMQ was designed more for competitive than recreational sports or exercise activities as it does not cover a significantly wide range of motives for non-competitive activities. Further research needs to be conducted on other sports and physical activities to test the modified PMQ including the seven additional items.

The results of the current study may need to be viewed with some caution because of the modifications made to the questionnaire. The exclusion of certain items that were mainly designed for competitive sports did mean that the Tai Chi participants could not indicate these items. It may be that on entering the activity some subjects believed that it would be competitive and dropped out later when they found it was not. However, caution may be tempered because the items excluded were not relevant to Tai Chi and therefore the responses to these items would not make any sense to the Tai Chi participants in a non-competitive environment.

On the other hand, the inclusion of certain items that were more relevant to Tai Chi than to competitive sports in the current study could have produced different results from those in the previous PMQ research simply because the items included were not available to the subjects in other studies. However, some of the other items in the present study were still supported as it was found that some factors consistent with the previous PMQ research were highly ranked, alongside several new factors. It may be that the items that were similar to those in the previous PMQ research may reflect more general motives for participating in competitive sports and exercise activities, while those which were different from the previous PMQ research may reflect more specific kinds of motives for participation. One way to elucidate this is to administer a questionnaire, combining the original PMQ with the 17 items added to the current study, to people in a range of other sports and exercise activities to see whether inclusion of the new items still produces the same major items as previously derived from the studies of swimmers or gymnasts.

The results supported the fourth prediction, that is, factor analysis of the PMQ in the current study revealed a different factor structure to those found in previous PMQ research (reviewed in Section 2.2.1). While 11 factors were identified and found to be the salient motivational factors for Tai Chi participation, five of these factors were different from those found in the previous PMQ research. Two factors were specifically related to Tai Chi and identified as the Aesthetic Aspects of Tai Chi and Philosophical Objectives of Tai Chi, while the

Non-competitive Nature of Tai Chi and the Improvement of a Medical Condition were also underlying motives. This indicates that, in Tai Chi, there may be some specific motivational categories mainly related to the characteristics and the nature of Tai Chi, which are not shared by other competitive sports and recreational activities studied to date.

In addition, Mental Relaxation was identified as another influential motivational factor for Tai Chi participation. This factor included four items: "I like the mental relaxation", "I like a peaceful atmosphere", "I want to release tension", and "I want to exercise my mind and body together". This finding is also supportive of the factor analysis results in the previous research on recreational activities. Psychological Health in the study of running by Carmack and Martens (1979), Stimulus-Avoidance in a leisure study by Beard and Ragheb (1983), and Well-Being in a running study by Clough et al. (1989) were found to be similar to the Mental Relaxation factor found in the current study. This indicates that people would like to participate in recreational activities as a means of meeting the need to seek rest or calm conditions and to unwind themselves.

Apart from the Miscellaneous factor, the other five factors emerging from the 11 factor solution in the current study were similar to those found in the previous PMQ studies. Specifically, Challenge and Skill Development, Social, Physical Health and Fitness, Fun and Excitement, and Status found in the current study closely resemble the Challenge and Skill Development, Affiliation and Team Atmosphere, Fitness, Fun, and Social Status factors found in the studies by Gill et al. (1983), Gould et al. (1985), Klint and Weiss (1986), Longhurst and Spink (1987), and Brodkin and Weiss (1990). This finding suggests that there are some common motivational factors existing in competitive sports, recreational activities and Tai Chi.

While there are some similarities between the present results and factor structures identified in earlier PMQ research, some differences in factor analysis results between the previous and the current studies were also observed. Table 31 presents the factors found for each of the six studies discussed below. Using versions of the PMQ, Gill et al. (1983)

Table 31: **FACTORS IDENTIFIED IN PARTICIPATION MOTIVATION STUDIES**

Gill et al (1983)	Gould et al (1985)	Klint & Weiss (1986)	Longhurst & Spink (1987)	Brodkin & Weiss (1990)	Present study (1991)
Achievement/status	Achievement/status	Aspects of competition	Achievement/team	Aspects of competition	-
Team	Team atmosphere	Team atmosphere	-	-	-
Fitness	Fitness	Fitness	Fitness	Health/fitness	Physical Health/fitness
Energy release	Energy release	-	-	Energy release	-
Others	-	-	-	Significant others	-
Skill	Skill development	-	-	-	Challenge/Skill development
Friends	Friendship	-	-	Affiliation	Social
Fun	-	-	-	Fun	Fun/excitement
-	Excitement/challenge	Challenge	-	-	-
-	-	Action	-	-	-
-	-	Situational	Situational	-	-
-	-	Social recognition	Status	Social status	Status
-	-	-	-	-	Philosophical
-	-	-	-	-	Mental Relaxation
-	-	-	-	-	Medical
-	-	-	-	-	Aesthetic
-	-	-	-	-	Non-competitive
-	-	-	-	-	Miscellaneous

identified eight factors, Gould et al. (1985), Klint and Weiss (1986), and Brodkin and Weiss (1990) identified seven factors, while Longhurst and Spink (1987) identified only four factors, and the current study identified 11 factors. A principal component factor analysis with varimax and/or oblique rotation was performed in all these six studies. No details were reported about which criterion was used to produce the seven or eight factor solutions in the studies by Gill et al., Gould et al., Klint and Weiss, and Brodkin and Weiss. However, Longhurst and Spink (1987) derived six factors, but applied stringent criteria, using both Kaiser's criterion and Cattell's 'scree test', which is usually more conservative, resulting in only three factors being accepted. A fourth factor was added as it loaded heavily on two clear related items. This four factor solution is curious as, with only a few small changes, they used the same PMQ as was used in the four previously mentioned PMQ studies where seven or eight interpretable factors were generated. This may be explained by the more stringent criteria, Kaiser's criterion and Cattell's 'scree test', applied in their study. If Longhurst and Spink had used less stringent criteria, they may have also produced a seven or eight factor solution. A close examination of the Longhurst and Spink study reveals that using the more stringent criteria is not very appropriate and practical as some factors included a number of irrelevant items which were relatively independent. For example, Fun and Excitement loaded most heavily on Factor 1 which was named Achievement and Team. Further exploration may have revealed a more coherent factor structure in this study.

In contrast, 11 factors were generated in the current study as a result of the adoption of a lenient cut-off point because it was felt that there was not a clear set of relatively independent factors with the original nine factor solution produced with an eigenvalue of 1.0. Factor One, especially, seemed like it covered a wide range of motives, because a large number of items loaded on it, making this factor difficult to interpret. It was considered to be more important to derive meaningful factors rather than to adopt a strict eigenvalue. As a result, it was decided to reduce the eigenvalue to try to break up Factor One. A reduction of the eigenvalue to 0.85 using oblimin rotation produced the 11 factor solution which broke up Factor One in a meaningful way and also resolved the major anomalies.

Of the factors identified in the above mentioned studies, only the Fitness factor was common to all six studies. Factors of Affiliation and Status were identified in four of the studies, while factors related to Team, Energy Release, Challenge, Fun and Miscellaneous emerged in three of the studies. Perhaps the major differences between the previous five studies cited and the present study are the absence of the factor associated with achievement and competition in the present study, which was identified as an important factor in the other five studies; and the discovery of five factors specifically associated with the characteristics and the nature of Tai Chi, which were identified as important factors in the present study.

A possible explanation for the differences would be in the addition and deletion of the items in the PMQ. When the questionnaire for the current study was developed 17 items were added to the original questionnaire on the basis of the pilot study (see Sections 3.2, 3.3, 3.4 and Appendix 4); and 13 of them had high relevance to Tai Chi. It was these 13 new items and two original items that mainly comprised the five new factors which were absent in the five previous studies. On the other hand, seven items were deleted from the original questionnaire as they were not relevant to the study of Tai Chi. Four of these seven items were found to be the major items in the Achievement and Competition factor identified in the previous studies.

The previous PMQ studies produced an Energy Release factor, while the current study has produced a Mental Relaxation factor. It was considered that the Energy Release factor might have something in common with the Mental Relaxation factor. To investigate this, the items loading on the Energy Release factor in the previous studies were examined to see if there was an agreement with the items loading on the Mental Relaxation factor in the current study. It was found that while there was one item in common "I want to release tension", the Energy Release factor tended to include such items as getting rid of energy, getting out of the house, having something to do and travelling. In the present study, getting rid of energy loaded on the Miscellaneous factor, getting out of the house loaded on the Social factor, and having something to do loaded on the Status factor, while travelling was deleted from the original PMQ for this study. The Mental Relaxation factor in the current study was centred around the

relaxing nature of Tai Chi as most items in this factor, except "I want to release tension", were generated specifically for the study of Tai Chi. These items were "I like the mental relaxation", "I like a peaceful atmosphere" and "I want to exercise the mind and body together". Thus, the Mental Relaxation factor proved to be different in nature from the Energy Release factor.

The results of the Factor Analysis in the current study revealed a Non-competitive factor with only one item loading on it, which might reflect the inverse of the Competition factor found in the previous PMQ studies. It would seem likely that the Non-competitive factor would simply be an item with a negative loading on the Competition factor if all the items related to competition were included. However, the competition items were removed from this study as it was felt that they might confuse the Tai Chi participants in a non-competitive situation. Further research in a range of activities where the competition and non-competitive items are all included could examine this prediction. In a study recently completed on participation in Table Tennis (Morris, Power and Pappalardo, 1992), a version of the PMQ including most of the additional items in the present study of Tai Chi, but also returning the competition items to the questionnaire, did produce a competition factor on which the non-competitive item had a high negative loading as predicted.

Another factor that was found to be important in Tai Chi participation was a Medical factor. This factor was represented by a single item "I want to improve my medical condition" that was added to the original PMQ after the pilot study. This factor has never previously been shown to be important in the study of other competitive and recreational sports and exercise activities. As such, it may separate motives for taking up Tai Chi from those for other competitive and recreational sports and exercise activities, as well as martial arts. It should be noted, however, that the absence of this motive in previous research may simply reflect that it was not tested for because the previous PMQ research by Gill et al. (1983), Gould et al (1985), Klint and Weiss (1986) and Longhurst and Spink (1987) tended to focus on children and adolescents who were relatively younger, fitter, healthier and did not have many medical conditions to be improved compared with the older Tai Chi participants who ranked this

medical item very highly for initiation. These young children and adolescents may not consider this medical item as an important reason for their participation in competitive sports. Only Brodkin and Weiss (1990) examined motives for participating in competitive swimming across the lifespan, but they did not include such a medical item. However, inspection of the top ten ranking items for participation in their study suggests that the item concerned with health improvement became more important for the older people (Over 40) than for the younger people. It may be that a medical item would have emerged in the top ten motives for the older people if one had been included. It may also be noted that to get an acceptable sample size for their oldest group, Brodkin and Weiss had to use subjects participating in a "swimming for fitness" program.

The factor analysis produced eleven interpretable factors. Five of these factors were found to be specifically related to exercise activities in general, and Tai Chi in particular. This finding suggests that, in Tai Chi, there may be some specific motivational factors mainly related to the characteristics and the nature of Tai Chi, which are not shared by other competitive sports and exercise activities studied to date. On the other hand, it was also found that, apart from the Miscellaneous factor, the other five factors emerging from the eleven factor solution were similar to those frequently reported in the previous PMQ studies of competitive sports. This result indicates that there may well be some common motivational factors existing in competitive sports, exercise activities and Tai Chi.

The correlation matrix in the first-order factor analysis indicated that there were some noteworthy correlations between the first-order factors. In addition, some of the first-order factors' identities suggested the possibility that they might be linked together in higher order factors. Therefore, it was felt that it would be appropriate to conduct a second-order factor analysis to test the prediction that there were more general factors underlying the factors determined by the first-order factor analysis. None of the previous published PMQ research reported second-order factor analysis, so it was not clear whether this would constitute a

fruitful device for the investigation of theoretical predictions, but this proposition was worthy of exploration.

It does seem that the second-order factor analysis has pulled together most of the eleven first-order factors into groups which are interpretable at a more general level. The first group termed General Characteristics of Sports and Exercise Activities appeared to contain the major factors related to general aspects of sports and exercise activities. Factors in this first group were: Social, Fun and Excitement, Status, and Challenge and Skills Development. These factors reflected general motivational factors commonly reported in the previous PMQ research on competitive sports.

Factors which loaded highly on the second grouping referred to as Specific Characteristics of Non-competitive Exercise Activities appeared to be the specific factors usually associated with aspects of non-competitive exercise activities in general, and Tai Chi in particular. These factors were: Non-competitive, Mental Relaxation and Aesthetic.

Physical and Spiritual Wellbeing is clearly another major motivational factor for initial involvement in Tai Chi. It should be noted that inspection of items which loaded highly on this new factor (see Tables 26 and 29) suggests that there is a striving element behind it. That is, striving to move in a positive direction in terms of the development of wellbeing. The factor suggests a desire to achieve a higher mental experience through Tai Chi and to develop the spirit of vitality or essence of life, or to improve bodily functioning and to become physically superior.

Miscellaneous was the last factor on which two first-order factors loaded together: medical and Miscellaneous. These were the factors not included in coherent and interpretable second-order factors. However, it should be noted that the Medical factor also had a high loading on Physical and Spiritual Wellbeing. This might be because people who did not have medical conditions to be improved, that is, most young people and some of the older people,

gave responses to this item which were either random or neutral and thus unrelated to the health and fitness items. People who ranked this medical item very highly as a motive for their initiation were mainly older people who had medical conditions to be improved. They certainly found this item meaningful and responded in a similar way to their responses to health and fitness items. The different interpretations of people who had and who did not have medical conditions is probably why this medical factor fell out as a separate factor. Hence, the former group's responses did not comprise a pattern, whereas the responses of the latter group did form a pattern which related to an aspect of health motivation. The second highest loading of this factor still indicated a notable relationship between this medical factor and the health and fitness element of the Physical and Spiritual Wellbeing factor. If only older subjects, many with medical conditions, had been used in the present study, it would be more likely that the medical factor would have shown its highest loading on the Physical and Spiritual Wellbeing factor.

The first-order factor analysis demonstrated that there were factors extracted that were Tai Chi specific. The inclusion of the second-order factor analysis does seem to be of value. Firstly, it supported the prediction made regarding the general and specific motivational factors and helped to clarify these groups of different general underlying factors. Also, these groups of underlying factors appeared to represent, in part, a general set of factors that applied to all sports and exercise activities and, in part, a group of specific factors related to Tai Chi. Finally, the second-order factor analysis was helpful in further clarifying the essence or identity of the first-order factors, because of the way they grouped at the higher order level.

The factor weights in the current study identified relatively clear and unambiguous factors as the items generally grouped together in logical and distinct factor patterns. These factors appeared to have face validity. The observed patterns partially represented dimensions that have previously been identified - using the PMQ - as general categories of participation motivation in competitive sports. Other dimensions that were identified seemed to relate more specifically to Tai Chi than to other sports and exercise activities, but were consistent with the

results of the interviews in the pilot study.

The results of the factor analysis may need to be viewed with some caution as factor analysis can be influenced by the nature of the sample, the nature of the items employed and the criteria applied to determine factors as in the Longhurst and Spink (1987) study. Factor analysis may also be influenced by the number of items. For example, the Success and Achievement factor identified by Gill et al. (1983) represents a variety of motive items, whereas the Medical factor identified in the present study was only represented by a single item. One possible step in modifying the questionnaire could be to balance the number of items associated with different factors and to make sure that all items within a factor are logically related. One problem with this approach is that the size of the questionnaire produced might be prohibitive for its use with a large number of subjects in a free-response situation. Another problem with this approach is whether appropriate equal numbers of meaningful items associated with each factor could be reasonably generated.

5.5 OTHER NOTABLE FINDINGS

Aside from the hypotheses and general predictions, it is important to report some additional findings. Firstly, the results of this study revealed that females favoured the gentle way to exercise more than males. While this item was ranked eighth by females, it was not rated as one of the top ten motives by males. One-way ANOVA confirmed that females rated this item significantly higher than males ($F=9.98$, $P=0.0018$). A possible explanation for this phenomenon could be related to the traditional gender role stereotypes discussed early in this section. It was noted that according to this stereotyping females would tend to participate in less vigorous, less active and less dangerous sports and exercise activities than males.

Secondly, while male participants favoured the martial aspect of Tai Chi more strongly than females, it was found that females were more motivated into Tai Chi by the aesthetic aspect of this art than males ($F=7.83$, $P=0.0056$). This finding is consistent with the study by

Biddle and Bailey (1985) who reported that females endorsed more strongly the aesthetic domains than males. This suggests that males and females have significantly different motives for their initial involvement in Tai Chi. One response to this might be that Tai Chi instructors should understand these differences in motives and treat them differently by emphasizing the martial aspects of Tai Chi more for males than females, and the aesthetic aspect of Tai Chi more to females than males in the teaching of Tai Chi. Another response to this might be that Tai Chi instructors should try to sensitize males to the aesthetic quality of Tai Chi and alert females to the value of the martial aspect of Tai Chi for the essential nature of Martial Arts to widen the motives and interest of all participants.

Thirdly, to improve a medical condition was not rated as one of the top ten overall motives for Tai Chi initiation. However, this item was found to become more important as people got older. It was ranked tenth by the 41-50 group, eighth by the 51-60 group and second by the oldest group Over 60. The older participants' (Over 60) concern with medical conditions perhaps reflects the fact that they are within the age range in which their physical condition starts to decline and they are more vulnerable to diseases than younger participants. Because of the limitation of their physical condition, these older people believe that they are too old to participate in vigorous and endurance sport (Stollenwerk, 1983), therefore they probably prefer an exercise activity which is not too fast or too vigorous to keep fit and healthy, and to improve their medical conditions. The results of the rankings of mean importance rating supported this interpretation in that the oldest group Over 60 ranked "I like to keep healthy" first versus its ranking of third for the total sample overall, and "I like the gentle way to exercise" third versus its ranking of ninth for the whole sample overall. Tai Chi is a slow gentle exercise which has certain health and therapeutic benefits reported by Qu Mianyu (1979, 1983) and Adler (1983). Therefore, Tai Chi was a suitable and appropriate exercise for these older participants to choose in order to improve their medical conditions.

Fourthly, two items were included in the questionnaire that appeared, at face value, to be contradictory. These were "I want to get more energy", which was added to the PMQ after

the pilot study, and "I want to get rid of energy", which was retained from the original PMQ. The results revealed that "I want to get more energy" was ranked sixth by the whole sample, the mean score for this item was 3.86, falling between Important and Very Important on the 5-point Likert scale, while "I want to get rid of energy" was ranked thirty-sixth, the mean score overall for this item was 1.97, which fell below Not Important on the 5-point Likert scale. This finding indicates that "I want to get more energy" was a very important motive for taking up Tai Chi, whereas few people initiated participating in Tai Chi as a means of energy release.

The results of this study revealed that different kinds of people appeared to be particularly interested in certain aspects of Tai Chi. It was found that the martial aspects of Tai Chi and going to a high level were rated more highly by males than females, young people (Under 20) than old people (Over 60), and people with 11 to 12 years of education than those with tertiary education. This finding suggests that these two motives mainly attract young male participants who are still studying at Year 11-12 or left school after Year 11-12. The gentle way to exercise was rated more highly by females than males, older people (Over 60) than younger people (Under 20), people in the Partners than in the Alone groups, and people in the Others than in the Middle Level occupation groups. The results suggest that the older females, retired people and housewives who were in a partner relationship were particularly interested in the gentle way to exercise. The non-competitive aspect of Tai Chi appeared to be more important for initiation for the people with one to ten years of education than those with tertiary education, and the people in the Others than in the Upper Level occupation groups. This finding suggests that retired or unemployed people and housewives who had little education were particularly interested in the non-competitive aspect of Tai Chi. Finally, to improve a medical condition was rated more highly by older people (Over 60) than younger people (Under 20), people in the Partners group than the Alone group, people with the lowest education than those with the highest education and people who were retired, unemployed and housewives than those who were students or in the other occupation groups. This finding suggests that the old, retired, unemployed or homeduty people whose education did not go beyond primary school and who were in a partner relationship were particularly interested in

the improvement of a medical condition. It should be noted that there are overlaps between the various demographic categories, that is, they are not totally independent. For example, housewives are usually females and retired people are typically older, while older people may, in general, have had less education because of changes in the education system over the last sixty years.

It appears from these additional notable findings that females favoured the gentle way to exercise and the aesthetic aspect of Tai Chi more than males; older people (over 60) favoured to improve a medical condition more than younger people; people took up Tai Chi more for energy increase than for energy release; and different types of people seemed to be particularly interested in certain aspects of Tai Chi. For instance, the martial aspects of Tai Chi and going to a high level were rated more highly by males than females, young people (Under 20) than old people (Over 60), and people with 11 to 12 years of education than those with tertiary education.

5.6 EVALUATION OF THE DESIGN OF THE PRESENT STUDY

Use of the PMQ in the current study revealed no problems with its format or administration. Respondents reported no difficulty understanding or responding to items.

Sex and Age groupings in the current study were made consistent with Census data, which allowed a direct comparison between the sample in the present study and the general population in the Census. The divisions of each demographic variable in future research should be consistent with the Census divisions so that it would be possible and more convenient to compare directly with Census data, where it is necessary to compare a sample to the general population.

Some modification of items and wording of the items would be necessary to be consistent with the nature of different sports and exercise activities. For example, "team" and

"competition" are appropriate for the competitive team environment, while "group" and "gentle way to exercise" are suitable for the nature of Tai Chi.

Factor analysis can be influenced by the nature of items. One possible step in modifying the questionnaire is to balance the number of items related to different factors. A problem with this approach, however, is that the size of the questionnaire produced might be prohibitive for its use with a large number of subjects in a free-response situation. In addition, it would be very hard to reasonably suggest a sufficient number of appropriate meaningful items related to each factor.

More extensive research using the PMQ or other motivational questionnaires with non-competitive sports and exercise activities may yield other motivational factors that were not tested in the present research. Some of these factors may relate to Tai Chi, some may be specific to a particular sport or exercise activity, and others may be general to most non-competitive sports or exercise activities.

An issue which needs to be discussed is what scale of modification means that the questionnaire can no longer be considered as the same questionnaire, in this case, the PMQ.

Examining the use of the PMQ in the literature review, it can be seen that the scale used in the study by Gould et al. (1985) was identical to the original PMQ designed by Gill et al. (1983), with the exceptions that the directions stated that the respondents should indicate their major motives for participation in swimming, as opposed to sports in general, and slight changes in the wording of two items. Klint and Weiss (1986) used the same PMQ with modifications including addition of two items and changes in the wording of ten items. Longhurst and Spink (1987) made modifications to the PMQ which included deletion of four items and addition of one item. In the Brodkin and Weiss study (1990), four items were added to the original PMQ (though scores from two of the four items were deleted from the final data analysis because of the difficulty that participants had in interpreting these two items). All these

researchers made changes to the original PMQ and referred to their questionnaires as a modified version of the PMQ designed by Gill et al. (1983).

The questionnaire used in the present study was also based on the original PMQ. As the PMQ was mainly designed for and widely used in competitive sports, it was expected that a few modifications of the items and wordings would be needed for the study of Tai Chi. However, the pilot study reported in the Methods section indicated that apart from the range of motives given by the subjects for initiating participation in Tai Chi, which seemed to be consistent with previous research and the Gill et al. (1983) questionnaire, there also seemed to be a number of specific reasons for taking up Tai Chi which were not prominent in the previous research. These specific reasons seemed to represent characteristics of non-competitive activities in general, or of Tai Chi in particular, as opposed to the types of competitive sports for which the Gill et al. (1983) questionnaire has been used.

The results of the pilot study, therefore, necessitated a substantial number of changes to the original PMQ. These included deletion of seven items, addition of 17 items and changes in the wording of nine items. These changes were supported by the results of the current study as most of the high ranking items overall were specifically associated with Tai Chi while some major motives from competitive sports also ranked highly here. Furthermore, First and Second-order Factor Analyses identified coherent separate factors for the new additional items, alongside the original items and factors. As the modifications were made to the original PMQ, the final questionnaire used in the present study included 40 items, 23 items from the original PMQ alongside 17 new additional items. Perhaps with this 42.5% scale of changes the version employed here should not be considered to be the same questionnaire as the original PMQ, but it was believed that the additional items were justified in order to broaden the questionnaire for the study of non-competitive exercise activities and martial arts.

It should be borne in mind when comparing the present study with the previous PMQ studies that this study investigated motives for initial involvement in Tai Chi, whereas the

previous PMQ studies examined motives for current participation with subjects who had been involved in the activities for some time. However, there is no apparent reason why this should influence the major underlying factors though it has clearly influenced specific items such as to learn new skills and to improve skills. People who have just initiated an activity, like the subjects in the present study, have indicated that they were more interested in learning new skills rather than improving skills. In comparison, people who have been participating in the activity for some time, like the subjects in the previous PMQ studies (Gill et al., 1983; Gould et al., 1985; Longhurst and Spink, 1987; Spink and Longhurst, 1990 and Brodkin and Weiss, 1990), have rated improving skills as a more important reason than learning new skills for their current participation as they have already learned the essential skills and, thus, were more interested in improving their existing skills to get better.

5.7 RECOMMENDATION FOR FURTHER RESEARCH

The present study using the self-report PMQ has provided useful information about motives for Tai Chi initiation. However, in order to have a better understanding of, and appreciation for, the reasoning behind the decisions made regarding initiation, qualitative research using methods such as in-depth interviewing or participant observation is suggested as it will not be limited by the questionnaire items and could broaden the base of knowledge about motivational factors for Tai Chi and other sports and exercise activities.

The current study should be considered as an initial step in the broad investigation of participation motivation in Tai Chi as it mainly examined motives for Tai Chi initiation. Subjects in the current study were pure beginners with no Tai Chi experience at all. In order to understand more broadly why people initiate, continue and drop out of Tai Chi, it would be ideal to conduct a longitudinal study of a number of cohorts of Tai Chi participants as they pass through the three stages. Past research has noted that initial motives for participation in sports and exercise activities could be different from motives for current participation (Johnsgard, 1985). Klint and Weiss (1987) found a significant difference between motives for current

participation and motives for drop-out (though they described this difference as between initiation and drop-out, hence the questionable inference that initiation and current participation are equivalent). Unfortunately, most PMQ studies were conducted to investigate only one of the three stages in time (mainly current participation), with a minority studying two of the three stages, and none studying all three stages.

It is necessary to conduct a longitudinal study to find out similarities and differences between the motives at these three stages. Being able to follow subjects through different participation stages would provide a more complete picture of participation patterns. An advantage of such an approach is that it is prospective rather than retrospective in nature. It would be more reliable to ask subjects about how they currently feel at each stage, the method used in initiation in the present study, than to ask them to recall how they felt some time ago when they started the activity, the method used in the initiation studies by Johnsgard, 1985; Klint and Weiss, 1986; and Dean, 1987. Thus, it is possible to document and follow participants' involvement from a longitudinal rather than a cross-sectional perspective, which could enhance insight into the participation history of each subject. This approach also addresses the question of whether initial motives for participation change in importance as an individual develops greater skills and experience in an activity, acquires more knowledge about the activity and as other life circumstances change. In order to do this, it would be necessary to be able to identify each individual in the sample rather than using an anonymous questionnaire, as in the current study.

Another avenue for future research could be to include a question asking subjects' sporting history to determine whether there is any relationship between taking up Tai Chi and participants' sporting history. People may have a history of involvement in slow, gentle and aesthetic activities; or they may have formerly been involved in fast, vigorous and aggressive activities and, because of increasing age, loss of interest or injury, they have changed to Tai Chi. This may help to clarify why people drop out of some activities and turn to others. It

might also be that Tai Chi attracts people who do not have a substantial sporting history, that is, people who have not previously found sport an attractive leisure occupation.

The results of the current study revealed that Tai Chi appealed more to younger adults than older adults. This finding was unexpected as it contrasts with the image of Tai Chi presented in the mass media, that is, Tai Chi is an activity mainly for elderly people. It also contrasts with the trend that people tend to turn to activities that are slower, more gentle and less physically demanding as they get older. Finally, it contrasts with the impression held by the instructors of some Tai Chi academies in Australia who claim that the majority of the participants are over 40 years old. If that perception is substantiated, then the present sample would be atypical. Further research needs to be conducted to establish whether the present sample was atypical, to obtain more general information about the age distribution of Tai Chi participants, and to investigate further what is attracting people of different ages to Tai Chi.

"Fun" was a significant motive in the previous PMQ research, which mainly used young children as subjects, whereas it was not rated as being one of the top ten motives for Tai Chi initiation in the current study which mainly used adults as subjects. Although younger people, compared with older people, rated "Fun" as more important in the current study, there is no clear explanation for the general trend. It may be because of the ages of subjects in the sense that young people are looking more for an activity that is fun than old people, or as the majority of the subjects is the present study were adults, these adults were less willing and less comfortable than children in admitting to do something because it is fun. Alternatively, Tai Chi is not enough fun compared with other exercise activities in which adults engage for "Fun". It may be useful in future research to investigate whether "Fun" is reported to be a primary motive for other non-competitive, recreational activities, especially exercise activities designated as beneficial to health and fitness.

The results of the current study revealed that people took up Tai Chi mainly for motives related to health and fitness, and relaxation. These were different motives from those rated as

most important in the previous PMQ research. Further research is needed to investigate more widely the whole range of sports and exercise activities to find out whether there are general motives or whether the pre-eminent motives are specific to the type of sports, exercise activities or martial arts. The questionnaires in these investigations ought to be used in a broader version because the present findings indicated that the original PMQ might have been designed more for competitive than for recreational sports or exercise activities. It does not cover a wide enough range of motives for those other activities. In contrast, the questionnaire in the current study includes other reasons why people might participate in those activities, which may be particularly relevant to the non-competitive sports and exercise activities, but it has omitted some items related to competitive sports and has modified all the team-related items, which would not be appropriate for competitive and team-related sports and exercise activities. A questionnaire which combines the original and the present versions of the PMQ should permit comparisons of competitive sport and recreational or exercise activities to be carried out more sensitively.

As the modifications were made to the questionnaire, it is not clear whether the factors that were similar to those in the previous PMQ research may reflect more general motives for participation, while the factors that were different from those in the previous PMQ studies may reflect more specific kinds of motives for participating in non-competitive sports and exercise activities. Further research needs to administer a questionnaire combining the original PMQ with the 17 items added to the present study to people in a range of other sports and exercise activities to see whether inclusion of the new items still produces the same major factors as previously derived from the PMQ studies such as those on swimmers and gymnasts.

In addition to investigating a wider range of motives in different sports and exercise activities, it may be useful for future research to assess the generality or specificity of particular motives for each of these sports or exercise activities. It may be found that there are certain motives that are significant for a high proportion of sports and exercise activities, while other motives are specific to particular sports and exercise activities.

The present study's modifications to the PMQ involved the addition of a "non-competitive" item and deletion of some "competitive" items as Tai Chi is a non-competitive activity in Australia. The results of the Factor Analysis in the current study revealed a Non-competitive factor. Further research in a range of activities where competition and non-competitive items are all included is needed to investigate whether the Non-competitive factor is simply an item with a negative loading on the Competition factor.

5.8 CONCLUSIONS

Based on the results of the current study, the following conclusions have been drawn:

1. Those who take up Tai Chi in Victoria are characterised in the following ways:

   - More females than males took up Tai Chi
   - Most Tai Chi participants were between the ages of 21 and 50.
   - Most Tai Chi participants were either Single or Married rather than De Facto, Divorced, Separated or Widowed.
   - Most Tai Chi participants had achieved high levels of education.
   - Most Tai Chi participants were either those with high occupational status, such as Professionals or Para-Professionals, or those with time to spare, such as Housewives or Retired people.

2. The most important motives for taking up Tai Chi were associated with Health, Fitness and Relaxation. Skill Development was also an important motive for Tai Chi initiation.

3. The least important motives for initial involvement in Tai Chi were concerned with Status, Significant Others and Energy Release.

4. The most important motives that are specific to initiation of Tai Chi were "I like the mental relaxation", "I want to exercise my mind and body together", "I want to get more energy", "I like a peaceful atmosphere", and "I like the gentle way to exercise".

5. Male participants favoured the martial arts aspect of Tai Chi more strongly than females, whereas female participants were motivated into Tai Chi more by the gentle way to exercise and the aesthetic aspect of this art than males.

6. Younger participants under 20 favoured the martial arts aspect of Tai Chi, skill improvement and going to a high level more than older participants over 60, whereas these older participants were motivated into Tai Chi more by the improvement of a medical condition than the younger participants.

7. Participants in the Partners group favoured the improvement of a medical condition more than participants in the Alone group, possibly because there were also more of the older subjects in the former group.

8. Participants in the Years 11-12 education group favoured becoming physically fit and going to a high level more than participants in the Tertiary group, possibly because the Years 11-12 group included a substantial number of subjects still in Year 11 and 12 and thus younger than those in the Tertiary group.

9. Participants in the Tertiary group were significantly less motivated into Tai Chi by the improvement of a medical condition, doing something non-competitive and having something to do than those in the Years 1-10 group, perhaps because the latter group included many of the older subjects, who had received less education in their youth.

10. Housewives, retired and unemployed participants favoured doing something non-competitive more than the participants in the Upper occupation group, and they also

favoured the gentle way to exercise more than the participants in the Middle occupation group. These participants in the Middle occupation group were significantly less motivated into Tai Chi by the opportunity to try something unusual than were Students.

11. The results of the factor analysis revealed eleven categories of motivational factors. These were Challenge and Skill Development, Philosophical, Mental Relaxation, Physical Health and Fitness, Medical, Social, Fun and Excitement, Status, Aesthetic, Non-competitive, and Miscellaneous. However, some caution needs to be taken because of the modifications made to the PMQ with respect to the categories in the factor analysis.

This study has been valuable as it has produced some new information in the area of participation motivation. Firstly, the study has concentrated on initiation rather than current participation. As the subjects in the current study were pure Tai Chi beginners with no Tai Chi experience at all, it was prospective rather than retrospective. This is very important to keep in mind, as it can not be assumed that motives for initiation are the same as motives for current participation. Secondly, it has been found that in a non-competitive situation, major motives were not the same as those in competitive environments. It might be that there are specific reasons why people participate in particular sports or exercise activities as opposed to general reasons that may apply across the whole range of physical activity. Further research needs to address these issues. However, there are perhaps more pressing research needs to be addressed in the study of motivations to lay a theoretical foundation for describing the major reasons behind participants' motivation. One of the most significant recommendations to emerge from this study is the clear need for longitudinal research on such motives through the entire decision-making process and changes in major motives over time. A longitudinal study of a number of cohorts of Tai Chi participants as they pass through the initiation, participation and drop-out stages is necessary to establish the nature of similarities and differences between the motives at these three stages. A similar model may be useful for participation motivation research with other sports and exercise activities.

Finally, this study has provided initial practical information which can be used as a guide by the Tai Chi organisations in Australia to better understand and promote participation and reduce attrition in Tai Chi in current and future programs. The Chinese Wushu Association may also find the research conclusions useful in more effectively promoting participation in Tai Chi in countries throughout the world.

There appears to be a large proportion of females participating in Tai Chi, the main reasons for initiation seem to be related to the aesthetic qualities of Tai Chi. To promote Tai Chi further, it should be emphasized that it is very popular among females for these reasons. Then Tai Chi might attract more females who would be interested in doing something slow, gentle and graceful.

It also seems that Tai Chi is popular among older people who were interested in improving a medical condition. Emphasis of its medical benefits appears to be another possibility for the promotion of Tai Chi, especially for older people with medical conditions.

LIST OF REFERENCES

Adler, S.S. "Seeking stillness in motion: An introduction to Tai Chi for seniors", Activities, Adaptation and Aging, vol. 3, no. 4, pp.1-14, 1983.

Arthritis Foundation of Victoria. Twenty-first Annual Report. Australia. July 1988 - June 1989.

Australian Sports Commission. Strategies for Change. Canberra. May: 10, 1991.

Beard, J.G. and Regheb, M.G. "Measuring leisure motivation", Journal of Leisure Research, vol. 15, no. 3, pp. 219-228, 1983.

Biddle, S.J.H. and Bailey, C.I.A. "Motives for participation and attitudes toward physical activitiy of adult participants in fitness programs", Perceptual and Motor Skills, vol. 61, pp. 831-843, 1985.

Brodkin, P. and Weiss, M. "Developmental differences in motivation for participating in competitive swimming", Journal of Sport and Exercise Psychology, vol. 12, pp. 248-263, 1990.

Brown, B. and Curtis, J. "Does running go against the family grain?", National survey results of marital status and running, in N. Theberge and P. Donnelly (eds.), Sport and the Sociological Imagination, Fort Worth: Texas Christian University Press, 1984.

Bryan, P. Conflict in the Great Outdoors. University of Alabama, Bureau of Public Administration, Social Studies No. 4, 1979.

Burton, D. and Martens, R. "Pinned by their own goals: An exploratory investigation into why kids drop out of wrestling", Journal of Sport Psychology, vol. 8, pp.183-197, 1986.

Carmack, M.A. and Martens, R. "Measuring commitment to running: A survey of runners' attitudes and mental states", Journal of Sport Psychology, vol.1, pp. 25-42, 1979.

Castle, I. Australian Standard Classification of Occupation. Australian Bureau of Statistics, Commonwealth Government Printer, Canberra, 1986.

China Sports and New World Press. "Taijiquan", in Traditional Chinese Fitness Exercise, New World Press, Beijing, China, 1984.

Clough, P., Shepherd, J., and Maughan, R. "Motives for participation in recreational running", Journal of Leisure Research, vol. 21, no. 4, pp. 297-309, 1989.

Collins, M.F. "Mass participation in sport and health-related fitness", Sport Science Review, vol. 11, pp. 58-65, 1988.

Crandall, Rick. "Motivations for leisure", Journal of Leisure Research, First Quarter, pp. 45-53, 1980.

Daley, S. Self Defence for Women. Reported at Reverse the Trend, Teenagers in Sport - A Junior Sports Ummit, Carlton, Victoria, June, 1991.

Daniel, A. Power, Privilege and Prestige: Occupations in Australia, Melbourne, Longman Cheshire, 1983.

Dean, L.T. "How aerobics scores with Men?", Dance Exercise Today, vol. 5, no. 8, pp. 46-49, October, 1987.

Deaton, J.E. and Furney, D. "Who are you?", Inside Karate, vol. 6, no. 10, pp. 57-59; 76-77, October, 1985.

Du, Fengshan. "Taijiquan: A general review", China Sports, October, 1990, pp. 8-14.

Ewert, Alan. "Why people climb: The relationship of participant motives and experience level to mountaineering", Journal of Leisure Research, vol. 17, no. 3, pp. 241-250, 1985.

Fritschner, L.M. "Karate: The making and the maintenance of an underdog class", Journal of Sport Behaviour, vol. 1, no. 1, pp. 3-13, 1978.

Gill, D.L., Gross, J.B. and Huddleston, S. "Participation motivation in youth sports", International Journal of Sport Psychology, vol. 14, pp. 1-14, 1983.

Goldberg, S. and Lewis, M. "Play behaviour in the infant: Early sex differences", in Bardwick, J (eds.), Readings on the Psychology of Women, New York, Harper and Row, 1972.

Gould, D., Feltz, D., Horn, T. and Weiss, M. "Reasons for attrition in competitive youth swimming", Journal of Sport Behaviour, vol. 5, no. 3, pp. 155-165, 1982.

Gould, D., Feltz, D. and Weiss, M. "Motives for participation in competitive youth swimming", International Journal of Sport Psychology, vol. 16, pp. 126-140, 1985.

Gu, Liuxin. Taijiquan. Shanghai, China, Education Publishing House in Shanghai, 1982.

Gu, Liuxin. "The origin, evolution and development of shadow boxing", in Chen Style Taijiquan, Hong Kong, Hai Feng Publishing Co., 1984.

Guppy, N. "The effect of selected socialization practices on the sport achievement orientations of male and female adolescents", Unpublished Masters thesis, University of Waterloo, 1974.

Harris, Mary. "Runners perceptions of the benefits of running", Perceptual and Motor Skills, vol. 52, pp. 153-154, 1981.

Hawkes, P., Dryen, R. et al. "Sex roles in school sport and physical education: The state of play", The Australian Journal for Health, Physical Education and Recreation, March, 1975, pp. 8-17.

Heitmann, Helen. "Motives of older adults for participating in physical activity programs", in McPherson, B.D. (ed), Sport and Aging, Champaign Ill Attman Kinetic Pub., 1986.

Hyland, J.H. and Orlick, T.D. "Physical education drop outs: Some related factors", Mouvement. Actes du 7 Symposium en Apprentissage Psycho-moteur et Psychologie du Sport, October, 1975, pp. 377-380.

James, A. and Jones, R. "The social world of karate-do", Leisure Studies, vol. 1, pp. 337-354, 1982.

Johnsgard, K. "The motivation of the long distance runner: 1-2", Journal of Sports Medicine, vol. 25, pp. 135-143, 1985.

Khoud Adov, N. "Youth sport in the USSR", in Orlick, T., Partington, J.T., and Salmela, J.H. (eds.), Mental Training for Coaches and Athletes, Ottawa, Ontario: Coaching Association of Canada, 1982.

Klint, K.A., and Weiss, M. "Dropping in and dropping out: Participation motives of current and former youth gymnasts", Canadian Journal of Applied Sport Sciences, vol. 11, no.2, pp. 106-114, June, 1986.

Kroll, P.W. "Banking on students for a successful karate school", Black Belt, vol. 15, no. pp. 50-53, March, 1977.

Longhurst, K. and Spink, K.S. "Participation motivation of Australian children involved in organized sport", Canadian Journal of Sport Sciences, vol. 12, no. 1, pp. 24-30, March, 1987.

McPherson, B.D., Marteniuk, R., Tihanyi, J. and Clark, W. "The social system of age group swimming: The perceptions of swimmers, parents and coaches", Canadian Journal of Applied Sport Sciences, vol. 4., no. 3, pp. 142-145, 1980.

Melton, J.R. "What is the personality of your school?", Black Belt, vol. 25, no. 4, pp. 66-70; 80, April, 1987.

Morris, T., Power, H. and Papalardo, R. Motives for Participation in Table Tennis, Paper presented at Department of Physical Education and Recreation Research Seminar, Victoria University of Technology, May, 1992.

Oldridge, N.B. "Compliance of post myocardial infarction patients to exercise programs", Medicine and Science in Sports, vol. 11, no. 4, pp. 373-375, 1979.

Orlick, T.D. "The athletic drop out, a high price for inefficiency", Cahper Journal, Nov.-Dec., 1974, pp. 21-27.

Owen, N. and Lee, C. Why People Do and Do not Exercise. Department of Recreation and Sport, South Australia, 1984.

Qu, Mianyu. "Taijiquan - a medical assessment", in China Sports Series 1. Simplified "Taijiquan", Beijing, China Sports Editorial Board, 1980.

Robertson, Ian. "Sport in the lives of South Australian Children", in Orlick, T., Partington, J.T. and Salmela, J.H. (eds.), Mental Training for Coaches and Athletes, Ottawa, Ontario: Coaching Association of Canada, 1982.

Roth, W.T. "Aims and perspectives - some motivational aspects of exercise", Journal of Sports Medicine, vol. 14, pp. 40-47, 1974.

Smith, D.H. and Theberge, N. Why People Recreate: An Overview of Research, Champaign, Illinois, Life Enhancement Publications, 1987.

Smith, Libby. "Leisure futures", Recreation Australia, vol. 2, no. 3, pp. 20-22, December, 1982.

Spink, K.S. and Longhurst, K. "Participation motives of Australian boys involved in traditional and modified cricket", Australian Journal of Science and Medicine in Sport, vol. 22., no. 1, pp. 28-32, March, 1990.

Stiles, M.H. "Motivation for sports participation in the community", Canadian Medical Association Journal, vol. 96, pp. 889-892, March, 1967.

Van Moorst, H. SPSS Study Notes - A Beginner's Guide to the Statistical Package for the Social Sciences, Melbourne, Footprint, 1990.

Wankel, L.M. "Motivating involvement in adult physical activity programs", Recreation Research Review, vol. 6, pp. 40-43, 1979.

Weiss, M. and Petlichkoff, L. "Children's motivation for participation in and withdrawal from sport: Identify the missing links", Pediatric Exercise Science, vol. 1, pp. 195-211, 1989.

Wu, Tuna. "How to practise Taijiquan to attain super health and longevity", in Wang Peishang and Zeng Weiqi, Wu Style Taijiquan, Hong Kong, Hai Feng Publishing Co., 1983.

Xi, Yuntai. The History of China Wushu, Beijing, China, China Sports Editorial Board, 1985.

Yang, Zhenduo. "Foreword", in Yang Style Taijiquan, Hong Kong, Hai Feng Publishing Co., 1988.

APPENDICES

APPENDIX 1: INTERVIEW QUESTION 1

WHO/WHAT CONVINCED YOU TO TRY TAI CHI?	NUMBER M	NUMBER F	TOTAL (%)
Health/Fitness	7	14	21 (37%)
Perceived Advantage of Tai Chi	6	7	13 (23%)
Medical Reasons		7	7 (13%)
Significant Others	1	4	5 (9%)
Looking For An Alternative	3	1	4 (7%)
Social Reasons	1	2	3 (5%)
Curiosity		1	1 (2%)
Others	1	1	2 (4%)
TOTAL	19	37	56 (100%)

Most of the subjects gave more than one reason (an average of 1.87 reasons).

APPENDIX 2: INTERVIEW QUESTION 2

WHAT DID YOU EXPECT FROM TAI CHI BEFORE YOU CAME TO THE FIRST LESSON?	NUMBER M	F	TOTAL (%)
Health/Fitness	4	9	13 (43%)
Perceived Advantage of Tai Chi	1	6	7 (23%)
Curiosity	4	3	7 (23%)
Medical Reasons		2	2 (7%)
Nothing	1		1 (3%)
TOTAL	10	20	30 (100%)

APPENDIX 3: INTERVIEW QUESTION 3

WHY DID YOU LIKE TO PARTICIPATE IN TAI CHI?	NUMBER		TOTAL
	M	F	(%)
Health/Fitness	11	18	29 (55%)
Perceived Advantage of Tai Chi	4	2	6 (11%)
Challenge	1	4	5 (9%)
Achievement	1	3	4 (8%)
Social Reasons	1	2	3 (6%)
Medical Reasons		1	1 (2%)
Others		5	5 (9%)
TOTAL	18	35	53 (100%)

Most of the subjects gave more than one reason (an average of 1.77 reasons).

APPENDIX 4: ITEMS FINALLY ADDED TO THE ORIGINAL QUESTIONNAIRE

NUMBER	ITEM
1	I like to keep healthy
2	I like to improve flexibility
3	I like the mental relaxation
4	I like to exercise my mind and body together
5	I like the philosophy
6	I like the martial arts
7	I like the movements involved
8	I like the gentle way to exercise
9	I want to do something that is non-competitive
10	I like a peaceful atmosphere
11	I want to improve my medical condition
12	I like to satisfy my curiosity
13	I like to try something unusual
14	I like to expend my interests
15	I like to do something which keeps me busy
16	I want to increase energy
17	I like the beauty and grace

APPENDIX 5: ITEMS FINALLY DELETED FROM THE ORIGINAL QUESTIONNAIRE

NUMBER	ITEM
1	I like to compete
2	I like to win
3	I like the rewards
4	I like the action
5	I like the coach
6	I like to travel
7	I like to use the facilities or equipment

APPENDIX 6: SIX DEMOGRAPHIC AND TAI CHI BACKGROUND ITEMS

Would you please assist me by responding to each question? Most questions only require a tick (√) in the appropriate box, others require a written response.

1. Sex: M ❑
   F ❑

2. Age:
   - Under 20 ❑
   - 21 - 30 ❑
   - 31 - 40 ❑
   - 41 - 50 ❑
   - 51 - 60 ❑
   - Over 60 ❑

3. Marital Status:
   - Single ❑
   - Married ❑
   - De Facto ❑
   - Divorced ❑
   - Separated ❑
   - Widowed ❑

4. What is the highest level of education you have completed?
   - Primary ❑
   - Years 7 - 8 ❑
   - Years 9 - 10 ❑
   - Years 11 -12 ❑
   - TAFE ❑
   - Tertiary ❑
   - Other ❑

   If other, please specify: _____

5. What is your current occupation? _____

6. Have you ever done any Tai Chi before?
   - Yes ❑
   - No ❑

APPENDIX 7: FORTY PMQ ITEMS

The following list provides many reasons for taking up Tai Chi. Please rate the degree of importance of EACH item in your decision to begin Tai Chi.

Item	Not at all Important	Slightly Important	Important	Very Important	Extremely Important
I like to exercise	❑	❑	❑	❑	❑
I like the philosophy	❑	❑	❑	❑	❑
I like to meet new friends	❑	❑	❑	❑	❑
I like to have fun	❑	❑	❑	❑	❑
I want to release tension	❑	❑	❑	❑	❑
I like the excitement	❑	❑	❑	❑	❑
I want to stay in shape	❑	❑	❑	❑	❑
I want to get more energy	❑	❑	❑	❑	❑
I like the gentle way to exercise	❑	❑	❑	❑	❑
I like the martial arts	❑	❑	❑	❑	❑
I want to go to a high level	❑	❑	❑	❑	❑
I like to feel important	❑	❑	❑	❑	❑
I want to be popular	❑	❑	❑	❑	❑
I like to satisfy my curiosity	❑	❑	❑	❑	❑
I like to have something to do	❑	❑	❑	❑	❑
I like the beauty and grace	❑	❑	❑	❑	❑
I like to expand my interests	❑	❑	❑	❑	❑
I like being in a group	❑	❑	❑	❑	❑
I like a peaceful atmosphere	❑	❑	❑	❑	❑
I like the mental relaxation	❑	❑	❑	❑	❑
I want to become physically fit	❑	❑	❑	❑	❑
My family or close friends want me to participate	❑	❑	❑	❑	❑
I like the movements involved	❑	❑	❑	❑	❑
I like the challenge	❑	❑	❑	❑	❑
I like the group work	❑	❑	❑	❑	❑
I like to do something I can be good at	❑	❑	❑	❑	❑
I like to do something which keeps me busy	❑	❑	❑	❑	❑
I like to try something unusual	❑	❑	❑	❑	❑
I like the group atmosphere	❑	❑	❑	❑	❑

APPENDIX 7 (CONTINUED)

Item	Not at all Important	Slightly Important	Important	Very Important	Extremely Important
I want to improve my skills	❑	❑	❑	❑	❑
I want to improve flexibility	❑	❑	❑	❑	❑
I want to get rid of energy	❑	❑	❑	❑	❑
I want to exercise my mind and body together	❑	❑	❑	❑	❑
I want to learn new skills	❑	❑	❑	❑	❑
I want to improve my medical condition	❑	❑	❑	❑	❑
I like to get out of the house	❑	❑	❑	❑	❑
I want to be with my family or friends	❑	❑	❑	❑	❑
I like to keep healthy	❑	❑	❑	❑	❑
I want to do something that is non-competitive	❑	❑	❑	❑	❑
I want to gain status or recognition	❑	❑	❑	❑	❑

PLEASE CHECK AND MAKE SURE THAT YOU HAVE ANSWERED **EVERY** ITEM.

Thank you very much for your assistance and co-operation.

APPENDIX 8: COVERING LETTER

30 November 1990

Dear Tai Chi Student,

As an instructor from the Beijing Institute of Sport, I am studying for my Masters Degree through the Footscray Institute of Technology. I am currently researching participation in Tai Chi in Australia as part of that Masters Degree programme.

The purpose of the research is to examine reasons why people choose to take up Tai Chi. The questionnaire attached to this letter will form part of my research project. I would be most grateful if you would assist me by completing the questionnaire. The questionnaire is anonymous, and it does not take long to complete. Please read each question carefully and answer all parts as accurately as you possibly can.

As a result of my research, a paper on participation in Tai Chi in Australia will be given to the China Sports Council as they are interested in the international development of the art. It will benefit Tai Chi organisations throughout Australia by providing information concerning individual needs and aspirations of Tai Chi participants.

Your co-operation and assistance is greatly appreciated.

Yours faithfully,

Han Jin-Song

APPENDIX 9: MEANS AND STANDARD DEVIATIONS OF PARTICIPATION MOTIVES OVERALL

ITEM		Mean	SD
1.	I LIKE THE MENTAL RELAXATION	4.08	.94
2.	I WANT TO RELEASE TENSION	4.00	.96
3.	I LIKE TO KEEP HEALTHY	3.99	.92
4.	I WANT TO EXERCISE MY MIND AND BODY TOGE	3.96	.93
5.	I WANT TO IMPROVE FLEXIBILITY	3.87	.99
6.	I WANT TO GET MORE ENERGY	3.86	1.00
7.	I WANT TO BECOME PHYSICALLY FIT	3.73	1.11
8.	I LIKE A PEACEFUL ATMOSPHERE	3.71	1.11
9.	I LIKE THE GENTLE WAY TO EXERCISE	3.70	1.12
10.	I WANT TO LEARN NEW SKILLS	3.56	.95
11.	I LIKE TO EXPAND MY INTERESTS	3.46	1.13
12.	I LIKE TO EXERCISE	3.45	.96
13.	I WANT TO STAY IN SHAPE	3.42	1.12
14.	I WANT TO IMPROVE MY MEDICAL CONDITION	3.41	1.39
15.	I LIKE THE BEAUTY AND GRACE	3.28	1.20
16.	I WANT TO IMPROVE MY SKILLS	3.27	1.08
17.	I LIKE THE MOVEMENTS INVOLVED	3.23	1.08
18.	I LIKE THE CHALLENGE	3.13	1.15
19.	I LIKE THE PHILOSOPHY	3.12	1.06
20.	I LIKE TO HAVE FUN	3.01	1.13
21.	I WANT TO DO SOMETHING THAT IS NON-COMPE	2.94	1.36
22.	I WANT TO GO TO A HIGH LEVEL	2.65	1.45
23.	I LIKE TO SATISFY MY CURIOSITY	2.64	1.23
24.	I LIKE TO DO SOMETHING I CAN BE GOOD AT	2.57	1.30
25.	I LIKE TO TRY SOMETHING UNUSUAL	2.53	1.23
26.	I LIKE TO HAVE SOMETHING TO DO	2.52	1.26
27.	I LIKE THE MARTIAL ARTS	2.41	1.36
28.	I LIKE TO MEET NEW FRIENDS	2.34	.94
29.	I LIKE TO DO SOMETHING WHICH KEEPS ME BU	2.31	1.21
30.	I LIKE BEING IN A GROUP	2.23	1.16
31.	I LIKE THE GROUP WORK	2.22	1.19
32.	I LIKE THE GROUP ATMOSPHERE	2.18	1.16
33.	I LIKE THE EXCITEMENT	2.16	1.06
34.	I WANT TO BE WITH MY FAMILY OR FRIENDS	2.14	1.27
35.	I LIKE TO GET OUT OF THE HOUSE	2.11	1.26
36.	I WANT TO GET RID OF ENERGY	1.97	1.21
37.	I LIKE TO FEEL IMPORTANT	1.78	1.08
38.	MY FAMILY OR CLOSE FRIENDS WANT ME TO PA	1.65	1.05
39.	I WANT TO BE POPULAR	1. 64	.92
40.	I WANT TO GAIN STATUS OR RECOGNITION	1. 43	.92

APPENDIX 10: MEANS AND STANDARD DEVIATIONS OF PARTICIPATION MOTIVES BY SEX GROUPS

MALES

ITEM		Mean	SD
1.	I WANT TO EXERCISE MY MIND AND BODY TOGE	4.08	.91
2.	I LIKE THE MENTAL RELAXATION	3.95	1.04
3.	I WANT TO RELEASE TENSION	3.94	.97
4.	I LIKE TO KEEP HEALTHY	3.92	.96
5.	I WANT TO IMPROVE FLEXIBILITY	3.74	1.09
6.	I WANT TO LEARN NEW SKILLS	3.65	.86
7.	I WANT TO GET MORE ENERGY	3.65	1.12
8.	I LIKE A PEACEFUL ATMOSPHERE	3.55	1.06
9.	I LIKE TO EXERCISE	3.49	1.03
10.	I WANT TO BECOME PHYSICALLY FIT	3.45	1.23
11.	I WANT TO IMPROVE MY SKILLS	3.42	1.04
12.	I LIKE THE PHILOSOPHY	3.42	1.10
13.	I WANT TO IMPROVE MY MEDICAL CONDITION	3.40	1.40
14.	I WANT TO STAY IN SHAPE	3.37	1.15
15.	I LIKE TO EXPAND MY INTERESTS	3.37	1.18
16.	I LIKE THE GENTLE WAY TO EXERCISE	3.34	1.19
17.	I LIKE THE CHALLENGE	3.17	1.32
18.	I WANT TO GO TO A HIGH LEVEL	3.17	1.54
19.	I LIKE THE BEAUTY AND GRACE	3.05	1.16
20.	I LIKE THE MARTIAL ARTS	2.95	1.46
21.	I LIKE THE MOVEMENTS INVOLVED	2.92	1.16
22.	I LIKE TO HAVE FUN	2.91	1.23
23.	I WANT TO DO SOMETHING THAT IS NON-COMPE	2.72	1.48
24.	I LIKE TO SATISFY MY CURIOSITY	2.68	1.25
25.	I LIKE TO TRY SOMETHING UNUSUAL	2.42	1.27
26.	I LIKE TO DO SOMETHING I CAN BE GOOD AT	2.32	1.36
27.	I LIKE TO HAVE SOMETHING TO DO	2.32	1.37
28.	I LIKE TO MEET NEW FRIENDS	2.31	1.00
29.	I LIKE THE EXCITEMENT	2.23	1.11
30.	I LIKE TO DO SOMETHING WHICH KEEPS ME BU	2.09	1.23
31.	I WANT TO GET RID OF ENERGY	2.05	1.30
32.	I LIKE THE GROUP ATMOSPHERE	2.03	1.17
33.	I LIKE BEING IN A GROUP	2.02	1.18
34.	I LIKE THE GROUP WORK	1.95	1.10
35.	I WANT TO BE WITH MY FAMILY OR FRIENDS	1.95	1.24
36.	I LIKE TO GET OUT OF THE HOUSE	1.86	1.12
37.	MY FAMILY OR CLOSE FRIENDS WANT ME TO PA	1.66	1.20
38.	I LIKE TO FEEL IMPORTANT	1.65	.99
39.	I WANT TO BE POPULAR	1.51	.83
40.	I WANT TO GAIN STATUS OR RECOGNITION	1.40	.90

APPENDIX 10 (CONTINUED)

FEMALES

ITEM		Mean	SD
1.	I LIKE THE MENTAL RELAXATION	4.13	.89
2.	I WANT TO RELEASE TENSION	4.03	.96
3.	I LIKE TO KEEP HEALTHY	4.01	.90
4.	I WANT TO GET MORE ENERGY	3.95	.93
5.	I WANT TO IMPROVE FLEXIBILITY	3.92	.94
6.	I WANT TO EXERCISE MY MIND AND BODY TOGE	3.92	.94
7.	I WANT TO BECOME PHYSICALLY FIT	3.85	.05
8.	I LIKE THE GENTLE WAY TO EXERCISE	3.85	1.05
9.	I LIKE A PEACEFUL ATMOSPHERE	3.77	1.12
10.	I WANT TO LEARN NEW SKILLS	3.53	.99
11.	I LIKE TO EXPAND MY INTERESTS	3.49	1.12
12.	I LIKE TO EXERCISE	3.44	.93
13.	I WANT TO STAY IN SHAPE	3.44	1.11
14.	I WANT TO IMPROVE MY MEDICAL CONDITION	3.41	1.39
15.	I LIKE THE BEAUTY AND GRACE	3.38	1.20
16.	I LIKE THE MOVEMENTS INVOLVED	3.36	1.02
17.	I WANT TO IMPROVE MY SKILLS	3.21	1.09
18.	I LIKE THE CHALLENGE	3.11	1.07
19.	I LIKE TO HAVE FUN	.06	1.08
20.	I WANT TO DO SOMETHING THAT IS NON-COMPE	3.03	1.30
21.	I LIKE THE PHILOSOPHY	2.99	1.03
22.	I LIKE TO DO SOMETHING I CAN BE GOOD AT	2.67	1.26
23.	I LIKE TO SATISFY MY CURIOSITY	2.63	1.22
24.	I LIKE TO HAVE SOMETHING TO DO	2.61	1.20
25.	I LIKE TO TRY SOMETHING UNUSUAL	2.58	1.21
26.	I WANT TO GO TO A HIGH LEVEL	2.44	1.36
27.	I LIKE TO DO SOMETHING WHICH KEEPS ME BU	2.40	1.19
28.	I LIKE TO MEET NEW FRIENDS	2.35	.92
29.	I LIKE THE GROUP WORK	2.33	1.21
30.	I LIKE BEING IN A GROUP	2.32	1.15
31.	I LIKE THE GROUP ATMOSPHERE	2.25	1.15
32.	I WANT TO BE WITH MY FAMILY OR FRIENDS	2.22	1.27
33.	I LIKE TO GET OUT OF THE HOUSE	2.22	1.30
34.	I LIKE THE MARTIAL ARTS	2.19	1.25
35.	I LIKE THE EXCITEMENT	2.13	1.03
36.	I WANT TO GET RID OF ENERGY	1.94	1.17
37.	I LIKE TO FEEL IMPORTANT	1.84	1.12
38.	I WANT TO BE POPULAR	1.70	.96
39.	MY FAMILY OR CLOSE FRIENDS WANT ME TO PA	1.65	.98
40.	I WANT TO GAIN STATUS OR RECOGNITION	1.45	.93

APPENDIX 11: MEAN AND STANDARD DEVIATIONS OF PARTICIPATION MOTIVES BY AGE GROUPS

UNDER 20

ITEM		Mean	SD
1.	I WANT TO EXERCISE MY MIND AND BODY TOGE	4.38	.80
2.	I LIKE THE MENTAL RELAXATION	4.38	.97
3.	I WANT TO IMPROVE FLEXIBILITY	4.33	.73
4.	I WANT TO RELEASE TENSION	4.24	.94
5.	I LIKE TO KEEP HEALTHY	4.24	1.00
6.	I WANT TO BECOME PHYSICALLY FIT	4.24	1.14
7.	I WANT TO LEARN NEW SKILLS	4.00	.89
8.	I WANT TO IMPROVE MY SKILLS	4.00	.95
9.	I LIKE TO EXERCISE	3.95	.74
10.	I LIKE THE GENTLE WAY TO EXERCISE	3.90	1.09
11.	I LIKE A PEACEFUL ATMOSPHERE	3.86	1.11
12.	I WANT TO GET MORE ENERGY	3.86	1.15
13.	I WANT TO STAY IN SHAPE	3.81	1.08
14.	I LIKE TO EXPAND MY INTERESTS	3.67	1.02
15.	I LIKE THE MOVEMENTS INVOLVED	3.67	1.06
16.	I LIKE TO HAVE FUN	3.57	1.08
17.	I LIKE THE CHALLENGE	3.52	1.03
18.	I LIKE THE BEAUTY AND GRACE	3.48	1.25
19.	I LIKE TO SATISFY MY CURIOSITY	3.29	1.27
20.	I WANT TO DO SOMETHING THAT IS NON-COMPE	3.29	1.42
21.	I LIKE TO TRY SOMETHING UNUSUAL	3.29	1.45
22.	I LIKE THE MARTIAL ARTS	3.24	1.18
23.	I LIKE TO DO SOMETHING I CAN BE GOOD AT	3.24	1.30
24.	I LIKE TO HAVE SOMETHING TO DO	3.19	1.29
26.	I LIKE THE PHILOSOPHY	3.14	1.15
25.	I WANT TO GO TO A HIGH LEVEL	3.14	1.39
27.	I WANT TO IMPROVE MY MEDICAL CONDITION	3.10	1.37
28.	I LIKE BEING IN A GROUP	2.95	1.50
29.	I LIKE THE GROUP ATMOSPHERE	2.90	1.55
30.	I LIKE THE GROUP WORK	2.86	1.42
31.	I LIKE TO GET OUT OF THE HOUSE	2.81	1.60
32.	I LIKE TO MEET NEW FRIENDS	2.71	1.27
33.	I LIKE THE EXCITEMENT	2.67	1.15
34.	I LIKE TO DO SOMETHING WHICH KEEPS ME BU	2.62	1.28
35.	I WANT TO GET RID OF ENERGY	2.62	1.56
36.	I WANT TO BE WITH MY FAMILY OR FRIENDS	2.57	1.47
37.	I LIKE TO FEEL IMPORTANT	2.10	1.09
38.	MY FAMILY OR CLOSE FRIENDS WANT ME TO PA	2.10	1.41
39.	I WANT TO GAIN STATUS OR RECOGNITION	2.05	1.47
40.	I WANT TO BE POPULAR	1.76	1.00

APPENDIX 11 (CONTINUED)

21--30

ITEM		Mean	SD
1.	I WANT TO RELEASE TENSION	4.14	.93
2.	I WANT TO GET MORE ENERGY	4.10	.88
3.	I LIKE THE MENTAL RELAXATION	4.08	.91
4.	I WANT TO EXERCISE MY MIND AND BODY TOGE	4.03	.90
5.	I LIKE TO KEEP HEALTHY	3.93	.98
6.	I WANT TO IMPROVE FLEXIBILITY	3.85	1.11
7.	I LIKE TO EXPAND MY INTERESTS	3.74	1.07
8.	I WANT TO LEARN NEW SKILLS	3.68	.93
9.	I LIKE A PEACEFUL ATMOSPHERE	3.64	1.21
10.	I WANT TO BECOME PHYSICALLY FIT	3.63	1.15
11.	I LIKE TO EXERCISE	3.53	.99
12.	I WANT TO STAY IN SHAPE	3.53	1.06
13.	I WANT TO IMPROVE MY SKILLS	3.42	1.17
14.	I LIKE THE PHILOSOPHY	3.41	1.04
15.	I LIKE THE GENTLE WAY TO EXERCISE	3.37	1.27
16.	I LIKE THE CHALLENGE	3.33	1.23
17.	I LIKE THE BEAUTY AND GRACE	3.32	1.18
18.	I LIKE TO HAVE FUN	3.25	1.13
19.	I WANT TO IMPROVE MY MEDICAL CONDITION	3.22	1.54
20.	I LIKE THE MOVEMENTS INVOLVED	3.11	1.14
21.	I WANT TO GO TO A HIGH LEVEL	3.05	1.53
22.	I LIKE THE MARTIAL ARTS	2.77	1.40
23.	I LIKE TO TRY SOMETHING UNUSUAL	2.74	1.20
24.	I LIKE TO SATISFY MY CURIOSITY	2.74	1.21
25.	I WANT TO DO SOMETHING THAT IS NON-COMPE	2.74	1.41
26.	I LIKE TO DO SOMETHING I CAN BE GOOD AT	2.60	1.31
26.	I LIKE TO HAVE SOMETHING TO DO	2.47	1.31
28.	I LIKE TO DO SOMETHING WHICH KEEPS ME BU	2.36	1.32
29.	I LIKE TO MEET NEW FRIENDS	2.32	.88
30.	I LIKE THE EXCITEMENT	2.29	1.06
31.	I WANT TO GET RID OF ENERGY	2.26	1.29
32.	I LIKE THE GROUP WORK	2.22	1.28
33.	I LIKE THE GROUP ATMOSPHERE	2.16	1.14
34.	I LIKE BEING IN A GROUP	2.16	1.14
35.	I LIKE TO GET OUT OF THE HOUSE	2.03	1.21
36.	I WANT TO BE WITH MY FAMILY OR FRIENDS	1.99	1.22
37.	I LIKE TO FEEL IMPORTANT	1.96	1.15
38.	I WANT TO BE POPULAR	1.77	1.06
39.	MY FAMILY OR CLOSE FRIENDS WANT ME TO PA	1.68	1.15
40.	I WANT TO GAIN STATUS OR RECOGNITION	1.51	.96

APPENDIX 11 (CONTINUED)

31--40

TEM		Mean	SD
1.	I LIKE THE MENTAL RELAXATION	4.04	.95
2.	I WANT TO RELEASE TENSION	3.90	.84
3.	I LIKE TO KEEP HEALTHY	3.84	.89
4.	I WANT TO GET MORE ENERGY	3.78	.95
5.	I LIKE THE GENTLE WAY TO EXERCISE	3.76	.89
6.	I WANT TO EXERCISE MY MIND AND BODY TOGE	3.74	.94
7.	I WANT TO IMPROVE FLEXIBILITY	3.60	1.03
8.	I WANT TO BECOME PHYSICALLY FIT	3.58	1.13
9.	I WANT TO LEARN NEW SKILLS	3.52	.84
10.	I LIKE A PEACEFUL ATMOSPHERE	3.52	1.05
11.	I WANT TO IMPROVE MY MEDICAL CONDITION	3.42	1.23
12.	I LIKE TO EXERCISE	3.34	1.08
13.	I LIKE TO EXPAND MY INTERESTS	3.32	1.10
14.	I WANT TO STAY IN SHAPE	3.26	1.16
15.	I LIKE THE MOVEMENTS INVOLVED	3.12	1.15
16.	I LIKE THE BEAUTY AND GRACE	3.08	1.19
17.	I WANT TO IMPROVE MY SKILLS	3.02	.91
18.	I WANT TO DO SOMETHING THAT IS NON-COMPE	3.02	1.33
19.	I LIKE THE PHILOSOPHY	2.94	1.10
20.	I LIKE TO HAVE FUN	2.82	.92
21.	I LIKE THE CHALLENGE	2.76	1.12
22.	I LIKE TO SATISFY MY CURIOSITY	2.60	1.20
23.	I LIKE TO DO SOMETHING I CAN BE GOOD AT	2.42	1.28
24.	I LIKE TO HAVE SOMETHING TO DO	2.36	1.22
25.	I WANT TO GO TO A HIGH LEVEL	2.36	1.43
26.	I LIKE TO MEET NEW FRIENDS	2.32	.89
27.	I LIKE TO TRY SOMETHING UNUSUAL	2.26	1.12
28.	I LIKE TO DO SOMETHING WHICH KEEPS ME BU	2.18	1.22
29.	I LIKE THE MARTIAL ARTS	2.16	1.31
30.	I LIKE BEING IN A GROUP	2.14	1.18
31.	I LIKE THE GROUP ATMOSPHERE	2.12	1.21
32.	I WANT TO BE WITH MY FAMILY OR FRIENDS	2.06	1.19
33.	I LIKE THE GROUP WORK	2.02	1.19
34.	I LIKE TO GET OUT OF THE HOUSE	2.02	1.29
35.	I LIKE THE EXCITEMENT	1.94	.87
36.	I WANT TO GET RID OF ENERGY	1.84	1.18
37.	I LIKE TO FEEL IMPORTANT	1.82	1.12
38.	I WANT TO BE POPULAR	1.56	.81
39.	MY FAMILY OR CLOSE FRIENDS WANT ME TO PA	1.52	.84
40.	I WANT TO GAIN STATUS OR RECOGNITION	1.44	.88

APPENDIX 11 (CONTINUED)

41--50

ITEM		Mean	SD
1.	I LIKE THE MENTAL RELAXATION	4.12	1.03
2.	I LIKE TO KEEP HEALTHY	4.09	.87
3.	I WANT TO RELEASE TENSION	4.09	1.02
4.	I WANT TO EXERCISE MY MIND AND BODY TOGE	4.07	1.03
5.	I WANT TO IMPROVE FLEXIBILITY	4.00	.85
6.	I LIKE THE GENTLE WAY TO EXERCISE	3.95	1.17
7.	I LIKE A PEACEFUL ATMOSPHERE	3.88	1.12
8.	I WANT TO GET MORE ENERGY	3.74	1.14
9.	I WANT TO BECOME PHYSICALLY FIT	3.72	1.14
10.	I WANT TO IMPROVE MY MEDICAL CONDITION	3.51	1.52
11.	I LIKE THE BEAUTY AND GRACE	3.47	1.26
12.	I LIKE TO EXERCISE	3.37	.79
13.	I LIKE THE MOVEMENTS INVOLVED	3.35	1.11
14.	I WANT TO LEARN NEW SKILLS	3.33	1.23
15.	I WANT TO STAY IN SHAPE	3.30	1.26
16.	I LIKE TO EXPAND MY INTERESTS	3.19	1.31
17.	I WANT TO IMPROVE MY SKILLS	3.12	1.12
18.	I LIKE THE PHILOSOPHY	3.09	1.09
19.	I LIKE THE CHALLENGE	2.91	1.25
20.	I WANT TO DO SOMETHING THAT IS NON-COMPE	2.81	1.44
21.	I LIKE TO HAVE FUN	2.77	1.36
22.	I WANT TO GO TO A HIGH LEVEL	2.56	1.35
23.	I LIKE TO SATISFY MY CURIOSITY	2.47	1.40
24.	I LIKE TO DO SOMETHING I CAN BE GOOD AT	2.40	1.33
25.	I LIKE TO HAVE SOMETHING TO DO	2.30	1.26
26.	I LIKE TO TRY SOMETHING UNUSUAL	2.26	1.31
27.	I LIKE TO MEET NEW FRIENDS	2.19	.88
28.	I LIKE THE MARTIAL ARTS	2.12	1.20
29.	I LIKE TO DO SOMETHING WHICH KEEPS ME BU	2.02	1.10
30.	I LIKE THE GROUP WORK	1.93	.94
31.	I LIKE THE EXCITEMENT	1.93	1.08
32.	I WANT TO BE WITH MY FAMILY OR FRIENDS	1.93	1.18
33.	I LIKE TO GET OUT OF THE HOUSE	1.88	1.22
34.	I LIKE BEING IN A GROUP	1.84	.92
35.	I LIKE THE GROUP ATMOSPHERE	1.74	.93
36.	I WANT TO GET RID OF ENERGY	1.58	.76
37.	I LIKE TO FEEL IMPORTANT	1.56	1.05
38.	I WANT TO BE POPULAR	1.51	.80
39.	MY FAMILY OR CLOSE FRIENDS WANT ME TO PA	1.14	.41
40.	I WANT TO GAIN STATUS OR RECOGNITION	1.14	.41

APPENDIX 11 (CONTINUED)

51--60

ITEM		Mean	SD
1.	I LIKE THE MENTAL RELAXATION	4.05	.94
2.	I LIKE A PEACEFUL ATMOSPHERE	4.05	1.00
3.	I LIKE TO KEEP HEALTHY	3.95	.89
4.	I WANT TO BECOME PHYSICALLY FIT	3.95	1.00
5.	I WANT TO IMPROVE FLEXIBILITY	3.90	.85
6.	I LIKE THE GENTLE WAY TO EXERCISE	3.90	.97
7.	I WANT TO EXERCISE MY MIND AND BODY TOGE	3.85	.81
8.	I WANT TO IMPROVE MY MEDICAL CONDITION	3.80	1.24
9.	I WANT TO RELEASE TENSION	3.75	1.07
10.	I WANT TO GET MORE ENERGY	3.70	1.17
11.	I WANT TO LEARN NEW SKILLS	3.45	.69
12.	I LIKE THE CHALLENGE	3.45	.76
13.	I LIKE TO EXERCISE	3.45	.83
14.	I LIKE TO EXPAND MY INTERESTS	3.45	1.10
15.	I LIKE THE MOVEMENTS INVOLVED	3.40	.75
16.	I WANT TO IMPROVE MY SKILLS	3.35	.81
17.	I WANT TO STAY IN SHAPE	3.30	1.08
18.	I LIKE THE BEAUTY AND GRACE	3.15	1.18
19.	I WANT TO DO SOMETHING THAT IS NON-COMPE	3.05	1.19
20.	I LIKE TO HAVE FUN	2.95	.94
21.	I LIKE TO DO SOMETHING I CAN BE GOOD AT	2.95	1.15
22.	I LIKE THE PHILOSOPHY	2.90	.91
23.	I LIKE BEING IN A GROUP	2.65	1.04
24.	I LIKE TO HAVE SOMETHING TO DO	2.55	.94
25.	I LIKE TO MEET NEW FRIENDS	2.55	1.00
26.	I LIKE THE GROUP WORK	2.55	1.05
27.	I LIKE THE GROUP ATMOSPHERE	2.50	1.00
28.	I WANT TO GO TO A HIGH LEVEL	2.50	1.05
29.	I LIKE TO TRY SOMETHING UNUSUAL	2.45	1.00
30.	I LIKE TO SATISFY MY CURIOSITY	2.45	1.05
31.	I LIKE TO DO SOMETHING WHICH KEEPS ME BU	2.45	1.10
32.	I WANT TO BE WITH MY FAMILY OR FRIENDS	2.20	1.32
33.	I LIKE THE EXCITEMENT	2.15	1.04
34.	I LIKE THE MARTIAL ARTS	2.10	1.21
35.	MY FAMILY OR CLOSE FRIENDS WANT ME TO PA	2.05	1.19
36.	I LIKE TO GET OUT OF THE HOUSE	1.90	.72
37.	I WANT TO BE POPULAR	1.80	1.01
38.	I LIKE TO FEEL IMPORTANT	1.70	.98
39.	I WANT TO GET RID OF ENERGY	1.50	.76
40.	I WANT TO GAIN STATUS OR RECOGNITION	1.45	1.00

APPENDIX 11 (CONTINUED)

OVER 60

ITEM		Mean	SD
1.	I LIKE TO KEEP HEALTHY	4.13	.81
2.	I WANT TO IMPROVE MY MEDICAL CONDITION	3.88	.81
3.	I LIKE THE GENTLE WAY TO EXERCISE	3.81	.75
4.	I WANT TO IMPROVE FLEXIBILITY	3.81	.91
5.	I WANT TO BECOME PHYSICALLY FIT	3.75	.86
6.	I LIKE THE MENTAL RELAXATION	3.69	.70
7.	I WANT TO EXERCISE MY MIND AND BODY TOGE	3.69	.87
8.	I WANT TO GET MORE ENERGY	3.56	.63
9.	I LIKE A PEACEFUL ATMOSPHERE	3.50	.82
10.	I WANT TO RELEASE TENSION	3.44	1.03
11.	I WANT TO DO SOMETHING THAT IS NON-COMPE	3.38	1.09
12.	I WANT TO LEARN NEW SKILLS	3.31	.70
13.	I WANT TO STAY IN SHAPE	3.31	.95
14.	I LIKE THE BEAUTY AND GRACE	3.19	1.17
15.	I LIKE THE MOVEMENTS INVOLVED	3.06	.68
16.	I LIKE THE CHALLENGE	3.06	.68
17.	I LIKE TO EXPAND MY INTERESTS	3.06	1.00
18.	I WANT TO BE WITH MY FAMILY OR FRIENDS	3.06	1.24
19.	I LIKE TO EXERCISE	3.00	1.03
20.	I LIKE TO HAVE SOMETHING TO DO	3.00	1.15
21.	I LIKE TO GET OUT OF THE HOUSE	2.75	1.18
22.	I LIKE TO DO SOMETHING WHICH KEEPS ME BU	2.69	.79
23.	I WANT TO IMPROVE MY SKILLS	2.69	.95
24.	I LIKE THE PHILOSOPHY	2.62	.81
25.	I LIKE TO HAVE FUN	2.56	.96
26.	I LIKE BEING IN A GROUP	2.44	.96
27.	I LIKE THE GROUP WORK	2.37	.81
28.	I LIKE THE GROUP ATMOSPHERE	2.31	.79
29.	I LIKE TO TRY SOMETHING UNUSUAL	2.31	.95
30.	I LIKE TO SATISFY MY CURIOSITY	2.19	.75
31.	I LIKE TO MEET NEW FRIENDS	2.19	.91
32.	MY FAMILY OR CLOSE FRIENDS WANT ME TO PA	2.19	1.05
33.	I LIKE THE EXCITEMENT	2.19	1.22
34.	I LIKE TO DO SOMETHING I CAN BE GOOD AT	2.00	1.03
35.	I WANT TO GET RID OF ENERGY	1.88	1.26
36.	I LIKE THE MARTIAL ARTS	1.69	1.35
37.	I WANT TO GO TO A HIGH LEVEL	1.50	1.10
38.	I WANT TO BE POPULAR	1.31	.60
39.	I LIKE TO FEEL IMPORTANT	1.13	.34
40.	I WANT TO GAIN STATUS OR RECOGNITION	1.06	.25

APPENDIX 12: MEAN AND STANDARD DEVIATIONS OF PARTICITATION MOTIVES BY MARITAL STATUS GROUPS

ALONE

ITEM		Mean	SD
1.	I LIKE THE MENTAL RELAXATION	4.03	1.00
2.	I WANT TO EXERCISE MY MIND AND BODY TOGE	3.97	.87
3.	I WANT TO RELEASE TENSION	3.96	.92
4.	I LIKE TO KEEP HEALTHY	3.94	.93
5.	I WANT TO IMPROVE FLEXIBILITY	3.90	.97
6.	I WANT TO GET MORE ENERGY	3.88	.93
7.	I WANT TO BECOME PHYSICALLY FIT	3.75	1.11
8.	I LIKE A PEACEFUL ATMOSPHERE	3.66	1.16
9.	I WANT TO LEARN NEW SKILLS	3.62	1.01
10.	I LIKE TO EXPAND MY INTERESTS	3.58	1.12
11.	I LIKE THE GENTLE WAY TO EXERCISE	3.57	1.15
12.	I WANT TO STAY IN SHAPE	3.50	1.10
13.	I LIKE TO EXERCISE	3.45	.98
14.	I LIKE THE BEAUTY AND GRACE	3.39	1.21
15.	I WANT TO IMPROVE MY SKILLS	3.37	1.08
16.	I LIKE THE MOVEMENTS INVOLVED	3.24	1.12
17.	I LIKE THE PHILOSOPHY	3.20	1.03
18.	I WANT TO IMPROVE MY MEDICAL CONDITION	3.17	1.44
19.	I LIKE THE CHALLENGE	3.17	1.19
20.	I LIKE TO HAVE FUN	3.15	1.09
21.	I WANT TO DO SOMETHING THAT IS NON-COMPE	2.91	1.31
22.	I LIKE TO SATISFY MY CURIOSITY	2.76	1.26
23.	I LIKE TO DO SOMETHING I CAN BE GOOD AT	2.70	1.33
24.	I LIKE TO TRY SOMETHING UNUSUAL	2.70	1.32
25.	I WANT TO GO TO A HIGH LEVEL	2.68	1.41
26.	I LIKE TO HAVE SOMETHING TO DO	2.65	1.30
27.	I LIKE THE MARTIAL ARTS	2.50	1.34
28.	I LIKE TO MEET NEW FRIENDS	2.50	.99
29.	I LIKE BEING IN A GROUP	2.42	1.32
30.	I LIKE THE GROUP WORK	2.36	1.31
31.	I LIKE TO DO SOMETHING WHICH KEEPS ME BU	2.35	1.19
32.	I LIKE THE GROUP ATMOSPHERE	2.31	1.25
33.	I LIKE THE EXCITEMENT	2.29	1.11
34.	I WANT TO GET RID OF ENERGY	2.19	1.30
35.	I LIKE TO GET OUT OF THE HOUSE	2.16	1.27
36.	I WANT TO BE WITH MY FAMILY OR FRIENDS	2.05	1.26
37.	I LIKE TO FEEL IMPORTANT	.86	1.11
38.	I WANT TO BE POPULAR	1.70	.96
39.	MY FAMILY OR CLOSE FRIENDS WANT ME TO PA	1.60	1.02
40.	I WANT TO GAIN STATUS OR RECOGNITION	1.55	1.04

APPENDIX 12 (CONTINUED)

PARTNERS

ITEM		Mean	SD
1.	I LIKE THE MENTAL RELAXATION	4.13	.88
2.	I WANT TO RELEASE TENSION	4.05	1.01
3.	I LIKE TO KEEP HEALTHY	4.04	.91
4.	I WANT TO EXERCISE MY MIND AND BODY TOGE	3.96	.99
5.	I WANT TO GET MORE ENERGY	3.84	1.07
6.	I LIKE THE GENTLE WAY TO EXERCISE	3.84	1.07
7.	I WANT TO IMPROVE FLEXIBILITY	3.83	1.01
8.	I LIKE A PEACEFUL ATMOSPHERE	3.76	1.05
9.	I WANT TO BECOME PHYSICALLY FIT	3.71	1.13
10.	I WANT TO IMPROVE MY MEDICAL CONDITION	3.66	1.30
11.	I WANT TO LEARN NEW SKILLS	3.50	.89
12.	I LIKE TO EXERCISE	3.45	.94
13.	I WANT TO STAY IN SHAPE	3.32	1.14
14.	I LIKE TO EXPAND MY INTERESTS	3.32	1.14
15.	I LIKE THE MOVEMENTS INVOLVED	3.22	1.04
16.	I LIKE THE BEAUTY AND GRACE	3.17	1.18
17.	I WANT TO IMPROVE MY SKILLS	3.16	1.07
18.	I LIKE THE CHALLENGE	3.08	1.10
19.	I LIKE THE PHILOSOPHY	3.03	1.10
20.	I WANT TO DO SOMETHING THAT IS NON-COMPE	2.97	1.42
21.	I LIKE TO HAVE FUN	2.87	1.15
22.	I WANT TO GO TO A HIGH LEVEL	2.62	1.50
23.	I LIKE TO SATISFY MY CURIOSITY	2.52	1.19
24.	I LIKE TO DO SOMETHING I CAN BE GOOD AT	2.44	1.25
25.	I LIKE TO HAVE SOMETHING TO DO	2.39	1.21
26.	I LIKE TO TRY SOMETHING UNUSUAL	2.36	1.11
27.	I LIKE THE MARTIAL ARTS	2.31	1.38
28.	I LIKE TO DO SOMETHING WHICH KEEPS ME BU	2.27	1.24
29.	I WANT TO BE WITH MY FAMILY OR FRIENDS	2.24	1.27
30.	I LIKE TO MEET NEW FRIENDS	2.18	.86
31.	I LIKE THE GROUP WORK	2.07	1.03
32.	I LIKE TO GET OUT OF THE HOUSE	2.06	1.25
33.	I LIKE THE GROUP ATMOSPHERE	2.05	1.04
34.	I LIKE BEING IN A GROUP	2.04	.94
35.	I LIKE THE EXCITEMENT	2.02	.99
36.	I WANT TO GET RID OF ENERGY	1.74	1.05
37.	MY FAMILY OR CLOSE FRIENDS WANT ME TO PA	1.70	1.08
38.	I LIKE TO FEEL IMPORTANT	1.69	1.05
39.	I WANT TO BE POPULAR	1.58	.89
40.	I WANT TO GAIN STATUS OR RECOGNITION	1.31	.77

APPENDIX 13: MEAN AND STANDARD DEVIATIONS OF PARTICITATION MOTIVES BY EDUCATION LEVEL GROUPS

YEARS 1--10

ITEM		Mean	SD
1.	I LIKE THE MENTAL RELAXATION	4.16	.87
2.	I WANT TO EXERCISE MY MIND AND BODY TOGE	4.12	.91
3.	I LIKE TO KEEP HEALTHY	4.07	.99
4.	I WANT TO IMPROVE FLEXIBILITY	4.02	1.01
5.	I WANT TO GET MORE ENERGY	4.00	.95
6.	I LIKE THE GENTLE WAY TO EXERCISE	3.98	.99
7.	I WANT TO IMPROVE MY MEDICAL CONDITION	3.95	1.05
8.	I WANT TO RELEASE TENSION	3.88	.98
9.	I WANT TO BECOME PHYSICALLY FIT	3.88	1.20
10.	I LIKE A PEACEFUL ATMOSPHERE	3.81	1.14
11.	I WANT TO STAY IN SHAPE	3.74	.90
12.	I WANT TO LEARN NEW SKILLS	3.72	.83
13.	I LIKE TO EXPAND MY INTERESTS	3.60	1.05
14.	I LIKE TO EXERCISE	3.44	.77
15.	I LIKE THE MOVEMENTS INVOLVED	3.44	1.08
16.	I LIKE THE BEAUTY AND GRACE	3.37	1.23
17.	I WANT TO DO SOMETHING THAT IS NON-COMPE	3.26	1.26
18.	I LIKE THE CHALLENGE	3.21	1.08
19.	I WANT TO IMPROVE MY SKILLS	3.19	1.12
20.	I LIKE TO HAVE FUN	3.09	1.02
21.	I LIKE TO HAVE SOMETHING TO DO	3.09	1.27
22.	I LIKE TO SATISFY MY CURIOSITY	3.02	1.35
23.	I LIKE THE PHILOSOPHY	3.00	.90
24.	I LIKE TO TRY SOMETHING UNUSUAL	2.86	1.21
25.	I LIKE TO DO SOMETHING WHICH KEEPS ME BU	2.84	1.13
26.	I LIKE TO DO SOMETHING I CAN BE GOOD AT	2.72	1.26
27.	I LIKE THE GROUP ATMOSPHERE	2.63	1.31
28.	I LIKE TO GET OUT OF THE HOUSE	2.60	1.48
29.	I LIKE BEING IN A GROUP	2.56	1.24
30.	I WANT TO GO TO A HIGH LEVEL	2.53	1.40
31.	I LIKE THE GROUP WORK	2.51	1.37
32.	I WANT TO BE WITH MY FAMILY OR FRIENDS	2.49	1.28
33.	I LIKE TO MEET NEW FRIENDS	2.47	.91
34.	I LIKE THE MARTIAL ARTS	2.47	1.39
35.	I LIKE THE EXCITEMENT	2.26	1.05
36.	I WANT TO BE POPULAR	2.16	1.21
37.	MY FAMILY OR CLOSE FRIENDS WANT ME TO PA	2.07	1.16
38.	I WANT TO GET RID OF ENERGY	2.05	1.15
39.	I LIKE TO FEEL IMPORTANT	2.00	1.25
40.	I WANT TO GAIN STATUS OR RECOGNITION	1.44	.93

APPENDIX 13 (CONTINUED)

YEARS 11--12

ITEM		Mean	SD
1.	I WANT TO RELEASE TENSION	4.19	.87
2.	I LIKE TO KEEP HEALTHY	4.18	.76
3.	I LIKE THE MENTAL RELAXATION	4.18	.91
4.	I WANT TO EXERCISE MY MIND AND BODY TOGE	4.03	.95
5.	I WANT TO GET MORE ENERGY	3.97	.96
6.	I WANT TO IMPROVE FLEXIBILITY	3.97	1.01
7.	I WANT TO BECOME PHYSICALLY FIT	3.95	1.03
8.	I LIKE THE GENTLE WAY TO EXERCISE	3.80	1.10
9.	I LIKE A PEACEFUL ATMOSPHERE	3.72	1.12
10.	I WANT TO LEARN NEW SKILLS	3.62	.93
11.	I LIKE TO EXERCISE	3.57	1.01
12.	I WANT TO IMPROVE MY MEDICAL CONDITION	3.55	1.29
13.	I WANT TO STAY IN SHAPE	3.54	1.10
14.	I WANT TO IMPROVE MY SKILLS	3.46	1.10
15.	I LIKE TO EXPAND MY INTERESTS	3.43	1.12
16.	I LIKE THE MOVEMENTS INVOLVED	3.38	1.04
17.	I LIKE THE PHILOSOPHY	3.28	1.16
18.	I LIKE THE BEAUTY AND GRACE	3.26	1.26
19.	I LIKE THE CHALLENGE	3.20	1.17
20.	I WANT TO DO SOMETHING THAT IS NON-COMPE	3.08	1.40
21.	I WANT TO GO TO A HIGH LEVEL	3.08	1.50
22.	I LIKE TO HAVE FUN	3.07	1.17
23.	I LIKE THE MARTIAL ARTS	2.86	1.42
24.	I LIKE TO DO SOMETHING I CAN BE GOOD AT	2.77	1.35
25.	I LIKE TO SATISFY MY CURIOSITY	2.64	1.22
26.	I LIKE TO TRY SOMETHING UNUSUAL	2.64	1.28
27.	I LIKE TO HAVE SOMETHING TO DO	2.53	1.21
28.	I LIKE TO MEET NEW FRIENDS	2.38	1.00
29.	I LIKE TO DO SOMETHING WHICH KEEPS ME BU	2.38	1.28
30.	I WANT TO BE WITH MY FAMILY OR FRIENDS	2.34	1.33
31.	I LIKE THE EXCITEMENT	2.28	1.08
32.	I LIKE THE GROUP WORK	2.28	1.21
33.	I LIKE TO GET OUT OF THE HOUSE	2.28	1.32
34.	I LIKE THE GROUP ATMOSPHERE	2.22	1.26
35.	I LIKE BEING IN A GROUP	2.16	1.21
36.	I WANT TO GET RID OF ENERGY	2.15	1.29
37.	I LIKE TO FEEL IMPORTANT	1.92	1.13
38.	I WANT TO BE POPULAR	1.61	.81
39.	MY FAMILY OR CLOSE FRIENDS WANT ME TO PA	1.73	1.11
40.	I WANT TO GAIN STATUS OR RECOGNITION	1.50	.98

APPENDIX 13 (CONTINUED)

TAFE

ITEM		Mean	SD
1.	I LIKE THE MENTAL RELAXATION	4.26	1.05
2.	I WANT TO IMPROVE FLEXIBILITY	4.16	1.01
3.	I WANT TO RELEASE TENSION	4.16	1.07
4.	I WANT TO BECOME PHYSICALLY FIT	4.05	1.03
5.	I WANT TO EXERCISE MY MIND AND BODY TOGE	3.95	.85
6.	I LIKE A PEACEFUL ATMOSPHERE	3.89	1.15
7.	I WANT TO GET MORE ENERGY	3.89	1.20
8.	I LIKE TO KEEP HEALTHY	3.84	.83
9.	I LIKE TO EXPAND MY INTERESTS	3.74	1.24
10.	I LIKE THE GENTLE WAY TO EXERCISE	3.63	1.21
11.	I LIKE THE BEAUTY AND GRACE	3.58	1.22
12.	I WANT TO DO SOMETHING THAT IS NON-COMPE	3.47	1.58
13.	I WANT TO STAY IN SHAPE	3.37	1.16
14.	I WANT TO LEARN NEW SKILLS	3.37	1.21
15.	I WANT TO IMPROVE MY SKILLS	3.32	1.11
16.	I LIKE THE MOVEMENTS INVOLVED	3.32	1.29
17.	I LIKE TO EXERCISE	3.16	1.07
18.	I WANT TO IMPROVE MY MEDICAL CONDITION	3.11	1.66
19.	I LIKE THE PHILOSOPHY	3.05	.97
20.	I LIKE TO HAVE FUN	3.05	1.27
21.	I LIKE TO SATISFY MY CURIOSITY	3.00	1.33
22.	I LIKE THE CHALLENGE	3.00	1.33
23.	I LIKE TO TRY SOMETHING UNUSUAL	2.68	1.20
24.	I WANT TO GO TO A HIGH LEVEL	2.68	1.49
25.	I LIKE TO DO SOMETHING I CAN BE GOOD AT	2.68	1.49
26.	I LIKE TO HAVE SOMETHING TO DO	2.63	1.38
27.	I LIKE BEING IN A GROUP	2.42	1.30
28.	I LIKE THE EXCITEMENT	2.32	1.06
29.	I LIKE TO MEET NEW FRIENDS	2.32	1.16
30.	I LIKE TO DO SOMETHING WHICH KEEPS ME BU	2.32	1.29
31.	I WANT TO GET RID OF ENERGY	2.32	1.45
32.	I LIKE THE GROUP WORK	2.26	1.24
33.	I LIKE THE GROUP ATMOSPHERE	2.11	1.20
34.	I LIKE THE MARTIAL ARTS	2.05	1.08
35.	I LIKE TO FEEL IMPORTANT	1.89	1.10
36.	I WANT TO BE WITH MY FAMILY OR FRIENDS	1.89	1.15
37.	I LIKE TO GET OUT OF THE HOUSE	1.84	.96
38.	I WANT TO BE POPULAR	1.79	1.03
39.	MY FAMILY OR CLOSE FRIENDS WANT ME TO PA	1.74	1.24
40.	I WANT TO GAIN STATUS OR RECOGNITION	1.68	1.11

APPENDIX 13 (CONTINUED)

TERTIARY

ITEM		Mean	SD
1.	I LIKE THE MENTAL RELAXATION	3.91	.96
2.	I WANT TO RELEASE TENSION	3.86	.99
3.	I WANT TO EXERCISE MY MIND AND BODY TOGE	3.84	.94
4.	I LIKE TO KEEP HEALTHY	3.82	.99
5.	I WANT TO GET MORE ENERGY	3.69	.99
6.	I WANT TO IMPROVE FLEXIBILITY	3.64	.93
7.	I LIKE A PEACEFUL ATMOSPHERE	3.61	1.08
8.	I LIKE THE GENTLE WAY TO EXERCISE	3.49	1.15
9.	I WANT TO LEARN NEW SKILLS	3.47	.96
10.	I LIKE TO EXERCISE	3.43	.97
11.	I WANT TO BECOME PHYSICALLY FIT	3.40	1.09
12.	I LIKE TO EXPAND MY INTERESTS	3.34	1.16
13.	I LIKE THE BEAUTY AND GRACE	3.20	1.13
14.	I WANT TO STAY IN SHAPE	3.16	1.18
15.	I WANT TO IMPROVE MY SKILLS	3.14	1.02
16.	I WANT TO IMPROVE MY MEDICAL CONDITION	3.08	1.47
17.	I LIKE THE CHALLENGE	3.06	1.12
18.	I LIKE THE PHILOSOPHY	3.05	1.07
19.	I LIKE THE MOVEMENTS INVOLVED	2.99	1.03
20.	I LIKE TO HAVE FUN	2.92	1.12
21.	I WANT TO DO SOMETHING THAT IS NON-COMPE	2.55	1.25
22.	I LIKE TO SATISFY MY CURIOSITY	2.38	1.09
23.	I WANT TO GO TO A HIGH LEVEL	2.33	1.34
24.	I LIKE TO DO SOMETHING I CAN BE GOOD AT	2.30	1.19
25.	I LIKE TO MEET NEW FRIENDS	2.25	.85
26.	I LIKE TO TRY SOMETHING UNUSUAL	2.25	1.16
27.	I LIKE TO HAVE SOMETHING TO DO	2.22	1.19
28.	I LIKE BEING IN A GROUP	2.09	1.03
29.	I LIKE THE MARTIAL ARTS	2.08	1.25
30.	I LIKE THE GROUP WORK	2.01	1.03
31.	I LIKE TO DO SOMETHING WHICH KEEPS ME BU	1.99	1.07
32.	I LIKE THE EXCITEMENT	1.97	1.03
33.	I LIKE THE GROUP ATMOSPHERE	1.95	.91
34.	I WANT TO BE WITH MY FAMILY OR FRIENDS	1.86	1.17
35.	I LIKE TO GET OUT OF THE HOUSE	1.78	1.04
36.	I WANT TO GET RID OF ENERGY	1.71	1.07
37.	I LIKE TO FEEL IMPORTANT	1.53	.90
38.	I WANT TO BE POPULAR	1.38	.70
39.	MY FAMILY OR CLOSE FRIENDS WANT ME TO PA	1.36	.79
40.	I WANT TO GAIN STATUS OR RECOGNITION	1.32	.81

APPENDIX 14: MEAN AND STANDARD DEVIATIONS OF PARTICITATION MOTIVES BY OCCUPATION GROUPS

UPPER-LEVEL

ITEM		Mean	SD
1.	I WANT TO RELEASE TENSION	4.05	1.17
2.	I WANT TO EXERCISE MY MIND AND BODY TOGE	3.95	1.00
3.	I LIKE THE MENTAL RELAXATION	3.91	1.02
4.	I LIKE TO KEEP HEALTHY	3.86	.89
5.	I WANT TO GET MORE ENERGY	3.82	.91
6.	I WANT TO IMPROVE FLEXIBILITY	3.68	.95
7.	I WANT TO BECOME PHYSICALLY FIT	3.64	.90
8.	I LIKE THE GENTLE WAY TO EXERCISE	3.59	1.05
9.	I WANT TO IMPROVE MY MEDICAL CONDITION	3.59	1.30
10.	I LIKE A PEACEFUL ATMOSPHERE	3.55	1.18
11.	I WANT TO LEARN NEW SKILLS	3.50	1.01
12.	I LIKE TO EXPAND MY INTERESTS	3.41	1.18
13.	I WANT TO STAY IN SHAPE	3.23	1.27
14.	I LIKE TO EXERCISE	3.14	.89
15.	I WANT TO IMPROVE MY SKILLS	3.14	.99
16.	I LIKE THE PHILOSOPHY	3.14	1.21
17.	I LIKE THE MOVEMENTS INVOLVED	3.09	1.19
18.	I LIKE THE CHALLENGE	3.05	1.40
19.	I LIKE TO HAVE FUN	2.86	.99
20.	I LIKE THE BEAUTY AND GRACE	2.86	1.08
21.	I LIKE TO SATISFY MY CURIOSITY	2.55	1.10
22.	I LIKE THE MARTIAL ARTS	2.36	1.36
23.	I WANT TO GO TO A HIGH LEVEL	2.36	1.36
24.	I LIKE TO MEET NEW FRIENDS	2.27	1.03
25.	I LIKE TO TRY SOMETHING UNUSUAL	2.27	1.20
26.	I LIKE TO HAVE SOMETHING TO DO	2.27	1.20
27.	I LIKE TO DO SOMETHING I CAN BE GOOD AT	2.27	1.52
28.	I WANT TO DO SOMETHING THAT IS NON-COMPE	2.14	1.21
29.	I LIKE THE EXCITEMENT	2.00	1.07
30.	I WANT TO BE WITH MY FAMILY OR FRIENDS	2.00	1.41
31.	I LIKE THE GROUP WORK	1.95	1.17
32.	I LIKE TO DO SOMETHING WHICH KEEPS ME BU	1.95	1.21
33.	I LIKE THE GROUP ATMOSPHERE	1.86	.94
34.	I WANT TO GET RID OF ENERGY	1.86	1.28
35.	I LIKE BEING IN A GROUP	1.82	1.10
36.	I LIKE TO FEEL IMPORTANT	1.68	1.21
37.	I LIKE TO GET OUT OF THE HOUSE	1.64	.73
38.	I WANT TO BE POPULAR	1.64	1.09
39.	MY FAMILY OR CLOSE FRIENDS WANT ME TO PA	1.45	.96
40.	I WANT TO GAIN STATUS OR RECOGNITION	1.27	.88

APPENDIX 14 (CONTINUED)

MIDDLE-LEVEL

ITEM		Mean	SD
1.	I LIKE THE MENTAL RELAXATION	3.95	.96
2.	I WANT TO EXERCISE MY MIND AND BODY TOGE	3.84	.92
3.	I LIKE TO KEEP HEALTHY	3.84	.93
4.	I WANT TO RELEASE TENSION	3.82	.96
5.	I WANT TO GET MORE ENERGY	3.75	1.03
6.	I WANT TO IMPROVE FLEXIBILITY	3.71	.97
7.	I LIKE A PEACEFUL ATMOSPHERE	3.56	1.13
8.	I WANT TO LEARN NEW SKILLS	3.49	.91
9.	I WANT TO BECOME PHYSICALLY FIT	3.47	1.17
10.	I LIKE TO EXERCISE	3.41	.96
11.	I LIKE THE GENTLE WAY TO EXERCISE	3.41	1.16
12.	I LIKE TO EXPAND MY INTERESTS	3.36	1.10
13.	I WANT TO STAY IN SHAPE	3.25	1.16
14.	I WANT TO IMPROVE MY MEDICAL CONDITION	3.21	1.43
15.	I WANT TO IMPROVE MY SKILLS	3.19	1.00
16.	I LIKE THE BEAUTY AND GRACE	3.19	1.15
17.	I LIKE THE PHILOSOPHY	3.10	1.12
18.	I LIKE THE MOVEMENTS INVOLVED	3.04	1.05
19.	I LIKE THE CHALLENGE	3.03	1.11
20.	I LIKE TO HAVE FUN	3.03	1.12
21.	I WANT TO DO SOMETHING THAT IS NON-COMPE	2.79	1.29
22.	I WANT TO GO TO A HIGH LEVEL	2.65	1.42
23.	I LIKE TO DO SOMETHING I CAN BE GOOD AT	2.52	1.27
24.	I LIKE TO SATISFY MY CURIOSITY	2.46	1.09
25.	I LIKE TO TRY SOMETHING UNUSUAL	2.36	1.13
26.	I LIKE THE MARTIAL ARTS	2.36	1.35
27.	I LIKE TO MEET NEW FRIENDS	2.35	.89
28.	I LIKE TO HAVE SOMETHING TO DO	2.25	1.17
29.	I LIKE TO DO SOMETHING WHICH KEEPS ME BU	2.23	1.19
30.	I LIKE BEING IN A GROUP	2.12	1.03
31.	I LIKE THE EXCITEMENT	2.12	1.08
32.	I LIKE THE GROUP WORK	2.06	1.08
33.	I LIKE THE GROUP ATMOSPHERE	2.05	1.03
34.	I WANT TO GET RID OF ENERGY	1.98	1.15
35.	I LIKE TO GET OUT OF THE HOUSE	1.94	1.15
36.	I WANT TO BE WITH MY FAMILY OR FRIENDS	1.92	1.10
37.	I LIKE TO FEEL IMPORTANT	1.72	1.00
38.	I WANT TO BE POPULAR	1.58	.85
39.	MY FAMILY OR CLOSE FRIENDS WANT ME TO PA	1.55	.99
40.	I WANT TO GAIN STATUS OR RECOGNITION	1.35	.72

APPENDIX 14 (CONTINUED)

LOWER-LEVEL

ITEM		Mean	SD
1.	I WANT TO RELEASE TENSION	4.19	.90
2.	I WANT TO IMPROVE FLEXIBILITY	4.19	1.02
3.	I LIKE THE MENTAL RELAXATION	4.15	.88
4.	I LIKE TO KEEP HEALTHY	4.15	.88
5.	I WANT TO BECOME PHYSICALLY FIT	4.15	1.12
6.	I WANT TO EXERCISE MY MIND AND BODY TOGE	4.12	.86
7.	I WANT TO GET MORE ENERGY	4.04	1.18
8.	I LIKE THE GENTLE WAY TO EXERCISE	4.00	.89
9.	I LIKE A PEACEFUL ATMOSPHERE	3.96	1.18
10.	I LIKE TO EXPAND MY INTERESTS	3.73	1.22
11.	I WANT TO LEARN NEW SKILLS	3.50	1.03
12.	I WANT TO IMPROVE MY MEDICAL CONDITION	3.69	1.49
13.	I WANT TO STAY IN SHAPE	3.62	.98
14.	I LIKE TO EXERCISE	3.58	.95
15.	I LIKE THE MOVEMENTS INVOLVED	3.50	.99
16.	I LIKE THE BEAUTY AND GRACE	3.35	1.26
17.	I WANT TO IMPROVE MY SKILLS	3.31	1.12
18.	I LIKE THE CHALLENGE	3.27	1.19
19.	I LIKE THE PHILOSOPHY	3.19	1.06
20.	I WANT TO DO SOMETHING THAT IS NON-COMPE	3.12	1.61
21.	I LIKE TO SATISFY MY CURIOSITY	2.96	1.43
22.	I WANT TO GO TO A HIGH LEVEL	2.88	1.58
23.	I LIKE TO HAVE SOMETHING TO DO	2.73	1.25
24.	I LIKE TO TRY SOMETHING UNUSUAL	2.65	1.16
25.	I LIKE TO HAVE FUN	2.58	1.10
26.	I LIKE TO DO SOMETHING I CAN BE GOOD AT	2.46	1.27
27.	I LIKE THE MARTIAL ARTS	2.38	1.36
28.	I LIKE THE EXCITEMENT	2.15	.97
29.	I LIKE TO MEET NEW FRIENDS	2.12	.82
30.	I LIKE THE GROUP WORK	2.12	1.07
31.	I LIKE BEING IN A GROUP	2.12	1.18
32.	I LIKE TO DO SOMETHING WHICH KEEPS ME BU	2.08	1.13
33.	I LIKE TO GET OUT OF THE HOUSE	2.08	1.32
34.	I WANT TO BE WITH MY FAMILY OR FRIENDS	2.00	1.39
35.	I LIKE THE GROUP ATMOSPHERE	1.96	1.11
36.	I LIKE TO FEEL IMPORTANT	1.92	1.16
37.	I WANT TO GET RID OF ENERGY	1.81	1.20
38.	I WANT TO BE POPULAR	1.58	.81
39.	MY FAMILY OR CLOSE FRIENDS WANT ME TO PA	1.54	.86
40.	I WANT TO GAIN STATUS OR RECOGNITION	1.23	.59

APPENDIX 14 (CONTINUED)

STUDENTS

ITEM		Mean	SD
1.	I WANT TO RELEASE TENSION	4.57	.68
2.	I LIKE THE MENTAL RELAXATION	4.52	.81
3.	I WANT TO EXERCISE MY MIND AND BODY TOGE	4.33	.91
4.	I LIKE TO KEEP HEALTHY	4.24	.94
5.	I WANT TO BECOME PHYSICALLY FIT	4.19	.93
6.	I WANT TO IMPROVE FLEXIBILITY	4.00	1.14
7.	I LIKE A PEACEFUL ATMOSPHERE	3.95	.97
8.	I WANT TO STAY IN SHAPE	3.95	1.02
9.	I LIKE TO EXERCISE	3.90	.94
10.	I LIKE THE GENTLE WAY TO EXERCISE	3.90	1.22
11.	I WANT TO GET MORE ENERGY	3.81	.98
12.	I WANT TO LEARN NEW SKILLS	3.81	1.12
13.	I LIKE TO HAVE FUN	3.67	1.02
14.	I WANT TO IMPROVE MY SKILLS	3.67	1.32
15.	I LIKE TO EXPAND MY INTERESTS	3.57	1.16
16.	I LIKE THE MOVEMENTS INVOLVED	3.52	1.25
17.	I LIKE THE BEAUTY AND GRACE	3.43	1.36
18.	I LIKE THE CHALLENGE	3.38	1.07
19.	I LIKE TO TRY SOMETHING UNUSUAL	3.38	1.47
20.	I WANT TO DO SOMETHING THAT IS NON-COMPE	3.33	1.39
21.	I LIKE THE PHILOSOPHY	3.19	.93
22.	I LIKE THE MARTIAL ARTS	3.14	1.24
23.	I LIKE TO HAVE SOMETHING TO DO	3.14	1.35
24.	I LIKE TO SATISFY MY CURIOSITY	3.10	1.37
25.	I LIKE TO DO SOMETHING I CAN BE GOOD AT	3.05	1.32
26.	I WANT TO GO TO A HIGH LEVEL	2.90	1.37
27.	I LIKE BEING IN A GROUP	2.90	1.58
28.	I WANT TO IMPROVE MY MEDICAL CONDITION	2.86	1.42
29.	I LIKE THE GROUP WORK	2.81	1.47
30.	I LIKE TO GET OUT OF THE HOUSE	2.71	1.65
31.	I LIKE THE GROUP ATMOSPHERE	2.67	1.65
32.	I LIKE TO MEET NEW FRIENDS	2.57	1.29
33.	I LIKE TO DO SOMETHING WHICH KEEPS ME BU	2.57	1.40
34.	I LIKE THE EXCITEMENT	2.52	1.21
35.	I WANT TO BE WITH MY FAMILY OR FRIENDS	2.52	1.57
36.	I WANT TO GET RID OF ENERGY	2.29	1.49
37.	I WANT TO GAIN STATUS OR RECOGNITION	2.19	1.50
38.	I LIKE TO FEEL IMPORTANT	1.95	1.12
39.	MY FAMILY OR CLOSE FRIENDS WANT ME TO PA	1.95	1.40
40.	I WANT TO BE POPULAR	1.57	.98

APPENDIX 14 (CONTINUED)

OTHERS

ITEM		Mean	SD
1.	I LIKE THE MENTAL RELAXATION	4.23	.87
2.	I LIKE TO KEEP HEALTHY	4.21	.86
3.	I LIKE THE GENTLE WAY TO EXERCISE	4.21	.89
4.	I WANT TO IMPROVE FLEXIBILITY	4.12	.91
5.	I WANT TO GET MORE ENERGY	4.09	.81
6.	I WANT TO RELEASE TENSION	4.05	.92
7.	I WANT TO EXERCISE MY MIND AND BODY TOGE	4.02	.94
8.	I WANT TO BECOME PHYSICALLY FIT	3.98	.99
9.	I WANT TO IMPROVE MY MEDICAL CONDITION	3.93	1.08
10.	I LIKE A PEACEFUL ATMOSPHERE	3.91	.97
11.	I WANT TO LEARN NEW SKILLS	3.70	.89
12.	I LIKE THE BEAUTY AND GRACE	3.63	1.22
13.	I WANT TO STAY IN SHAPE	3.56	.98
14.	I LIKE THE MOVEMENTS INVOLVED	3.51	.96
15.	I LIKE TO EXPAND MY INTERESTS	3.51	1.14
16.	I WANT TO DO SOMETHING THAT IS NON-COMPE	3.44	1.24
17.	I LIKE TO EXERCISE	3.42	.96
18.	I WANT TO IMPROVE MY SKILLS	3.33	1.15
19.	I LIKE THE CHALLENGE	3.23	1.13
20.	I LIKE THE PHILOSOPHY	3.07	.94
21.	I LIKE TO HAVE FUN	3.00	1.18
22.	I LIKE TO HAVE SOMETHING TO DO	2.93	1.28
23.	I LIKE TO SATISFY MY CURIOSITY	2.74	1.38
24.	I LIKE TO DO SOMETHING WHICH KEEPS ME BU	2.72	1.12
25.	I WANT TO BE WITH MY FAMILY OR FRIENDS	2.70	1.19
26.	I LIKE TO DO SOMETHING I CAN BE GOOD AT	2.67	1.23
27.	I LIKE TO TRY SOMETHING UNUSUAL	2.63	1.25
28.	I LIKE THE GROUP ATMOSPHERE	2.58	1.20
29.	I LIKE THE GROUP WORK	2.53	1.26
30.	I LIKE TO GET OUT OF THE HOUSE	2.53	1.32
31.	I WANT TO GO TO A HIGH LEVEL	2.53	1.52
32.	I LIKE BEING IN A GROUP	2.49	1.14
33.	I LIKE TO MEET NEW FRIENDS	2.37	.90
34.	I LIKE THE MARTIAL ARTS	2.23	1.38
35.	I LIKE THE EXCITEMENT	2.16	.97
36.	I WANT TO GET RID OF ENERGY	1.95	1.19
37.	MY FAMILY OR CLOSE FRIENDS WANT ME TO PA	1.93	1.12
38.	I WANT TO BE POPULAR	1.88	1.05
39.	I LIKE TO FEEL IMPORTANT	1.81	1.18
40.	I WANT TO GAIN STATUS OR RECOGNITION	1.49	1.05