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The Motivation to Participate in Physical Activity and Its Impact on Academic Performance in Public Higher Learning Institution

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Abstract--- *This study focuses on examining the motivational factors that influence public university students to participate in physical activity and the impact of such participation on their academic performance. Previous study has revealed that exposure to technology has resulted in reduced participation in physical activity among Malaysian children, preteens and teenagers, and that about nearly half of Malaysian adults were physically inactive. Hence, concerns have arisen that participation in physical activity would continuously decline as these young people become older. At this stage, little is known about the motivation factors that influence the participation of physical activity among Malaysian youth and its impact on the academic performance. Data were collected by distributing a questionnaire to students in a Malaysian public university. Results reveal four motivational factors, namely, enjoyment, mastery, and physical appearance positively affect participation in physical activity. Further, the study found a significant but negative relationship between participation in physical activity and academic performance. Hence, it is suggested that being frequently active in physical activity, at certain point could reduce students' cumulative grade point average (CGPA). As this study used of a self-reported questionnaire to measure the level of participation in physical activity, further test needs to conducted to confirm such relationship. The findings of this study add to the body of knowledge and can be a useful reference on the motivational factors that influence students' participation in physical activity and its negative relationship with academic performance. The findings could be also used to design an intervention programme to promote physical activity and suggest solutions for active students to achieve a university-life balance.*

Keywords--- *Physical Activity, Participation Motives, Academic Performance, CGPA, Higher Learning Institution*

I. INTRODUCTION

The Malaysian Dietary Guidelines suggested that individuals should execute at least 30 minutes of moderate-intensity physical activity for at the minimum of five days a week (Ministry of Health Malaysia, 2010). Despite such recommendations, majority of Malaysians, however, prefer to remain sedentary. The National Health and Morbidity Survey 2006, for instance, revealed that 43.7% (i.e., 5.5 million) of Malaysian adults were physically inactive (Rajappan, Selvaganapathy, & Liew, 2015). Nadaraj (2013) reported similar finding where more than half of the

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adult in Malaysia does not sufficiently participate in physical activity for their health. In addition, Poh et al. (2010) reported that only a small percentage (14%) of Malaysian adults participated in regular activity. In a similar vein, a recent study conducted by Sharif et al. (2016), revealed that both Malaysian children and adolescents had less involvement in physical activity. Arising from concern on the health of future generations, it is important to encourage these young people to participate in physical activity as they are the future leaders of the country. It is, therefore, crucial to highlight the reasons (i.e., motives) why the Malaysian youth might be interested in engaging in physical activity. At the moment, empirical studies on the factors that influence the physical activity participation and its impact on the academic performance, especially among the Malaysian youth remains lacking. Hence, the underlying motivational factors that influence the physical activity participation among Malaysian youth and its impact on the academic performance, especially in the Malaysian public university is still unknown. In addition, it is important to highlight that most public universities in Malaysia provide sport facilities free of charge. Yet, the decision to participate at the university is a choice made by the students. Therefore, the objectives of this paper are to examine the factors that influence the student's physical activity participation and the impact of such participation on academic performance.

Motives for Physical Activity Participation

Physical activity refers to any bodily movement produced by skeletal muscles that require energy expenditure (WHO, 2017). Prior researchers have used similar definitions referring to physical activity as all leisure and non-leisure body movements that result in energy expenditure (see, for example, Bherer, Erickson, & Liu-Ambrose, 2013), such as sport and exercise. Unlike sport that often have a set of rules for the players to follow, exercise however, is a planned, structured, repetitive and intentional movement intended for either improving or maintaining physical fitness (Cagas, Manalastas, Torre & Sánchez-Pituk, 2015).

Kilpatrick, Hebert, and Bartholomew (2005) argued that, even though physical activity can be in many forms, majority of the research, however, had given much attention to exercise behaviour. Nonetheless, the classification of physical activity has been varied in recent studies. While some studies consider physical activity as either sport (e.g., Chiu, et al., 2016), exercise (e.g., Justine, Azizan, Hassan, Salleh, & Manaf, 2013), or both (e.g., Zach, Bar-Eli, Morris, & Moore, 2012), some of them did not explicitly explain the classification of the physical activity that was used in their study (see, for example, Rajappan, Selvaganapathy&Liew, 2015). As a result, the state to which physical activity is reflected and assessed might overlap, which, in turn, leads to difficulty in determining the exact reasons of why people participate in physical activity.

This study conceptualises physical activity as activity in either sport (e.g., futsal) or exercise (e.g., jogging), or both. This conceptualisation is essential because the distinction between these two activities is not an absolute one but depends on the social contexts in which they are performed (Cagas et al., 2015). Cycling, for instance, is considered exercise if it is conducted for recreational purposes. If the cycling activity is associated with specific rules with the specific intention to excel in an athletic challenge, this activity is then considered to be a sport.

Little research has examined the motivations in physical activity participation among youth in Malaysia (see Table 1 for details). Hence, little is known about the factors that lead to their participation in the physical activity. In

addition, none of the existing studies in Malaysia has examined the motivational factors of participation in physical activity, which comprise both sport and exercise.

Table 1. Prior Studies of the Student's Participation in Physical Activity conducted in the Malaysian Context.

No	Study	Respondents	Physical Activity classification	
			Sport	Exercise
1.	Chiu et al. (2016)	Youth (aged 15 to 30 years old)	√	-
2.	Rajappan et al. (2015)	University students (aged 18-30 years)	[a]	[a]
3.	Molanorouzi, Khoo& Morris (2015)	Young adults aged 20 to 40 years; and middle-aged adults 41 to 64 years	-	[b]
4.	Cheah&Poh (2014)	Adults (aged 18 years and above)	[a]	[a]
5.	Justine et al. (2013)	Age between 45–59 years and more than 60 years)	-	√
6.	Sreeramareddy, Kutty, Jabbar, & Boo (2012)	University students	[a]	[a]
7.	Aniza&Fairuz (2009)	Students (School)	[a]	[a]

To stimulate participation in physical activity, it is imperative to understand the motive for why someone participates in such activity. People who are motivated by certain reasons would willingly participate and continuously engage in physical activity. For instance, Kilpatrick et al. (2005) found intrinsic motives and extrinsic motives were the most important motivations for engaging in sport and exercise, respectively. In a similar vein, Egli, Bland, Melton and Czech (2011) said that the motivational factors for participation in exercise could be attributed to intrinsic and extrinsic factors, which were different for both male and female. The males were motivated by intrinsic factors, whereas females were more motivated by the extrinsic factors. In a different study, Cagas et al. (2015) found an evidence to support the presence of different motives for doing sport and exercise. For instance, health and fitness, weight management, and appearance were more associated with exercise, whilst social engagement motives were more related to sport.

Impact of Participation on Physical Activity on Academic Performance

Kamal and Yusari (2014) reported that academic performance for the students who are actively participated in physical activity are better than those who are inactive. So (2012), in an investigation of the relationship between physical activity and academic performance, found a positive correlation between frequency in vigorous and moderate physical activity with academic performance of boys and both boys and girls, respectively in the in Korean adolescent setting. A similar finding was reported by Elmagd et al. (2015) who revealed a significant and positive correlation between participation in physical activity and academic performance.

While many studies highlight the positive relationship of physical activity participation with academic performance, its negative relationship, however, has received considerably less attention. For instance, Tremblay, Inman, and Willms (2000), in their study on the relationship between physical activity, self-esteem, and academic achievement in 12-year-old children, reported a negative relationship between academic achievement and the physical activity level. Tremblay et al. (2000) provides an initial understanding that participation in physical activity could negatively impact academic performance. Van Dijk, De Groot, Savelberg, Van Acker, andKirschner(2014) found that both total physical activity volume and moderate-to-rigorous physical activity for students in Grade 7 was negatively associated with academic performance. The authors concluded that too much time spent on physical activity might result in poorer academic achievement.

II. RESEARCH MODEL AND HYPOTHESES

This study focuses on six factors that could provide the understanding of the motivational factors for Malaysian public university students' participation in the physical activity. The factors are enjoyment (see, for example, Rogers, Morris & Moore, 2008; Filippou et al., 2016); mastery (e.g., Rogers et al., 2008;Ryan &Deci, 2000); psychological condition (e.g., Rogers et al., 2008); physical condition (e.g., Cho & Beck, 2016); affiliation (e.g., Kilpatrick et al., 2005);and physical appearance (e.g., Mishra &Acharya, 2017). Hence, six hypotheses were postulated to examine the influencing factors of students' participation in physical activity. The CGPA was used to examine the impact of physical activity participation on students' academic performance. Figure 1 illustrates the research model of the study.

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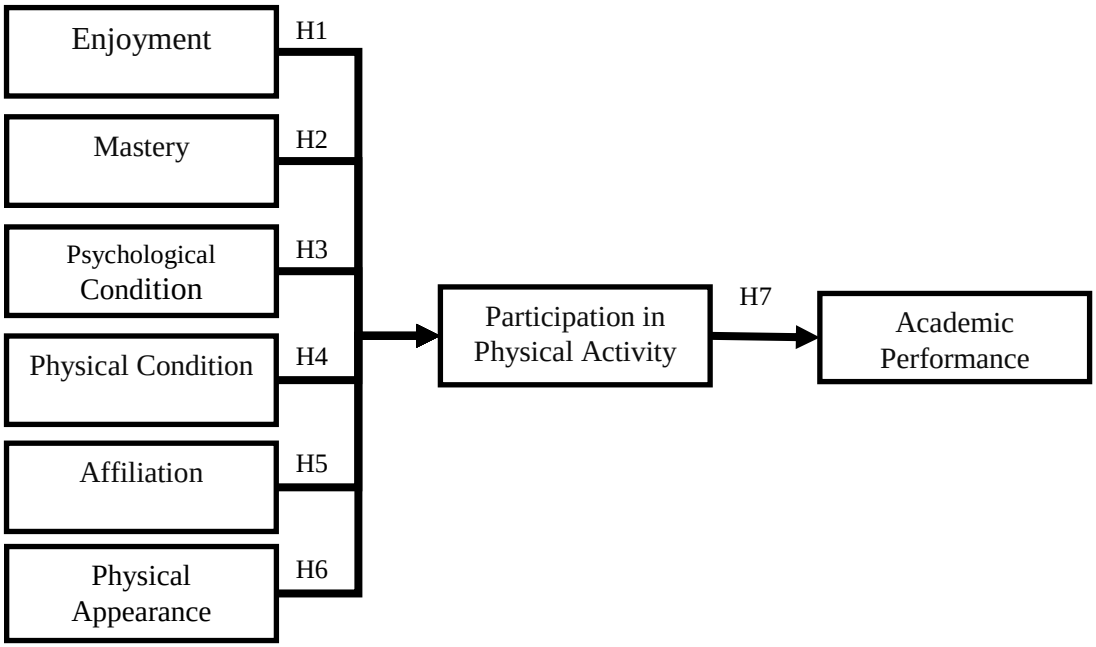

Figure 1. The research model

Enjoyment refers to the extent to which an individual participates in a physical activity because it is fun or doing something just because he/she wants to (Rogers et al., 2008). Previous research found the desire for enjoyment or having fun while doing physical activity enjoyment was one of the key constructs to explain the experiences and motivations for participating in any physical activity for people of all ages (Filippou et al., 2016; Lewis, Williams, Frayeh& Marcus, 2016; Simpson et al., 2017; Yazici, Altun, Sözeri&Koçak, 2016). The following hypothesis is, therefore, postulated:

H1: Enjoyment will positively affect students' participation in physical activity.

Mastery focuses on improving or acquiring skills for the physical activity being undertaken (Rogers et al., 2008). Mastery is under the conception of intrinsic motivation (Buch,Dysvik, Kuvaas&Säfvenbom, 2016; Ryan & Deci, 2000) that reflects the natural human tendency to learn and assimilate (Ryan & Deci, 2000). Hence, it is hypothesised that:

H2: Mastery will positively affect students' participation in physical activity.

Psychological condition, together with physical condition and fitness, have been found to be among the highest ranked motives for participation in physical activity (Rogers, 2000). In this context, psychological condition is referring to the extent to which an individual participates in a physical activity because it is part of his/his overall mental health and promoted a healthy mind (Rogers et al., 2008). The following hypothesis is then proposed:

H3: Psychological condition will positively affect students' participation in physical activity.

Health, medical and fitness related goals reflect the physical condition related to why people participate in physical activity. Based on this classification, physical condition in this study is defined as the reason for an individual to participate in a physical activity that is due to achieve the physical health and fitness and meet medical requirements (Rogers, 2000). Given that previous study (see, for example, Cho & Beck, 2016) has demonstrated that physical condition is a factor that influence individual's participation in physical activity, the following is then hypothesised:

H4: Physical condition will positively affect students' participation in physical activity.

Affiliation focuses on the engagement of an individual inn physical activity due to the need for establishing and maintaining relations with others (McDonald, Milne& Hong, 2002). According to Allen (2003), affiliation reflects the development of close social relationships and having fun with others. Therefore, the following hypothesis is proposed:

H5: Affiliation will positively affect students' participation in physical activity.

Physical appearance is defined as the desire of individuals to become more physically attractive like maintaining a desired weight (Rogers, 2000). Kilpatrick et al. (2005) highlighted that people who participate in exercise were more inclined towards extrinsic motivation that focused on appearance, weight and stress management. The finding is supported by Mishra and Acharya's (2017) study who revealed appearance and weight, and health and fitness were the reason for participating in exercises. It is then proposed that:

H6: Physical appearance will positively affect students' participation in physical activity.

Academic performance refers to the extent to which a student has achieved their academics objectives (Donnelly et al., 2016). In this study, CGPA was used to measure academic performance. Shahiri and Husain (2015) explained that CGPA is normally used to measure academic performance due to its tangible value for future educational and career mobility and becomes an indicator of realised academic potential. Previous studies (see, for example, Alahmed, Yusof& Shah, 2016; Elmagd et al., 2015) also reported a positive correlation between physical activity and academic performance. The following hypothesis is then postulated:

H7: Students' participation in physical activity will positively affect academic performance.

III. DATA COLLECTION

Data for this study were collected through a survey of 1,300 undergraduate students of a public university in Malaysia. The first-year students were excluded because their performance had yet to be measured. Convenience sampling was used for administering the questionnaire. A total of 1,277 responses were received. Of the 1,277 responses, 1,121 were usable. The other 156 responses were considered unusable for several reasons: 1) not answering the questionnaire, 2) missing values for all items of a construct, or 3) the respondent did not fall into the study sample. Excluding these responses, the response rate was 86.2%. This response rate was considered high as students were used as the sample of the study. The majority of the respondents were from Year 2 (57.8%), followed

by Years 3 and 4, 23% and 19.2%, respectively. In terms of age, the majority of the respondents (95%) were between 19-to-24 years old (i.e., falls under the category of young adult).Majority of the respondents were female, represented by 69%. As the races, most of the respondents were Malays which represented by almost 78 percent, and the lowest respondents were Indian, represented by 5.6 percent.

Survey Instruments

This study used a self-reported questionnaire to measure motivation and participation of physical activity. Prior to data collection, the questionnaire was refined via a review by experts (i.e., academician) and pre-testing (i.e., staff from the university sport centre).The frequency of respondents participating in either sport or exercise, or both, in a weekwas used to measure the participation in physical activity. The instrument to measure the motivational factors was adapted from previous researchers (e.g., Molanorouzi et al., 2014; Chowdhury, 2012; Zach et al., 2012) using a 5-point Likert scale. Academic performance in this study was measured by CGPA.

IV. RESULTS

Table 2 presents the frequency of respondents participating in sport and exercise in a week and Table 3 presents the academic performance of the respondents.

Table 1. Frequency Participation in Sport and Exercise in a Week

Frequency Participation in	**Sport**		**Exercise**	
	No	**Percentage**	**No**	**Percentage**
Never	154	13.7	46	4.1
1-3 times	711	63.4	672	59.9
4-6 times	151	13.5	215	19.2
7-9 times	50	4.5	47	4.2
More than 10 times	30	2.2	44	3.9

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Table 2. Academic Performance

CGPA	No	Percentage
1.50 – 2.00	4	.4
2.01 – 2.50	6	.5
2.51 – 3.00	150	13.4
3.01 – 3.50	589	52.5
3.51 – 4.00	366	32.6
Not specified	6	.5
Total	1121	100

Model Testing

Partial Least Squares (PLS) (via SmartPLS version 2.0 software) was used for statistical analysis as it allows testing and estimating causal relationships among multiple independent and dependent constructs simultaneously. The composite reliability (CR) of each measure ranged from .879 to .953. Hence, the construct was considered as reliable as the CR exceeded the recommended threshold value of .70 (Hair,Black,Babin, Anderson and Tatham, 2010;Fornell&Larcker, 1981). The reliability of indicators for each construct was determined by examining the loadings of indicators on their intended constructs. Table 4 shows that all loadings exceeded the minimal threshold value of .70 suggesting good indicator for item reliability (Fornell&Larcker, 1981). Hence, no item was deleted. The value for the average variance extracted (AVE) for each measure was also greater than the threshold value of .50 suggested by Hair et al. (2010). Hence, all items met the convergent validity requirement.

Table 3. Item Loadings, Composite Reliability and AVE of Latent Constructs

Construct	Loading	CR	AVE	Construct	Loading	CR	AVE
ENJ1	.877	**.943**	**.804**	AFF1	.884	**.938**	**.753**
ENJ2	.914			AFF2	.902		
ENJ3	.904			AFF3	.879		
ENJ4	.891			AFF4	.854		
MAS1	.876	**.948**	**.751**	AFF5	.816		

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Construct	Loading	CR	AVE	Construct	Loading	CR	AVE
MAS2	.903			APP1	.812	**.919**	**.695**
MAS3	.866			APP2	.887		
MAS4	.881			APP3	.889		
MAS5	.805			APP4	.760		
MAS6	.865			APP5	.813		
PSY1	.862	**.948**	**.785**	PHY1	.887	**.953**	**.801**
PSY2	.905			PHY2	.904		
PSY3	.904			PHY3	.911		
PSY4	.908			PHY4	.902		
PSY5	.850			PHY5	.873		
PAR1	.868	**.879**	**.785**	CGPA	Single-item construct		
PAR2	.904						

As shown in Table 5, the square roots of the AVE of each construct (i.e., using the Fornell-Larcker criterion) were greater than the cross-correlations between them, thereby suggesting discriminant validity.

Table 4. Square Root of AVE and Latent Variable Correlations

	AFF	APP	CGPA	ENJ	MAS	PAR	PHY	PSY
AFF	0.868							
APP	0.417	0.834						
CGPA	-0.049	-0.041	1.000					
ENJ	0.533	0.421	-0.090	0.897				
MAS	0.527	0.530	-0.061	0.637	0.866			
PAR	0.146	0.219	-0.136	0.239	0.262	0.886		
PHY	0.593	0.562	-0.027	0.630	0.626	0.181	0.895	
PSY	0.589	0.431	-0.025	0.639	0.598	0.156	0.715	0.886

A bootstrapping procedure (1,500 resamples) was conducted to show the significance of estimated path coefficients. The selection of 1,500 resamples was consistent with Deng, Allison, Fang, Ash and Ware (2013) who

noted that the number of bootstrap replications, ranging from 500 to 2,000, had little effect on either bootstrap standard error or confidence interval. The variance explained for participation in physical activity and academic performance is 8.8% and 1.8%, respectively.The results of the structural model are summarised in Table 6.

Table 5. Results for Hypotheses Testing

	Hypotheses	**Beta (β)**	**t-value**	**Results**
H1	ENJ ➔ PART	.149	3.679	Supported*
H2	MAST ➔ PART	.170	4.451	Supported*
H3	PSY ➔ PART	-.056	1.452	Not Supported
H4	PHY ➔PART	-.035	0.796	Not Supported
H5	AFF ➔ PART	-.019	0.547	Not Supported
H6	APP ➔ PART	.118	3.890	Supported*
H7	PART ➔ CGPA	-.136	4.231	Supported*

V. MOTIVATIONAL FACTORS INFLUENCING STUDENT PARTICIPATION IN PHYSICAL ACTIVITY

The findings of this study revealed a positive relationship between enjoyment and participation in physical activity. This is consistent with the results found by previous studies, such as Filippou et al., (2016), Lewis et al. (2016), Simpson et al. (2017), and Yazici et al. (2016). In this context, the desire for enjoyment or having fun while doing physical activity becomes the key to explain the motivation for participating in physical activity.

Consistent with previous studies (see, for example, Molanorouzi et al., 2015; Morris & Kavussanu, 2009), this study found that mastery had a positive relationship with physical activity participation. In this regards, individuals will do the physical activity for his/her inherent satisfaction to develop competency. Physical appearance was found as significant in explaining the motive for participation in physical activity. These include to look better by losing weight and improved body shape. This finding is consistent with Allender et al. (2006), who found that physical appearance as one of the common reasons why young people participate in sport and physical activity.

However, this study failed to find an evidence to support the relationship between psychological condition and participation in physical activity. One plausible explanation of why psychological condition was not significant is due to the age of the respondents (i.e., young adults). At this stage, a young adult might not be motivated by psychological condition to participate in physical activity. In addition, young adults can find other alternatives to release tension or pressures faced, such as playing online games and connecting with friends via social media. The findings of the study is also insignificant in explaining the relationship between participation in physical activity and physical condition. A plausible explanation is that, even though the students aware the importance of participation in

physical activity for improving physical condition, they might not have time to be involved in such an activity (see, for example, Koen et al., 2017). In addition, according to Bastos, Salguero, González-Boto and Marquez (2006), young adults reported a lower importance for health and fitness as motivations for physical activity participation.

In contrast to other studies (see, for example, Cho and Beck, 2016), affiliation was not found as an important determinant to motivate participation in physical activity. One plausible explanation might be due to the fact that the respondents of this study (i.e., young adults) might prefer forming affiliations by participating in virtual groups in the social media, rather than interacting with people around them. Hence, the more active a student is in a social media, the greater the likelihood that a student is to maintain relationships with her/his virtual friends.

VI. Participation in Physical Activity and Academic Performance

This study found that participation in physical activity had a significant but negatively related to the academic performance (β =-.136, t = 4.231). This negative relationship is consistent with Tremblay et al. (2000) who found that physical activity was negatively associated to academic achievement. Since the participation in physical activity was measured by the frequency of participation in sport and exercise activities in a week's time, the evidence of this study suggests that a student's CGPA will decrease the more time he/she spend involving in physical activity. One plausible explanation is that the frequent participation in physical activity may reduce the time available for studying. This is consistent with So (2012) who said that the more time allocated for a physical activity as time consuming, the less time students had to study. Hence, a balance of time between study and participating in physical activity is crucial for the students to obtain a healthy life style and achieve academic success.

Notably this result of the current study contradicted other studies on physical activity and academic performance, which have found that university students who are physically active have better academic performance. While these studies suggested that university students who are active in physical activity can also do better in academic subjects, the measurement of physical activities in these studies were different. For instance, Elmagd et al. (2015) focused on physical activity as sport, and Muñoz-Bullón, Sanchez-Bueno and Vos-Saz (2017) examined sport participation. Kamal and Yusari (2014), on the other hand, did not provide the details of how physical activity was operationalised in their study. Hence, this current study shed lights that participation in both sport and exercise, which is defined by this study as physical activity, could result in a decrease in CGPA.

VII. Implication and Limitation of the Study

This paper offers new insights in that young adults have different motives for participating in physical activity as compared to the adults. It is important to highlight that unlike other research, this current study conceptualised physical activity as participation in both exercise and sport. The findings of this study contribute to the literature that participation in both sport and exercise activities (i.e., physical activity) is motivated by enjoyment, mastery, and physical appearance. Hence, this empirical evidence demonstrates that the students would participate in physical activity if they perceive that such participation could offer enjoyment, improve their skills, provide the platform for them to perform and show their competency and the ability to look better to the others.

The current study has limitations that should be taken into account. First, the ability to generalise the current findings is limited because only one university was chosen as a sample. In future research, the sample could be extended to all public universities in Malaysia to provide more rigorous results and the ability to generalise the findings. Second, it is important to highlight that this study used a self-reported physical activity to measure the participation of the students through the frequency of respondents participating in either sport or exercise, or both, in a week. This limitation is crucial to be highlighted because a self-reported questionnaire is depending on the ability of the participant to recall back their activity in a week. Other methods, such as using a daily logbook and devices (e.g., accelerometers) could be used to comprehensively measure the intensity of physical activity participation by the students. Hence, the negative impact of the participation of physical activity on academic performance could be further elaborated and understood.

VIII. CONCLUSION

The focus of this paper was to examine the motivational factors that influence student participation in physical activity and investigate the effects of student participation in physical activity on their academic performance. The results of this study revealed that:1) enjoyment, mastery, and physical appearance have significant influence on participation in a physical activity, and 2) participation in physical activity has a significant but negative relationship with academic performance.

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REFERENCES

[1] Alahmed, M., Yusof, A., & Shah, P. (2016). Attitude, sports participation and academic performance of undergraduate student-athletes in Saudi Arabia. *Journal of Physical Education and Sport, 16*(3), 1000.

[2] Allen, J. B. (2003). Social motivation in youth sport. *Journal of Sport and Exercise Psychology, 25*(4), 551-567.

[3] Aniza, I., &Fairuz, M. (2009). Factors influencing physical activity level among secondary school adolescents in Petaling district, Selangor. *The Medical Journal of Malaysia,64*(3), 228-232.

[4] Bastos, A. d. A., Salguero, A., González-Boto, R., & Marquez, S. (2006). Motives for participation in physical activity by Brazilian Adults. *Perceptual and Motor Skills*, *102*(2), 358-367.

[5] Bherer, L., Erickson, K., & Liu-Ambrose, T. (2013). A review of the effects of physical activity and exercise on cognitive and brain functions in older adults. *Journal of Aging Research*, 1-8.

[6] Buch, R., Dysvik, A., Kuvaas, B., &Säfvenbom, R. (2016). The relationship between mastery orientation and maximal oxygen uptake among military cadets: The mediating role of intrinsic motivation. *Military Behavioral Health, 4*(4), 398-408.

[7] Cagas, J., Manalastas, E., Torre, B., & Sánchez-Pituk, C. (2015). Comparison of exercise versus sport participation motives among Filipino university students. *Asia Life Sciences, 24*(2), 703-713.

[8] Cheah, Y., &Poh, B. (2014). The determinants of participation in physical activity in Malaysia. *Osong Public Health and Research Perspectives*, *5*(1), 20-27.

[9] Chiu, L., Mat Yusof, M., Fauzee, M., Othman, A., Aman, M., Elumalai, G., & Mohd Ali, H. (2016). Examining sport and physical activity participation, motivations and barriers among youth Malaysians. *Canadian Center of Science and Education, 12*(1), 159-171.

[10] Cho, D., & Beck, S. (2016). Competitive physical activity participation: Effect on motivation of international college students. *Journal of the Oklahoma Association for Health, Physical Education, Recreation, and Dance, 53*(3), 63-70.

[11] Chowdhury, D.R. (2012). *Examining reasons for participation in sport and exercise using the Physical Activity and Leisure Motivation Scale (PALMS)* (Unpublished doctoral dissertation). Victoria University, Melbourne, Australia. Retrieved from http://vuir.vu.edu.au/19943/1/Debadeep_RoyChowdhury.pdf

[12] Deng, N., Allison, J. J., Fang, H. J., Ash, A. S., & Ware, J. E. (2013). Using the bootstrap to establish statistical significance for relative validity comparisons among patient-reported outcome measures. *Health and Quality of Life Outcomes, 11*, 89.

[13] Donnelly, J. E., Hillman, C. H., Castelli, D., Etnier, J. L., Lee, S., Tomporowski, P., Lambourne, K., &Szabo-Reed, A. N. (2016). Physical activity, fitness, cognitive function, and academic achievement in children: A systematic review. *Medicine and Science in Sports and Exercise, 48*(6), 1197-1222.

[14] Egli, E., Bland, H., Melton, B., & Czech, D. (2011). Influence of age, sex, and race on college students' exercise motivation of physical activity. *Journal of American College Health, 59*(5), 399-406.

[15] Elmagd, M. A., Mossa, A. H., Sami, M. M., El-Marsafawy, T. S., Al Jadaan, O., &Eldin, M. S. (2015). The impact of physical activity on the academic performance among medical and health sciences students: A cross sectional study from RAKMHSU-RasAlkhaimah-UAE. *International Journal of Physical Education, Sports and Health, 2*(1), 92-95.

[16] Filippou, F., Rokka, S., &Mavridis, G. (2016). Examining the motives for participating in dance activities, using the "Physical activity and leisure motivation scale" (PALMS). *Sport Science, 9*(1), 42-49.

[17] Fornell, C., &Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39-50.

[18] Gardner, L. A., Vella, S. A., & Magee, C. A. (2017). Continued participation in youth sports: the role of achievement motivation. *Journal of Applied Sport Psychology, 29*(1), 17-31.

[19] Goldstein, J. D., &Iso-Ahola, S. E. (2006). Promoting sportsmanship in youth sports: Perspectives from sport psychology. *Journal of Physical Education, Recreation & Dance, 77*(7), 18-24.

[20] Hair, J., Black, W., Babin, B., Anderson, R., &Tatham, R. (2010). *Multivariate data analysis*. Upper Saddle River, NJ: Pearson Prentice Hall.

[21] Hutzler, Y., Oz, M., & Barak, S. (2013). Goal perspectives and sport participation motivation of Special Olympians and typically developing athletes. *Research in Developmental Disabilities, 34*(7), 2149-2160.

[22] Justine, M., Azizan, A., Hassan, V., Salleh, Z., & Manaf, H. (2013). Barriers to participation in physical activity and exercise among middle-aged and elderly individuals. *Singapore Medical Journal*,*54*(10), 581-586.

[23] Kamal, A. A., &Yusari, N. (2014). Malaysian students' involvement in physical activity and the impact on academic achievement. *Standard Journal of Education and Essay, 2*(2), 32-38.

[24] Kilpatrick, M., Hebert, E., & Bartholomew, J. (2005). College students' motivation for physical activity: Differentiating men's and women's motives for sport participation and exercise. *Journal of American College Health, 54*(2), 87-94.

[25] Koen, N., Philips, L., Potgieter, S., Smit, Y., van Niekerk, E., Nel, D., &Visser, J. (2017). Staff and student health and wellness at the Faculty of Medicine and Health Sciences, Stellenbosch University: Current status and needs assessment. *South African Family Practice, 60*(3), 1-7.

[26] Kueh, Y. C., Kuan, G., & Morris, T. (2017). The Physical Activity and Leisure Motivation Scale: A confirmatory study of the Malay language version. *International Journal of Sport and Exercise Psychology*, 1-16.

[27] Lewis, B. A., Williams, D. M., Frayeh, A. L., & Marcus, B. H. (2016). Self-efficacy versus perceived enjoyment as predictors of physical activity behavior. *Psychology & Health, 31*(4), 456-469.

[28] Liu, W., Li, X., Zeng, N., Ayyub, M., Xiong, S., Tao, K., &Peng, Q. (2017). Examining associations among motivation, physical activity and health in Chinese college students: A Self-Determination Theory perspective. *JTRM in Kinesiology, 6*, 1-9.

[29] McDonald, M. A., Milne, G. R., & Hong, J. (2002). Motivational factors for evaluating sport spectator and participant markets. *Sport Marketing Quarterly, 11*(2), 100-113.

[30] Mishra, M., & Acharya, A. (2017). Comparison of exercise versus sport participation motives among university students of Odisha state. *International Journal of Physical Education, Sports and Health, 4*(3), 1-4.

[31] Molanorouzi, K., Khoo, S., & Morris, T. (2014). Validating the physical activity and leisure motivation scale (PALMS). *BMC Public Health, 14*, 1-12.

[32] Molanorouzi, K., Khoo, S., & Morris, T. (2015). Motives for adult participation in physical activity: Type of activity, age, and gender. *BMC Public Health, 15*(1), 66.

[33] Morris, R. L., & Kavussanu, M. (2009). The role of approach avoidance versus task and ego goals in enjoyment and cognitive anxiety in youth sport. *International Journal of Sport and Exercise Psychology, 7*(2), 185-202.

[34] Muñoz-Bullón, F., Sanchez-Bueno, M. J., &Vos-Saz, A. (2017). The influence of sports participation on academic performance among students in higher education. *Sport Management Review*, *20*(4), 365-378.

[35] Poh, B.K., Safiah, M.Y., Tahir, A., Siti Haslinda, M.D., Siti Norazlin, N., Norimah, A.K., Wan Manan, W.M., Mirnalini, K., Zalilah, M.S., Azmi, M.Y., & Fatimah, S. (2010). Physical activity pattern and energy expenditure of Malaysian adults: Findings from the Malaysian adult nutrition survey (MANS). *Malaysian Journal of Nutrition*, *16*(1), 13-37.

[36] Rajappan, R., Selvaganapathy, K., &Liew, L. (2015). Physical activity level among university students: A cross sectional survey. *International Journal of Physiotherapy and Research*, *3*(6), 1336-1343.

[37] Rasberry, C. N., Lee, S. M., Robin, L., Laris, B., Russell, L. A., Coyle, K. K., &Nihiser, A. J. (2011). The association between school-based physical activity, including physical education, and academic performance: A systematic review of the literature. *Preventive Medicine*, 52(Supplement 1), 10-20.

[38] Roberts, S., Reeves, M., & Ryrie, A. (2015). The influence of physical activity, sport and exercise motives among UK-based university students. *Journal of Further and Higher Education*, *39*(4), 598-607.

[39] Rogers, H. (2000). *Development of a recreational exercise motivation questionnaire* (Unpublished doctoral dissertation). Victoria University of Technology, Melbourne, Australia. Available from http://vuir.vu.edu.au/15330/

[40] Rogers, H., & Morris, T. (2003). *An overview of the development and validation of the Recreational Exercise Motivation Measure (REMM)*. Paper presented at the 11th European Congress of Sport Psychology, Copenhagen, Denmark, 22-27 July.

[41] Rogers, H., Morris, T., & Moore, M. (2008). A qualitative study of the achievement goals of recreational exercise participants. *The Qualitative Report, 13*(4), 706-734.

[42] Ryan, R. M., &Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, *25*(1), 54-67.

[43] Shahiri, A. M., & Husain, W. (2015). A review on predicting student's performance using data mining techniques. *Procedia Computer Science, 72*, 414-422.

[44] Sharif, R., Chong, K., Zakaria, N., Ong, M., Reilly, J., Wong, J., Poh, B. (2016). Results from Malaysia's 2016 report card on physical activity for children and adolescents. *Journal of Physical Activity and Health*, *13*(2), 201-205.

[45] Simpson, P., Howie, E., Williams, S., Neil, A., Morris, S., & Ng, L. (2017). The relationship between competence and enjoyment with physical activity in children: It depends on the dependent variable. *Journal of Science and Medicine in Sport, 20*, e77. Available from https://www.jsams.org/article/S1440-2440(17)30027-0/fulltext

[46] So, W.-Y. (2012). Association between physical activity and academic performance in Korean adolescent students. *BMC Public Health*, *12*(1), 258.

[47] Sreeramareddy, C., Kutty, N., Jabbar, M., & Boo, N. (2012). Physical activity and associated factors among young adults in Malaysia: An online exploratory survey. *BioScience Trends*, *6*(3), 103-109.

[48] Tremblay, M. S., Inman, J. W., &Willms, J. D. (2000). The relationship between physical activity, self-esteem, and academic achievement in 12-year-old children. *Pediatric Exercise Science*, *12*(3), 312-323.

[49] Van Dijk, M. L., De Groot, R. H., Savelberg, H. H., Van Acker, F., & Kirschner, P. A. (2014). The association between objectively measured physical activity and academic achievement in Dutch adolescents: Findings from the GOALS study. *Journal of Sport and Exercise Psychology*, *36*(5), 460-473.

[50] Wiersma, L. D. (2001). Conceptualization and development of the sources of enjoyment in youth sport questionnaire. *Measurement in Physical Education and Exercise Science*, *5*(3), 153-177.

[51] World Health Organisation. (2017). *Physical activity and adults*. Retrieved from http://www.who.int/dietphysicalactivity/factsheet_adults/en/

[52] Yazici, T., Altun, M., Sözeri, B., &Koçak, S. (2016). Understanding college student's motivation for physical activity participation: The role of gender, sport type and activity level. *Journal of Human Sciences, 13*(3), 5189-5200.

[53] Zach, S., Bar-Eli, M., Morris, T., & Moore, M. (2012). Measuring motivation for physical activity: An exploratory study of PALMS-The physical activity and leisure motivation scale. *Athletic Insight, 4*(2), 141-154.

[54] Zervou, F., Stavrou, N. A., Koehn, S., Zounhia, K., & Psychountaki, M. (2017). Motives for exercise participation: The role of individual and psychological characteristics. *Cogent Psychology,4*(1), 1-12.

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