

**PSYCHOLOGICAL DETERMINANTS OF LEISURE TIME PHYSICAL ACTIVITY  
PARTICIPATION AMONG PUBLIC UNIVERSITY STUDENTS IN MALAYSIA**

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**Abstract**

The purpose of this study is to identify the influences of attitude, self-efficacy, and motivation on leisure time physical activity participation among undergraduate students at local public universities. The theory of planned behaviour and self-efficacy theory were used as a theoretical framework. The study sample comprised 1352 undergraduate students selected by random cluster sampling. Questionnaires were utilised to collect data. The results of the study showed that motivation and self-efficacy factors were the best predictors of leisure time physical activity participation. Furthermore, the results of path analysis revealed that the combination of attitude and self-efficacy had direct and indirect effects on motivation for leisure time physical activities participation among the students at local public universities. This study suggests that to encourage students' leisure time physical activity participation and involvement, the university management should plan and organise programmes to develop positive attitudes among students and increase their self-efficacy and motivation levels for physical activity participation.

**Key words:** attitude, self-efficacy, motivation, leisure time physical activity, university students

**INTRODUCTION**

Involvement in physical activity as one dimension of leisure has become an area of growing interest in recent years. Researchers have begun to recognise the importance of participation in sports and physical activity and, consequently, there has been an increase in the number of studies related to this area (Nakazawa et al., 1999; Cunningham & Kwon, 2003; Trail et al., 2002). Specifically, participation in physical and outdoor leisure activities have been associated with lower levels of depressive symptoms (Ruuskanen & Ruopilla, 1995; Morgan & Bath, 1998), increased happiness and life satisfaction (Menec, 2003), and improved health and social functioning (Drakou et al., 2008; Driver et al., 1991). Furthermore, involvement in physical activities may promote an active lifestyle and associated health benefits (Davison & Lawson, 2006).

There is growing interest in the identification of the determinants of participation in leisure activities (Ragheb, 1980; Iso-Ahola & Weissinger, 1990; Ragheb & Tate, 1993; Watson, 1996; Chih Mou-Hsieh, 1998). For example, some empirical studies have examined the correlational relationships among pertinent variables included in this study. However, past leisure behaviour research has been concerned with single variables, relationships between two variables, and the correlation of leisure behaviour variables with demographic variables. There have been limited efforts to investigate the interrelationships among leisure attitudes, motivation, self-

efficacy, satisfaction, participation, and social concepts (Ragheb & Tate, 1993; Watson, 1996; Chih Mou Hsieh, 1998). For instance, Ragheb (1980) investigated the interrelationships among leisure participation, satisfaction and attitude. Kaufman (1988) reported that leisure participation and leisure satisfaction had a significant positive relationship. Nevertheless, Iso-Ahola and Weissinger (1990) found negative relationships between boredom and leisure participation, motivation, attitude, and satisfaction. Furthermore, Dziewaltowski (1989) reported positive relationships between exercise behaviour and intention, attitude and self-efficacy; the correlation coefficients between exercise behaviour and attitude and self-efficacy were .18 and .34, respectively. Thus, the findings from previous studies (e.g., Ragheb, 1980; Crandall & Slivken, 1980; Watson, 1996; Chih Mou Hsieh, 1998) have demonstrated weak relationships between attitude and physical activity participation. Research has also shown that attitude factor indirectly predicts leisure time physical activity participation (Ajzen & Fishbein, 1980; Iso-Ahola, 1980; Ajzen, 1985). However, motivation was found to be the most important contributing factor in predicting leisure behaviour related to physical activity participation (Iso-Ahola, 1980; Ragheb, 1980; Davis et al. 1984; Ragheb & Tate, 1993; Watson, 1996; Chih Mou Hsieh, 1998; Hagger et al. 2002). Additionally, the research findings by Feltz (1982, 1988), McAuley (1985, 1992, 1993), Dziewaltowski et al. (1990), McAuley and Courneya (1993), Dishman (2001), and Hagger et al. (2002) showed moderate correlations between self-efficacy and physical activity participation among both young and older people. Likewise, Yordy and Lent (1993) and Armitage and Conner (1999) demonstrated that self-efficacy was an important predictor of physical activity. According to Brawley and Martin (1995), self-efficacy contributed between 3% and 25% of variance in physical activity and exercise behaviour.

Thus, in an attempt to identify and examine the pattern of influence of the psychological antecedents of leisure physical activity behaviour, the theory of planned behaviour (Ajzen, 1991) and self-efficacy theory (Bandura, 1986, 1997) were used as a theoretical framework. The theory of planned behaviour (Ajzen, 1985) and self-efficacy theory (Bandura, 1986) provide a broader perspective for the study of human behaviour, as they encouraged the exploration of both intrinsic and extrinsic rewards and individuals' perceptions of their levels of behavioural control or self-efficacy. Without confidence in one's ability, an individual cannot perform to his or her potential. This situation, called "self-efficacy" by Bandura (1986), is defined as the strength of an individual's belief that he or she can successfully perform a given activity.

A large number of people currently attend colleges and universities, and their leisure time physical activity participation cannot continue to be ignored by researchers (Watson, 1996). Thus, research on this facet of physical recreation activity is important for leisure and recreation professionals to better understand participants' leisure behaviour. If the interests of society are to be served, colleges and universities must recognise that all students should be informed of the relationship between physical activity participation and quality of life, regardless of sex, age, marital or parental status (Attarian, 1990). Little and Guse (1988) emphasise that the development and operation of specialised facilities and services focusing on the on-campus recreational needs of students has become an accepted part of the administrative structure in higher education in America and worldwide. Moreover, knowledge gained from such behavioural research will eventually help practitioners as well as researchers. It is vital for leisure practitioners to know what motivates participants to engage in their services, programmes and activities, as well as to fulfil their needs and desires. For leisure researchers, the development of a behavioural model or theory can help to organise knowledge and experience and stimulate and guide future research. It can also aid in the development of better explanations and theories (Watson, 1996).

However, little research has been conducted on the determinant factors of leisure time physical activity participation among local university students. The physical activity participation of university students has often been overlooked in favour of attention to the negative image of university students who spend their leisure time watching television or socialising (Watson, 1996).

Even though these events do occur on a large number of university campuses, many students also participate in physical activities because of the perceived positive health and fitness benefits as well as social and psychological benefits (Biddle et al.1998; Iso-Ahola, 1980; Lim Khong Chiu, 2002, 2004).

This study was designed to examine the relationships among leisure attitude, motivation, self-efficacy and leisure time physical activity participation among students at local public universities. Leisure time physical activities are activities carried out during free time that are not part of an individual's formal work or basic grooming needs. Physical activity is any bodily movement produced by skeletal muscles resulting in energy expenditure (Ragheb & Beard, 1982; Bouchard et al., 1993).

## **PROBLEM & HYPOTHESES**

In an effort to determine if significant relationships exist between leisure attitudes, motivation for physical activity, self-efficacy for physical activity and leisure time physical activity participation, the following questions are formulated:

1. Are there any relationships among leisure attitude, motivation, self-efficacy and leisure time physical activity participation (frequency and magnitude) among local public university students?
2. Do leisure attitude, motivation and self-efficacy contribute significantly to leisure time physical activity participation (frequency and magnitude) among local public university students?
3. Are there any effects of direct and indirect paths of exogenous variables on leisure time physical activity participation (frequency and magnitude) among local public university students?

Based on the purpose of the study, the following hypotheses were examined in relation to undergraduate students at local public universities:

H<sub>1</sub>: Leisure attitude, motivation and self-efficacy for physical activity correlate positively with frequency and magnitude of leisure time physical activity participation.

H<sub>2</sub>: Leisure attitude, motivation and self-efficacy for physical activity significantly explain the variance in frequency and magnitude of leisure time physical activity participation.

H<sub>3</sub>: The higher the leisure attitude towards physical activity, the higher the motivation will be for physical activity, in turn increasing leisure time physical activity participation.

H<sub>4</sub>: The higher the self-efficacy for physical activity, the higher the motivation for physical activity will be, thereby increasing leisure time physical activity participation.

## **METHODOLOGY**

### **Subjects**

A stratified cluster random sampling method was applied to a select sample from the four selected local public universities. Subjects comprised 1352 undergraduates, 40.8% (n = 551) males and 59.2% (n = 801) females. The ethnic populations included in the study were 45% (n = 608) Malay, 34% (n = 460) Chinese, 8.1% (n = 109) Indian, and 12.9% (n = 175) Sabah and

Sarawak Indigenous. The subjects were evenly divided between arts stream 50.1% (n = 677) and science stream 49.9% (n = 675), with 22.3% (n = 302) in the first year, 27% (365) second year, 35.5% (n = 480) third year, and 15.2% (n = 205) fourth year. The mean age of samples was 21.5 (range 19 to 24), and there were no significant differences between the groups.

## **Instruments**

The instruments consist of (a) background information questions such as age, sex, ethnic group, academic stream, and year of education, (b) Leisure Attitude Scale, (c) Motivation for Physical Activity Measure, (d) Physical Activity Self-Efficacy Scale, and (e) Physical Activity Participation Scale.

### **Leisure Attitude Scale**

In this study, leisure attitudes were operationalised using Ragheb and Beard's (1982) Leisure Attitude Scale. Only two dimensions of attitudes, the cognitive and affective components, were measured. The measured variables for the cognitive and affective components are based on the sum of the total scores of each component of the scales of 12 items. The respondents were asked to rate each item on a five-point Likert-type scale, with responses ranging from 'strongly not true' to 'strongly true'. Ragheb and Beard consulted 31 experts in the field of Leisure Attitude development, who provided evidence of validity of the instrument. Furthermore, a study of 1042 subjects revealed the Cronbach alpha reliabilities for the subscale as follows: cognitive,  $\alpha = .91$ , and affective,  $\alpha = .93$ .

### **Physical Activity Self-Efficacy Scale**

Physical activity self-efficacy items were developed in accordance with Bandura's (1982, 1986) definition of self-efficacy as an individual's belief that he or she has the ability to perform at a specified level on a certain task. Respondents responded to 20 items adapted from the Self-efficacy for Exercise Scale (Benisovich et al. 1998) and Leisure Constraints Questionnaire (Alexandris & Carrol, 1997) on five Likert-type scale items that ranged from 1 = very unconfident to 5 = very confident. Measurement of physical activity self-efficacy for this study focused on students' perceptions of their confidence to overcome various constraints in participating in leisure physical activities at least three times per week. Based on Terry and O'Leary's (1995) suggestion, nine items were developed to measure internal aspects of self-efficacy, and 11 items portrayed situations that focused on external aspects of self-efficacy. An example of an internal factor is an individual's perceived confidence in engaging in physical activity, and an example of an influential external factor is a barrier like 'bad weather'. Benisovich et al. (1998) reported that adequate internal consistency values for self-efficacy for the Exercise Scale were .77 and .87 between each subscale. Likewise, for the Leisure Constraints Questionnaire, the internal consistency value was .85 (Alexandris & Carroll, 1997).

### **The Motivation for Physical Activity Measure**

The Motivation for Physical Activity Measure (MPAM) developed by Frederick and Ryan (1993) was used to collect data. The MPAM consists of 23 items measuring participation motivation in the domain of physical activity. Subjects were asked to indicate on a five-point Likert-type scale the degree to which each motive was personally true for them with respect to their primary physical activity. The MPAM assessed three types of reasons for engaging in physical activity: intrinsic (6 items), competence (7 items), and body-related motivation (10 items). Intrinsic motivation relates to fun and enjoyment of the activity; competence motivation relates to skill development, competition and challenge; and body-related motivation relates to the desire to improve physical appearance and fitness (Frederick & Ryan, 1993). Frederick and Ryan (1993)

provided evidence for both reliability and validity of these factors, showing a clear three-factor structure to the scale items. Internal consistency with Cronbach's alpha values was above .87 for each subscale.

### **Leisure Time Physical Activity Participation Scale**

In this study, leisure time physical activity participation is defined as the frequency of participating in certain physical activities and the magnitude of leisure time physical activity participation. The variables were measured by adopting, modifying and reducing the Leisure Participation Scale developed by Ragheb and Griffith (1982), Chih Mou Hsieh (1998), and Ragheb and Tate (1993). The frequency of participating in physical activities was operationalised as the number of times an individual had participated in certain preferred leisure time physical activities during the past six months. The subjects were asked to rate how often they participated in leisure time physical activities. The measured variable of frequency of participation was calculated by totalling the scores for those selected from 36 activities listed. The magnitude of leisure time physical participation was evaluated by eight items adapted from Ragheb and Tate (1993). Examples of the items are 'I do leisure physical activities frequently', and 'I buy goods and equipment to use in my leisure time physical activities as my income allows'. The internal consistency with Cronbach's alpha value for the scale was .89 (Ragheb & Tate, 1993). The measured variable for the magnitude of participation was based on the sum of the eight total items. The respondents were asked to rate on a five-point Likert-type scale the importance of each activity with respect to his/her leisure behaviour, with responses ranging from 'strongly not true' to 'strongly true'.

### **Procedures**

Permission to collect data from undergraduate students was received from university administrators. Questionnaires were administered by two trained research assistants in classroom conditions during normal lecture time. The subjects were asked to complete a survey questionnaire. Subjects were informed about the purpose of the study, and general instructions were provided prior to answering the questionnaire. In addition, help was offered to the subjects when needed, and their responses were anonymous.

### **Data Analysis**

A pilot test of the instruments was administered at one of the local public universities. The aim of this pilot study was to ensure that the language used and the scales adopted were appropriate. The Leisure Attitude Scale, Motivation for Physical Activity Measure, Self-Efficacy for Physical Activity Scale, and Leisure Participation Scale were translated into Malay. The deeper meanings of certain questions may not have been parallel when comparing the Malay version with the English version. Therefore, translation procedures such as 'back to back-translation', discussion, and review were used (Brislin, 1970). The instruments were validated and tested for reliability. The results indicated that the measures were found to be psychometrically sound (Lim Khong Chiu, 2002, 2004).

Path analysis was utilised to examine possible relationships between the research variables and to examine the direct and indirect effects of independent variables on dependent variables. Path analyses were conducted to test the hypothesis. All analyses of data were performed using AMOS 4.0 SPSS 12.0 for Windows with the alpha level set at  $p < .05$ .

## RESULTS

Path analysis was conducted to test the directional effects and the relationships linking observed to latent variables and latent variables with one another (Maruyama, 1998). Path analysis permits researchers to test the direct and indirect effects of a system of variables, which in turn makes it possible to develop a model explaining the complex interrelationships within a system of variables (MacCallum, 1995). In this analysis, the model fit must be examined to determine the similarity of the hypothesised model to the observed data: the smaller the differences, the better the fit of the model to the data (Bollen, 1989). As noted by Maruyama (1998), the most direct way in which fit is evaluated is through significant testing of discrepancies between observed and predicted relationships among measures. Thus, a good fitting model would result in a nonsignificant goodness of fit statistic. The overall fit is assessed by a chi-square goodness of fit test of the residuals. In this study, the model chi-square test result ( $\chi^2 = 130.080$ ,  $df = 1$ ,  $p = .0001$ ) as shown in Table 1 indicates that the model fitness was statistically significant. Therefore, the result reveals that the model fit was 'weak' for the sampled data.

Although a goodness of fit statistic that assesses the size of residuals is valuable, a chi-square statistic is extremely sensitive to sample size (Kline, 1998) and is directly a function of sample size (Maruyama, 1998). Because of this relation of fit to sample size, a number of alternative fit indices have been suggested (Bollen, 1989; Hair et al., 1998) that are not influenced by size. Other suggested measures of fit include Goodness-of-Fit Index (GFI), Root Mean Square Residual (RMSR), the Normed Fit Index (NFI), Comparative Fit Index (CFI), and Incremental Fit Index (IFI). These measures of fit are less sensitive to sample size (Hair et al., 1998). Therefore, these measures of fit were used to examine the sampled data.

The results in Table 1 show that both the Goodness-of-Fit index (GFI) = .961 (which exceeded the recommended level of .90) and the Root Mean Square Residual (RMSR) = .026 (recommended level below or equal to .08) indicated that the data provided adequate evidence that the model is a reasonable fit (Hu & Bentler, 1999). The Normed Fit Index (NFI), Comparative Fit Index (CFI), and Incremental Fit Index (IFI) were within the range of .81 and close to .90, fulfilling the recommended levels (Bentler, 1990; Hair et al., 1998) and further supporting the acceptance of the proposed model. All measures fall within acceptable levels; therefore, the results are an acceptable representation of the hypothesised relationships of the variables.

Table 1 AMOS Goodness-of-fit measures of the Model (N = 1352)

Measure of Fitness	Coefficient/Index
Chi-square statistic ( $\chi^2$ )	130.080
Degree of freedom	1
Significance level	.0001
Goodness-of-fit index (GFI)	.961
Root mean square residual (RMSR)	.026
The normed fit index (NFI)	.808
Comparative fit index (CFI)	.809
Incremental fit index (IFI)	.807

The next level of analysis is an examination of the significance of individual paths to determine the strength and relationships between variables (Maruyama, 1998). Figure 1 and Table 2 show

the results of path analysis indicating that seven out of eight paths were significant at  $p < .05$  level. In order to test the research hypotheses, the magnitude of direct path effects and indirect path effects must be estimated from the model. The magnitude of indirect paths is estimated by multiplying the paths connecting the pairs of variables (Maruyama, 1998). Table 2 shows that the direct effects of independent variables (self-efficacy) are stronger than the indirect effects of the intervening variable on leisure time physical activity participation (frequency:  $\beta = .192$  vs.  $.066$ ,  $p = .001$ ; magnitude:  $\beta = .325$  vs.  $.086$ ,  $p < .05$ ). In the case of attitude towards physical activity, the indirect effects of the intervening variable (motivation) was stronger than the direct effects on leisure time physical activity participation (frequency:  $\beta = .172$  vs.  $-.068$ ,  $p < .05$ ; magnitude:  $\beta = .222$  vs.  $.080$ ,  $p < .05$ ). The results also revealed that motivation for physical activity had a significant direct effect on leisure time physical activity participation (frequency:  $\beta = .280$ ,  $p < .05$ ; magnitude:  $\beta = .362$ ,  $p < .05$ ). However, of the four indirect relationships, leisure attitude towards physical activity was a more important factor (frequency:  $\beta = .172$ ,  $p < .05$ ; magnitude:  $\beta = .222$ ,  $P < .05$ ) than self-efficacy for physical activity (frequency:  $\beta = .066$ ,  $p < .05$ ; magnitude:  $\beta = .086$ ,  $P < .05$ ) on leisure time physical activity participation of undergraduates at local public universities. On the whole, all paths from the independent variables were significant except for leisure attitude with frequency of physical activity participation. All paths indicated a low to moderate magnitude of relationships for participation in leisure time physical activity. Therefore, these findings provide evidence in support of the hypothesis generated for this study

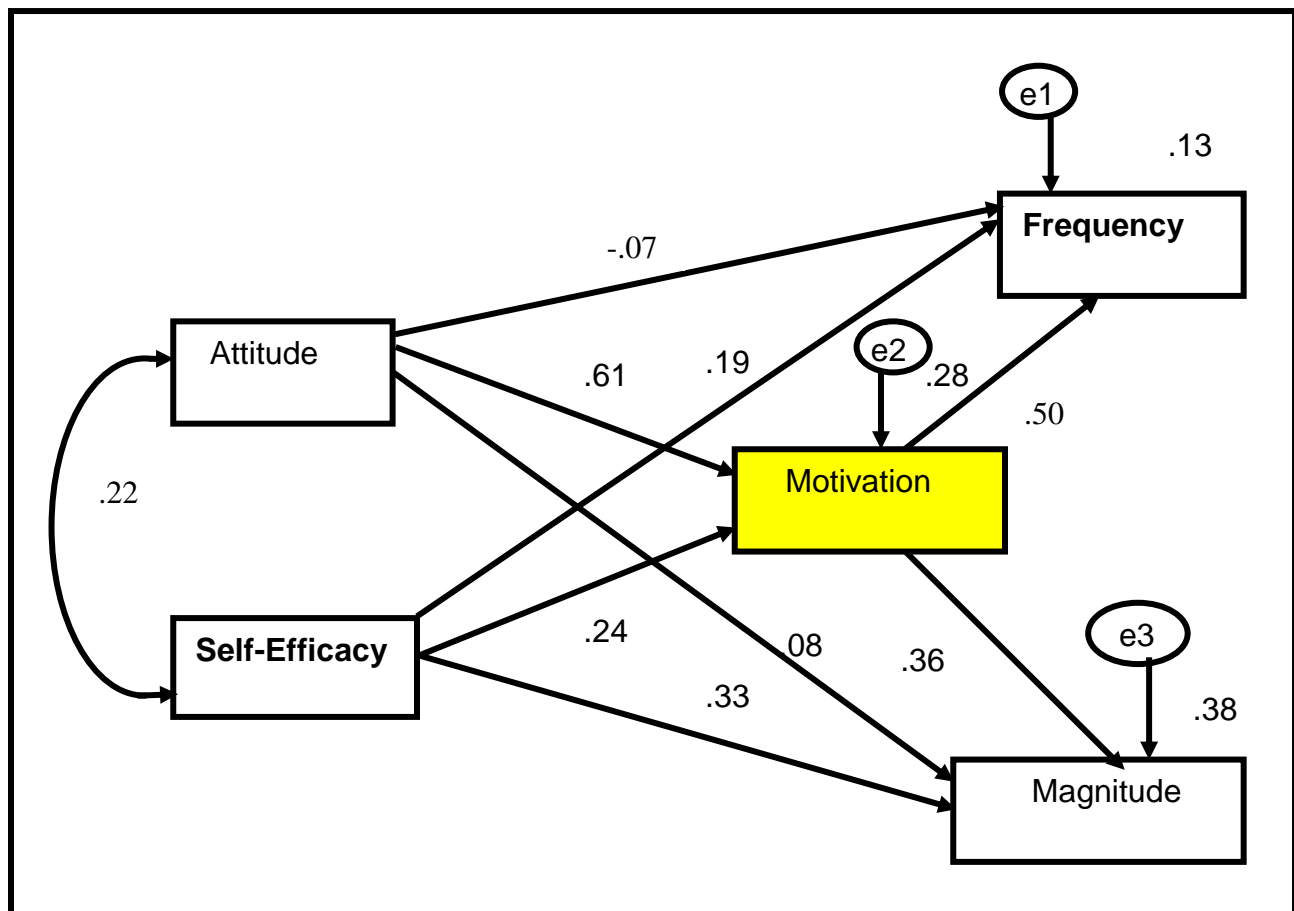


Figure 1 Path Analysis Model: The impact of attitude, motivation and self-efficacy on leisure time physical activity participation

Table 2 Standardised weights of direct and indirect paths (N = 1352)

Paths	Direct Effects	Indirect Effects	Total Effects
Attitude Frequency	-.068	.172*	.104*
Attitude Motivation	.614*	0	.614*
Attitude Magnitude	.080*	.222*	.302*
Self-Efficacy Motivation	.237*	0	.237*
Self-Efficacy Magnitude	.325*	.086*	.411*
Self-Efficacy Frequency	.192*	.066*	.258*
Motivation Frequency	.280*	0	.280*
Motivation Magnitude	.362*	0	.362*

\*p < .0

## DISCUSSIONS AND CONCLUSION

The results revealed that the correlation coefficients of all the variables were significantly greater than zero, except for the relationship between attitude and frequency of leisure time physical activity participation. Therefore, the hypotheses proposed for these variables were accepted. The data provided support for the hypothesised relationships between each of the independent variables and leisure physical activity participation. The findings indicated that high self-efficacy and motivation for physical activity would likely increase the rate of participation in leisure time physical activities among undergraduate students. In other words, the higher students' beliefs in self-efficacy for physical activity, the more frequent their participation in leisure time physical activities. The relationships in the current study correspond with findings by Ragheb (1980), Feltz (1988, 1992), and McAuley (1985, 1992). However, the positive correlation between self-efficacy and leisure time physical activity participation was more consistent compared with the correlation between attitude and participation in physical activity. The above findings support the statement by Crandall and Slivken (1980) that the link between attitudes and behaviour is often very weak, and there may be many situational restraints or competing attitudes that cause the individual not to act on every attitude.

All variables significantly explained the variance in leisure time physical activity participation, thus supporting hypothesis 2. The motivation for physical activity was found to be the largest contributor or effect on the frequency and magnitude of participation in leisure time physical activities among undergraduates at local public universities. This finding is also consistent with findings from Ragheb and Tate (1993), Watson (1996), and Chih Mou Hsieh (1998), which revealed a direct causal influence of leisure motivation on leisure participation. Furthermore, the results of the current study indicated that higher belief in self-efficacy for physical activities is likely to influence undergraduate students' participation in leisure time physical activity. This supports the findings of other studies that perceived self-efficacy to be a major instigating force in forming intentions to exercise and in maintaining the practice for an extended time (Dzewaltowski et al., 1990; McAuley, 1985, 1992; Feltz, 1988).



In addition, the results obtained from this study were consistent with Ajzen's (1985, 1991) planned behaviour theory, Bandura's (1982, 1986) self-efficacy theory, and previous findings obtained by Crandall and Slivken (1980), Iso-Ahola and Weissinger (1990), Hagger et al. (2001, 2002), and Dzewaltowski et al. (1990). In this investigation, the findings tended to support the notion of attitude-behaviour consistency with intervening motivation for physical activity. Fishbein and Ajzen (1975) indicated that attitudes are general in nature and therefore are not good predictors of a specific behaviour. Predictions should be made from intention. Intention refers to an individual's purpose for participation in an activity, and is similar to motivation. This could be attributed to the nature of leisure characteristics such as being fun, joyful, and pleasurable. Bandura (1982, 1985) believed that self-efficacy should reflect a person's evaluation of his or her confidence in performing a given behaviour in the face of salient barriers and facilitating conditions. According to Bandura, if one has the requisite skills and sufficient motivation, then the major determinant of his or her performance is self-efficacy. Self-efficacy alone is not enough to be successful; one must also want to succeed and have the ability to succeed (Weinberg & Gould, 1995).

The findings of the current study were consistent with the third and fourth hypotheses. The results of the path analysis indicate that leisure attitude and self-efficacy of undergraduates have direct and indirect impacts through motivation on the frequency and magnitude of participation in leisure time physical activities. The model of the study reflected the importance of the psychodynamic effects of attitude, self-efficacy and motivation on leisure time physical activity participation. Thus, it is important to note that self-efficacy for physical activity has a higher contribution or effect on the frequency of leisure time physical activity participation and the perception of its importance than attitude. Generally, this is consistent with previous studies by Feltz (1982, 1988), McAuley (1985, 1992), and Dzewaltowski et al. (1990).

Furthermore, the results of the path analysis also revealed that the direct relationships of self-efficacy were important determinants of leisure time physical activity participation compared to the leisure attitudes of local public university undergraduates. Even though the indirect relationships were positively related to leisure time physical activity participation, the evidence indicated that motivation for physical activity was an important determinant as an intervening variable on the frequency and magnitude of leisure time physical activity participation. Therefore, these findings suggest that the more positive the leisure attitude and self-efficacy beliefs about physical activity, the higher the motivation will be for physical activity; consequently, the more frequent undergraduates' participation in leisure time physical activity will be.

The major contribution of the present study is to demonstrate that interpretable patterns of physical activity participation determinants exist among local public university students. Such information could then be useful in developing interventions designed to improve the strength and quality of physical activities and sports programmes and services. Therefore, these results have implications for leadership in sport administration and management, particularly with respect to effort, persistence and commitment in organising physical activities and sports programmes on campus. For example, the present study can help university administrators consider the opportunities and experiences necessary in their programmes and services to serve the students' needs and enhance their lifestyles. The primary benefit of leisure time physical activity participation is, above all, the benefits and satisfaction obtained. Therefore, leisure practitioners must design, plan, and offer services which increase the rate of participation and fulfil the leisure satisfaction and psychological well-being of undergraduate students.

Some limitations of this study need to be considered. The study occurred in a university setting and was limited to university students. The extent to which these results can be generalised to other settings is unknown. In addition, the leisure participation scale utilised in this study required participants to rely on recall over the past weeks in order to accurately remember the frequency of participation in various leisure physical activities.

Several directions for future research can be offered to advance both theory and practice in this area. The present study should be replicated with students from other institutions (e.g., schools, colleges, and polytechnics), as well as other population samples (e.g., older adults, working class subjects). Future research should also explore additional variables in physical activity participation, which were determined by theory and previous empirical research. It is also recommended that future studies examine leisure participation in physical activities related to other age groups, different ethnic groups, various types of physical activities, and other psychological variables such as goal achievement, personality, and exercise adherence. In addition, modification of measurement scales used to obtain qualitative data that may explain individuals' leisure attitudes, motivation, self-efficacy and participation in leisure time physical activities is suggested.

## REFERENCES

- Ajzen, I. 1985. From intentions to actions: A theory of planned behaviour. In J. Kuhn., & J. Beckmann (Eds.). *Action control: From cognition to Behaviour* pp. 11-39. New York: Springer-Verlag.
- Ajzen, I. 1991. The theory of planned behaviour. *Organizational Behaviour and Human Decision Processes* 50: 179-211.
- Ajzen, I. & Fishbein, M. 1980. *Understanding the Attitudes and Predicting Social Behaviour*. Englewood Cliffs, New Jersey: Prentice-Hall.
- Alexandris, K. & Carroll, B. 1997. An analysis of leisure constraints based on different recreational sport participation levels: Results from a study in Greece. *Leisure Sciences* 19, 1-15.
- Armitage, C.J. & Conner, M. 1999. Distinguishing perception of control from self-efficacy: Predicting consumption of a low fat diet using theory of planned behaviour. *Journal of Applied Psychology* 29: 72-90.
- Attarian, A. 1990. The role of leisure in higher education. *Leisure Information Quarterly* 16 (2): 5-7.
- Bandura, A. 1977. Self-efficacy: Towards a unifying theory of behaviour change. *Psychological Review* 84: 191-215.
- Bandura, A. 1982. Self-efficacy mechanism in human agency. *American Psychologist* 37: 122-147.
- Bandura, A. 1986. Self-efficacy. In A. Bandura (Ed.), *Social Foundations of Thought and Action: A social Cognitive Theory*: 390-453. Englewood Cliffs, NJ: Prentice Hall.
- Bandura, A. 1997. *Self-Efficacy: The Exercise Of Control*. New York: Freeman.
- Benisovich, S.V., Rossi, J.S., Norman, G.J. & Nigg, C.R. 1998. A multidimensional approach to exercise self-efficacy: Relationship with exercise behaviour and attitudes towards exercise. Paper presented at the annual meeting of the New England Psychology Association, Boston, MA.
- Bentler, P.M. 1990. Comparative fit indexes in structural model. *Psychological Bulletin*. 107: 238-246.
- Biddle, S.J.H., Sallis, J. F., & Cavill, N. (Eds.) 1998. *Young and active? Young People And Health-Enhancing Physical Activity: Evidence And Implications*. London: Health Education Authority.
- Bollen, K. A. 1989. *Structural Equation With Latent Variables*. New York: John Wiley & Sons, Inc.
- Bouchard, C., Shephard, R. J. & Stephens, T. 1993. *Physical Activity, Fitness, And Health: Consensus Statement*. Champaign, IL: Human Kinetics.

- Brawley, L.R. and Martin, K.A. 1995. The interface between social and sport psychology. *The Sport Psychologist* 9: 469-497.
- Brislin, R. W. 1970. Back-translation for cross-cultural research. *Journal of Cross-Cultural Psychology* 1(13): 185-216.
- Chih-Mou Hsieh. 1998. Leisure attitudes, motivation, participation, and satisfaction: Test on a model of leisure behaviour. Unpublished doctoral thesis, Indiana University.
- Crandall, R. (1980). Motivation for leisure. *Journal of Leisure Research* 12 (1): 45-54.
- Crandall, R. & Slivken, K. 1980. Leisure attitudes and their measurement. In S.E Iso-Ahola (Ed.), *Social Psychology Perspectives On Leisure And Recreation*: 261-248. Springfield, IL: Charles Thomas Publishers.
- Cunningham, G. B. & Kwon, H. 2003. The theory of planned behavior and intentions to attend a sport event. *Sport Management Review*, 6: 127-145.
- Davis, K.E., Jackson, K.L., Kronenfeld, J.J. & Blair, S.N. 1984. Intent to participation in worksite health promotion activities: A model of risk factors and psychosocial variables. *Health Education Quarterly* 11: 361-377.
- Davison, K. K., & Lawson, C. T. 2006. Do attributes in the physical environment influence children's physical activity? A review of the literature. *International Journal of Behavioral Nutrition and Physical Activity* 3(19). <http://www.pubmedcentral.nih.gov> [20 October 2006]
- Dishman, R.K. 2001. The problem of exercise adherence: Fighting sloth in nations within market economies. *QUEST* 53: 279-294.
- Drakou, A., Tzetzis, G., & Mamantzi, K. 2008. Leisure constraints experienced by university students in Greece. *The Sport Journal* 11(1). <http://www.thesportjournal.org/article> [18 April 2009]
- Driver, B., Brown, P. J., & Peterson, G. 1991. *Benefits of leisure* (Ed.). State College, PA: Venture Publishing.
- Dzewaltowski, D.A. 1989. Towards a model of exercise motivation. *Journal of Sport and Exercise Psychology* 11: 251-269.
- Dzewaltowski, D.A., Noble, J.M., & Shaw, J.M. 1990. Physical activity participation: Social cognitive theory versus the theories of reasoned action and planned behaviour. *Journal of Sport and Exercise Psychology* 12: 388-405.
- Feltz, D.L. 1988. Self-confidence and sports performance. In K.B. Pandolf (Ed.), *Exercise And Sports Science Reviews*: 75-109. New York: Academic Press.
- Feltz, D.L. 1992. Understanding motivation in sport: A self-efficacy perspective. In G.C. Roberts (Ed.), *Motivation in Sport and Exercise*: 93-106. Champaign, Illinois: Human Kinetics.
- Fishbein, M., & Ajzen, I. 1975. *Belief, Attitude, Intention, And Behaviour: An Introduction To Theory And Research*. Reading, MA: Addison-Wesley.
- Frederick, C.M., Ryan, R.M. 1993. Differences in motivation for sport and exercise and their relationships with participation and mental health. *Journal of Sport Behavior* 16: 125-145.
- Hair, J.F., Anderson, R.E., Tatham, R.L., & Black, W.C. 1998. *Multivariate data analysis* (5th ed.). New Jersey: Prentice Hall.

- Hagger, M.S., Chatzisarantis, N. & Biddle, S.J.H. 2001. The influence of self-efficacy and past behaviour on the physical activity intentions of young people. *Journal of Sport Science* 19: 711-725.
- Hagger, M.S., Chatzisarantis, N. & Biddle, S.J.H. 2002. A meta-analytic review of the theories of reasoned actions and planned behaviour in physical activity: Predictive and the contribution of additional variables, *Journal of Exercise Psychology* 24: 3-32.
- Henderson, K.A. & Ainsworth, B.E. 2001. Researching leisure and physical activity with women of color: Issues and emerging questions. *Leisure Sciences* 23: 21-34.
- Hu, L. and Bentler, P.M. 1999. Cut off criteria for fit indexes in covariance structure analysis: Correlational criteria versus new alternatives. *Structural Equation Modeling* 6: 1-55.
- Iso-Ahola, S. E. 1980. *The Social Psychology Of Leisure And Recreation*. Dubuque, IA: WC. C. Brown.
- Iso-Ahola, S.E., & Weissinger, E. 1990. Perceptions of boredom in leisure: conceptualization, reliability, and validity of the leisure boredom scale. *Journal of Leisure Research* 22: 1-17.
- Kaufman, J.E. 1984. A study of leisure satisfaction, leisure participation, and patterns of leisure activity in relationship to anxiety levels in retirees. *Dissertation Abstracts International*, 4 (9) : 3782-A.
- Kaufman, J.E. 1988. Leisure and anxiety: A study of retirees. *Activities, Adaptation, and Aging*, 11, 1-10.
- Kline, R.B. 1998. *Principles And Practice Of Structural Equation Modeling*. New York: Guilford Press.
- Lim Khong Chiu. 2002. Sikap dan kepuasan terhadap kesenggangan di kalangan pelajar pengurusan pelancongan. Laporan penyelidikan, Sekolah Pengurusan Pelancongan, Universiti Utara Malaysia.
- Lim Khong Chiu. 2004. Pengaruh sikap, motivasi dan efikasi-kendiri terhadap penyertaan aktiviti fizikal masa senggang di kalangan pelajar universiti awam tempatan. Tesis Ph.D yang tidak diterbitkan, Universiti Sains Malaysia.
- Little, S., & Guse, D. 1988. Campus recreation service: An enterprise in higher education, *Journal of Physical Education, Recreation and Dance* 30: 40-55.
- MacCallum, R. C. 1995. Model specification: Procedures, strategies, and related issues. In R. H. Hoyle Ed. *Structural Equation Modeling: Concept, Issues, And Application*: 16-36. Thousand Oaks: Sage Publication, Inc.
- Maruyama, G. M. 1998. *Basic Of Structural Equation Modeling*. Thousand Oaks: Sage Publication, Inc.
- McAuley, E. 1985. Modeling and self-efficacy: A test of Bandura's model. *Journal of Sport Psychology* 7: 283-295.
- McAuley, E. 1992. The role of efficacy cognitions in the prediction of exercise of behaviour in middle-aged adults. *Journal of Behaviour Medicine* 15: 65-88.
- McAuley, E. 1993. Self-efficacy and the maintenance of exercise participation in older adults. *Journal of Behaviour Medicine* 16: 103-113.
- McAuley, E. & Courneya, K.S. 1993. Adherence to exercise and physical activity as health-promoting behaviours: Attitudinal and self-efficacy influences. *Applied and Preventive Psychology* 2: 65-77.
- Menec, V. 2003. The relationship between everyday activities and successful aging: A 6-year longitudinal study. *Journal of Gerontology: Social Sciences* 58B(2): S74-S82.
- Morgan, K. & Bath, P. A. 1998. Customary physical activity and psychological well being: A longitudinal study. *Age and Ageing* 27: 35-40.

- Nakazawa, M., Mahony, D.F., Funk, D.C. & HiraKawa, S. 1999. Segmenting Junior League spectators based on length of time as a fan. *Sport Marketing Quarterly* 8: 55–65.
- Neulinger, J. 1974. *The Psychology Of Leisure*. Springfield, IL: Charles C. Thomas.
- Ragheb, M.G. 1980. Interrelationships among leisure participation, leisure satisfaction and leisure attitudes. *Journal of Leisure Research* 12(2): 138-149.
- Ragheb, M.G., & Griffith, C.A. 1982. The contribution of leisure participation and leisure satisfaction to life satisfaction of older persons. *Journal of Leisure Research* 14: 295-306.
- Ragheb, M.G., & Tate, R.L. 1993. A behaviour model of leisure participation based on leisure attitude, motivation and satisfaction. *Leisure Studies* 12: 61-71.
- Ragheb, M.G., Beard, J.G. 1982. Measuring leisure attitude. *Journal of Leisure Research* 14(2): 155-167.
- Ruuskanen, J. M., Ruopilla, I. 1995. Physical activity and psychological well-being among people aged 65 to 84 years. *Age and Ageing* 24: 292-296.
- Sekaran, U. 2003. *Research Methods For Business: A Skill Building Approach* (4th ed). New York: John Wiley & Sons, Inc.
- Terry, D.J., & O'Leary, J.E. 1995. The theory of planned behaviour: The effects of perceived behaviour control and self-efficacy. *British Journal of Social Psychology* 34: 199-220.
- Trail, G. T., Anderson, D. F., & Fink, J. S. 2002. Examination of gender differences in importance of and satisfaction with venue factors at intercollegiate basketball games. *International Sports Journal* 6(1): 51–64.
- Watson, J.F. 1996. The impact of leisure attitude and motivation on the physical recreation/leisure participation of college students. Unpublished doctoral thesis, Purdue University.
- Weinberg, R.S. & Gould, D. 1995. *Foundations of Sport and Exercise Psychology*. New York: Human Kinetics.
- Yorby, G.A., & Lent, R.W. 1993. Predicting aerobic exercise participation: Social cognitive, reasoned action and planned behaviour models. *Journal of Sport and Exercise Psychology* 15: 363-374.

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