

Effect of Female Students' Satisfaction on General Physical Fitness in Physical Education Courses

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Abstract

Satisfaction is considered as a motivation to help individuals who are not persistent enough to fully perform physical education exercises. However, the effect of satisfaction on fitness development has not been determined, especially for non-sport students. The purpose of this study was to find out the effect of female students' satisfaction on general physical fitness at Saigon University. 1007 female student were volunteered and selected who divided randomize in two groups (experimental and control). The solutions to improve satisfaction was selected and applied to experimental group, while control group do not apply the solution and practice according to a predetermined 15-week training program. The one-way ANCOVA algorithm was used to assess the difference in the general fitness level of female students in the pre- and post-experiment stages between the experimental and control groups. The results indicated that there was difference in the general fitness level of female students between the group that applied the solutions and the control group in the study. Further research is needed to be able to clearly assess the factors affecting the physical development and satisfaction in different groups of subjects in terms of age, gender, higher training level and in different specialized sports group.

Keywords: General physical fitness, students' satisfaction, solutions, 15-week experiment.

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INTRODUCTION

Physical education (PE) in the university created good habits related to a healthy lifestyle when practicing sports and other movement activities (Sierra-Díaz, 2019). Therefore, it is necessary to motivate students to participate in sports, so that they are more interested in participating in classroom activities (Cox, 2008). Students who are motivated to participate in physical exercise are clearly more interested in and eager to participate in more manipulative activities in the future (Ntoumanis, 2005). According to Moore & Fly (2017) when teachers give students the opportunity to show themselves in the class, they feel more confident and satisfaction in participating in physical activities.

Satisfaction was an important factor in maintaining physical activity, but the factors influencing satisfaction were still poorly understood. Experiences with active physical activity and cognitive processes towards physical activity goals have a significant impact on people leading to changes in satisfaction levels (Baldwina *et al.*, 2013). Stukalina (2010) also believed

that understanding the potential factors affecting student satisfaction can provide universities with necessary and useful tools to improve service quality and improve its position in the system of other universities.

Hoyer & MacInnis (2001) suggested that satisfaction is associated with feelings of acceptance, happiness, gratification, feelings of excitement and joy. According to Kotler & Gary (2012), satisfaction was the degree of a person's sensory state resulting from comparing the results obtained from their using with the person's expectations. The expectations were formed on the basis of experience, information obtained from many different sources such as friends, advertising, marketing of the service provider. Therefore, satisfaction occurred when the quality they received exceeds the quality as expected/originally perceived (Hansemark, 2004). Satisfaction was also measured by the level of a person's sensory state from comparing the results obtained from the service with the person's expectations (Zineldin, 2000), (Zairi, 2000), (Chung & Hew, 2000).

Satisfaction was also understood as the level of feeling state of a person that results from comparing the results obtained from consuming a product/service with their own expectations. Satisfaction was considered as a motivation to help individuals who are not persistent enough to fully perform physical education exercises (Mario *et al.*, 2011). However, the effect of satisfaction on fitness development has not been determined, especially for non-specialized students taking Physical Education courses. Therefore, improving student satisfaction was one of the conditions for students to actively participate in physical activities, which in turn might contribute to increasing the overall fitness of students.

In addition, according to Zhang *et al.*, (2022) the impact of physical training and life satisfaction of university students is not significant. However, the study also showed that physical training not only reduces psychological symptoms but also improves the quality of life, personal health, especially mental health. While in sport students (studying at specialized sports schools), there has been a high level of satisfaction through the mechanism of health training, which leads to satisfying the need to develop professional physical capacity and feeling satisfied with life. According to Elliott & Shin (2002) paying attention to student satisfaction not only helps universities change to better meet the needs of students, but also helps educational institutions maintain and improve university quality. Therefore, the purpose of this study was to clarify the application of solutions that helped to improve the satisfaction of female students of Saigon University after participating in physical education modules in 7 factors (facilities, lecturers, the implementation, training program, support process, problem responsiveness, expected results) affected the general physical fitness of female students. Thereby, there were more in-depth studies later to be able to clearly assess the factors affecting the physical development and satisfaction in learners.

MATERIALS AND METHODS

Participants

Experimental study on 1007 female students in six sport courses (track & field, football, volleyball, basketball, table tennis and badminton) at Saigon University for 15 weeks (equivalent to one semester).

In order to assess the general fitness level of students that affects the satisfaction level after experimenting with solutions at Saigon University, study the evaluation process on all 06 groups of sports classes (track & field, football, football, volleyball, basketball, table tennis, and badminton), each group of conditional subjects has 06 classes, with 03 classes selected for the solution experimental group and 03 classes selected for the control group.

Data Collection

Four fitness tests were chosen to determine the physical fitness of Saigon University students, such as 30m sprint test (speed), 4x10m Shuttle run test (agility), standing extended jump test (the explosive power of the legs), and 5-min running field test (maximal aerobic speed-MAS). These tests were suitable to evaluate the fitness of amateur athletes by the Ministry of Education & Training (2008) and also suited to assess general fitness in physical education courses at Saigon University (Tuan *et al.*, 2017), with high validity and reliability.

Procedures

Two weeks before the experiment, each participant answered a brief baseline questionnaire about their personal information, training habits, and sport-related injury history. Besides, all participants got acquaintance with the fitness tests and how to implement them. They are informed of the screening process before agreeing to participate in writing. All participants were asked to continue their daily diet and physical activity throughout the study.

Thereafter, all participants underwent a 15-week-weekly training program in PE courses with the same conditions, duration, and facility usage. PE courses attended morning (from 7.00 to 10.40 am) in Monday, Tuesday and Wednesday. The experimental group applied 7 solutions to improve students' satisfaction. They were:

- + Solution 1: Ensure facilities during the teaching process, plan regular yard maintenance, maintain or replace appropriate training equipment to improve student satisfaction.
- + Solution 2: Organize seminars and seminars to evaluate and improve the quality of training, skills and teaching methods, and new approaches to physical education, suitable to the characteristics of students at Sai Gon University.
- + Solution 3: Add content, organizational form, type of movement, and exercise equipment suitable for female students to help them participate more in the learning process. practice physical education.
- + Solution 4: Regularly propagate and educate to enhance the position, role, and importance of physical education subjects in students.
- + Solution 5: Strengthening exercises associated with movement games to improve satisfaction, and at the same time create motivation for students to participate in exercise.
- + Solution 6: Digitize learning materials and reference books related to the subject to help students conveniently use during the learning process.
- + Solution 7: Flexible use of teaching methods, appropriate classroom organization forms to create a dynamic and fun training environment.

Statistical Analysis

All data were expressed as mean and standard deviation values (mean±SD). Data collections were analyzed by using SPSS for Windows version 20. The ANCOVA was used to determine the differences in fitness tests among two groups (experimental group and control group) with Bonferroni post hoc test adjustment. A p-value of less than 0.05 was determined to be a significant difference. Values were presented in mean ± standard deviation (x±SD).

RESULTS AND DISCUSSIONS

The characteristics of the study were described in Table 1.

Table 1: Characteristics of participants (n=1007)

Age (years)	Height (cm)	Weight (kg)
19.09±0.77	157.93±5.23	49.56±7.21

Values are mean ± standard deviation.

Some participants were excluded through the experiment because of the drop-out, health problems, and personal problems. Therefore, 1007 female students remaining in two groups continued the experiment until the end of the 15-week training in PE course at Saigon University. The average age, height, and weight in both groups were 19.09±0.77 years, 157.93±5.23 cm, and 49.56±7.21 kg respectively.

Evaluation of the general physical fitness of female students after experimenting with solutions at Saigon University. Results of the general fitness level test, including four evaluation tests were 30 seconds sit-up test, 30m sprint test, standing extended jump test, and 5-min running field test for female university students. Data collected are described in Tables 2 and Table 3.

The results in Tables 2 and Table 3 showed that there was statistically significant difference in the standing extended jump test between the experimental group (164.85±6.06 cm) and the control group (162.99±6.66 cm), F(1, 1004)= 20.897, p=0.000<0.05, η=0.020. There was statistically significant difference in the 30 seconds sit-up test between the experimental group (15.92±1.48 times) and the control group (15.26±1.47 times), F(1, 1004)= 50.064, p=0.000<0.05, η=0.047. There was statistically significant difference in 30m sprint test between the experimental group (5.58±0.88 s) and the control group (5.79±0.78 s), F(1, 1004)= 16.018, p=0.000<0.05, η=0.016. There was statistically significant difference in 5 min running field test depending on strength between the experimental group (836.74±45.32 m) and the control group (800.05±25.27 m), F(1, 1004)= 252.698, p=0.000<0.05, η=0.201.

Table 2: Data on general fitness level among female students (n=1007)

Test	Time	Control group (n=507)	Experimental group (n=500)
1	Pre-test	156.87±6.47	157.58±6.43
	Post-test	162.99±6.66	164.85±6.06
2	Pre-test	14.47±1.53	14.56±1.42
	Post-test	15.26±1.47	15.92±1.48
3	Pre-test	6.11±0.85	6.14±0.79
	Post-test	5.79±0.78	5.58±0.88
4	Pre-test	728.94±24.26	727.94±23.85
	Post-test	800.05±25.27	836.74±45.32

Note: 1- Standing extended jump test (cm), 2-30 seconds sit-up test (time), 3- 30m sprint test (s), 4- 5min running field test.

Table 3: Differences in general fitness level among female students (n=1007)

Test	Source	SS	df	MS	F	Sig.	η
1	Pre-test	89.489	1	89.489	2.208	.138	.002
	Group	846.915	1	846.915	20.897	.000	.020
	Error	40691.05	1004	40.529			
2	Pre-test	43.122	1	43.122	20.323	.000	.020
	Group	106.229	1	106.229	50.064	.000	.047
	Error	2130.345	1004	2.122			
3	Pre-test	14.116	1	14.116	20.797	.000	.020
	Group	10.872	1	10.872	16.018	.000	.016
	Error	681.450	1004	.679			
4	Pre-test	430.808	1	430.808	0.321	.571	.000
	Group	339210.89	1	339210.89	252.698	.000	.201
	Error	1347727.64	1004	1342.35			

Note: SS-Sum of Square, df-degree of freedom, MS-Mean Square, η-Eta squared

Therefore, the results indicated that there were differences in the general fitness level in the group of female students after applying solutions to improve the level of satisfaction in the physical education courses at Saigon University. Through the experimental process (application of solutions) on female students in 06 sports groups (track & field, football, volleyball, basketball, table tennis and badminton), the satisfaction of female students was showed that they were related to the overall development of general physical fitness.

Many previous research results suggested that satisfaction was positively related to the level of physical activity participation. When people felt satisfied with physical activity, they had more “reasons” to participate more frequently and maintain long-term physical activity (Lemes *et al.*, 2021; Mario *et al.*, 2011; Aibar *et al.*, 2021, Extremera *et al.*, 2015...). In theory, when people were satisfied with physical training, they tended to be more enthusiastic and active in physical training. The joy and results achieved after each training session might create motivation to continue to improve and enhance physical fitness, as well as brought psychological comfort, reduced stress, and created conditions for the body to operate more effectively (Gao, 2009), thereby supported better physical development. Therefore, creating a physical exercise environment that was fun, interesting, and tailored to personal preferences could help encourage people to participate in physical activity more often, contributing to improved health and fitness. substance (Villafaina *et al.*, 2021). Research by Bastug & Duman (2010) concluded that physical training positively affects physical and psychological health, which increases learner satisfaction. Thus, it could be said that satisfaction had a positive relationship with physical fitness development. When people are satisfied with their favorite sport, they tend to practice more and more effectively.

However, it is necessary to combine satisfaction with many other factors to achieve the best training results. According to Trang (2010), the level of satisfaction is not the only decisive factor affecting physical fitness development. It needs to be combined with other factors such as a reasonable training plan, appropriate nutrition, adequate rest, psychological comfort... to achieve the best results. Results from the study by Zhang *et al.*, (2022) evaluated the impact of exercise on satisfaction between students majoring in sports and non-sports majors at universities. The results show that in students who do not specialize in sports, the impact of physical training and life satisfaction of university students is insignificant, but the study also shows that physical training not only can reduces psychological symptoms but also improves personal health, especially mental health. Meanwhile, students majoring in physical education and sports have high satisfaction through the health training mechanism, which leads to satisfying the needs of developing professional physical capacity (the process of forming

movement skills), then feel satisfied with life. Wypych-Ślusarska *et al.*, (2023) also showed similar results in the young female group (from 18-30) when showing that satisfaction does not affect physical activity, but factors such as marital status and evaluation body image (Yoo & Lee, 2022) is the factor that affects satisfaction.

It might be said that learner satisfaction was one of the key factors affecting sports practice, as well as the development of physical qualities (Busing & West, 2016), especially the great influence on students specializing in sports and sports was associated with satisfaction with training and improving professional capacity (Zhang *et al.*, 2022). In this study, the results also showed similarities with this study when solutions are developed and applied to increase the level of satisfaction for students at Saigon University (not specialized in sports), showing that the more satisfy students got, the more general physical fitness level of female students increased. Besides, the results also showed that there was an overall similarity with these studies when developing and applying solutions to improve satisfaction for female students at Saigon University and found a difference in fitness levels between the experimental and the control groups, the application of the solutions has helped increase the level of satisfaction for students at SaiGon university after participating in physical education courses, and indeed had a positive impact on improving the general physical level of this research group. Therefore, it was necessary to have more in-depth studies later to be able to clearly assess the factors affecting the physical development and satisfaction of learners.

CONCLUSIONS

In short, the general fitness level of female students did improve at Saigon University after the application of solutions to improve satisfaction. Further research was needed to be able to clearly assess the factors affecting the physical development and satisfaction in different groups of subjects in terms of age, gender, higher training level and in different specialized sports group.

RECOMMENDATIONS

Based on the findings and conclusion, some recommendations are proposed:

- 1. Enhance general physical fitness through students' satisfaction level:** Students tend to be less active in university life, which leads to a lower overall fitness level. Improving their academic satisfaction and satisfaction with their subjects may be a way to help balance their academic and physical well-being more comprehensively.
- 2. Time of studying and gender did not affect students' satisfaction:** This indicates that sports might be practiced at any time and sex diversity, but there need to be a training program that was

appropriate for gender characteristics and a training time that fits individual's study plan.

3. **Differences among sport courses and school year would have different levels of satisfaction:** The significant satisfied differences in type of sports in training and the longer the study time, the more satisfaction increases, there is a need for in-depth research on the specificities of training methods, environments, and assessments in different sports to unify the teaching process appropriately soon.
4. **Tailored students' satisfaction interventions:** Solutions to improve students' satisfaction need to be developed and evaluated according to each subject's characteristics, training type and student psychology to address low satisfaction in the first year of training. These solutions should also focus on the risks and consequences of the experimental process that influences the learning process, emphasizing on results that are tailored to individual preferences.

DECLARATIONS

Authors' Contributions

Nguyen Do Minh Son (Corresponding author) drafted, wrote down, and revised the manuscript while the other author Huynh Trong Khai took a control in revising and editing the manuscript after all. Both authors have approved the latest paper of this manuscript. We both agreed with the order of the presentation.

Competing Interests

Both authors declare that they have no competing interests.

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