



Development criteria and scales to evaluate high school students' engagement in physical education classes

Nguyen Thi Hong Loan¹, Do Vinh², Nguyen Van Hung³

¹ Ta Quang Buu High School, Ho Chi Minh, Vietnam

² Associate Professor, Hong Bang International University, Vietnam

³ Vietnam National University Ho Chi Minh City Center for Sport, Vietnam

DOI: <https://doi.org/10.33545/26647710.2021.v3.i1a.27>

Abstract

The article develops criteria and scales to assess the level of student engagement in Physical Education (P.E) classes in some high schools in Ho Chi Minh City. The research results serve as the basis for proposing measures to promote the level of engagement in learning Physical Education of high school students in Ho Chi Minh City in order to contribute to the Physical Education teaching in high schools in Ho Chi Minh City.

Keywords: engagement, learning, physical education, high school

Introduction

Physical Education is one of the essential contents, contributing to the achievement of comprehensive education for students in schools. However, in the context of Vietnam, most students are found inactive and not engaged in their P.E classes. They usually think P.E does not provide knowledge as other subjects so they tend to be not involved in all physical activities in their learning hours. Therefore, the current study aims to build some criteria and scales to assess the engagement of high school students in Ho Chi Minh City with the hope that they will contribute to the teaching practice of P.E teachers.. Additionally, these criteria and scales can serve as solutions to promote the engagement of students in their P.E classes.

With the above reasons we have researched: "Development criteria and scales to evaluate high school students' engagement in physical education classes"

The study employed several methods such as documentation, designing questionnaire and statistical tests. Our research subjects include 360 high school students in Ho Chi Minh City who came from 24 schools in Ho Chi Minh City.

The consulting group include 11 managing officers, Physical Education experts and educational psychologists in Ho Chi Minh City.

Research results and discussion

Determining quantitative evaluation criteria

The quantitative evaluation was applied according to Decision 53/2008/QĐ-BGDĐT dated September 18, 2008 of the Minister of Education and Training on evaluation and grading of students' physical fitness. This is also the scale used to

evaluate the learning results of Physical Education of high school students in Ho Chi Minh City.

Determining qualitative evaluation criteria

A questionnaire was designed including 40 items based on five criteria of evaluating the student engagement. Then, the reliability of the questionnaire was checked in 3 steps as follows:

Step 1: Drafting preliminary questionnaire form

A preliminary questionnaire was conducted and delivered to the consulting group including 11 participants mentioned earlier. The results showed that 39 out of 40 items in the questionnaire received high agreement from 72.7% -100%. One item was excluded because it got low agreement of the respondents (45.5%).

Step 2: Adjusting the items of the questionnaire and determining the scale

The questionnaire items were adjusted according to the feedbacks of the consulting group. The collected data were processed with the support of SPSS software version 20.0. Finally, the questionnaire was modified and all items were put in the 5-point Likert scale.

Step 3: Checking the reliability of the questionnaire by using Cronbach's Alpha test

To accurately evaluate the reliability of the survey questionnaire, we have conducted a test through the Cronbach's Alpha reliability coefficient. The results of Cronbach's Alpha are displayed in Table 1 below.

Table 1: Description of the Cronbach’s Alpha reliability coefficient of the scale to evaluate students’ cognition in learning Physical Education

Questions	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach’s Alpha if Item Deleted
Playing an important role in morphological development (height, weight, bust ...)	15.2396	13.311	.797	.899
Playing an important role in development of physical fitness (strength, speed, endurance, flexibility – dexterity, etc.)	15.1755	13.190	.843	.890
Playing an important role in development of physiological functions (cardiovascular, respiratory, digestive, excretory, etc.)	15.2730	12.970	.874	.884
Playing an important role in psychological development (Training qualities of will; Reducing learning pressure, creating joy and excitement)	15.4262	13.424	.774	.903
Playing an important role in development of social skills (communication, time management, etc.)	15.6212	13.756	.675	.924
Cronbach’s Alpha = .919	N of Items = 5			

The results in Table 1 indicate the Total Cronbach’s Alpha coefficient is 0.919 > 0.6, there are 5/5 question items with Corrected Item-Total Correlation greater than the allowable standards (>0.3). It is seen that the first five items developed to evaluate the high school students’ cognitive engagement

could be kept for later survey.

The next criterion with nine was used to assess the needs of learning P.E of the high school students in HCMC and was checked reliability with Cronbach’s Alpha test. The results are presented in Table 2 below.

Table 2: Description of the Cronbach’s Alpha reliability coefficient of the scale to evaluate students’ needs in learning Physical Education

Question items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach’s Alpha if Item Deleted
Because of wishing to practice for good health	27.6917	37.551	.585	.821
Because of wishing to practice the qualities of will	28.0778	37.008	.601	.819
Because of wishing to entertain myself	28.1000	37.450	.502	.830
Because of wishing to fulfill the teacher’s request	28.0694	36.672	.589	.820
Because of wishing to complete points in the subject	28.1556	35.140	.723	.806
Because of having excitement, joy and pressure relief in the learning process	27.9278	36.028	.652	.814
Because of wishing to have a beautiful body	27.9694	35.450	.699	.808
Because of wishing to practice other social skills.	28.1611	35.077	.705	.807
Because of wishing to please others	28.9583	43.188	.063	.881
Cronbach’s Alpha = .841	N of Items = 9			

The results of Cronbach’s Alpha test of nine question items in Table 2 show that the Total Cronbach’s Alpha coefficient is 0.841 > 0.6. However, there are 8 question items with Corrected Item-Total Correlation greater than the allowable standards (>0.3), but 01 question item - “Because of wishing to please others” - with the total correlation coefficient smaller than the acceptable standard of 0.3. Hence, this item was

deleted.

Due to one item was omitted, we conducted the Cronbach’s Alpha test the second time to check the reliability of the second cluster of the questionnaire evaluating the needs of the high school students in learning Physical Education. The results are shown in Table 3 below.

Table 3: Description of the second Cronbach’s Alpha reliability coefficient of the scale to evaluate students’ needs in learning Physical Education

Question items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach’s Alpha if Item Deleted
Because of wishing to practice for good health	25.0111	34.752	.608	.870
Because of wishing to practice the qualities of will	25.3972	34.457	.602	.870
Because of wishing to entertain myself	25.4194	34.746	.514	.880
Because of wishing to fulfill the teacher’s request	25.3889	34.194	.586	.872
Because of wishing to complete points in the subject	25.4750	32.490	.740	.856
Because of having excitement, joy and pressure relief in the learning process	25.2472	33.150	.685	.862
Because of wishing to have a beautiful body	25.2889	32.808	.714	.859
Because of wishing to practice other social skills.	25.4806	32.434	.721	.858
Cronbach’s Alpha = .881	N of Items = 8			

The results of the second Cronbach’s Alpha test of the eight question items in the scale show that Total Cronbach’s Alpha coefficient is 0.881 > 0.6 and all the items have Corrected Item-Total Correlation larger than the allowable standards (>0.3). It can be concluded that the second cluster of the questionnaire asking about the students’ needs of learning P.E

will include 8 items

The next cluster of the questionnaire include nine items designing to evaluate the motivation of learning P.E of high school students. A Cronbach’s Alpha test was used to check the reliability of this cluster and the results are displayed in Table 4 below.

Table 4: Description of Cronbach’s Alpha reliability coefficient of motivation scale in learning Physical Education of high school students

Question items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach’s Alpha if Item Deleted
Understanding of the role, meaning and importance of sport in the curriculum.	27.0000	34.263	.662	.830
For obtaining skills to practice some sports	26.7521	35.450	.609	.836
For getting self-training methods of sports, health promotion, physical development	26.6936	35.721	.575	.839
For having opportunity to meet, exchange, make friends, develop social relationships	27.0000	33.855	.702	.826
For becoming a celebrity, to be known by many people, to feel appreciated	27.7994	34.412	.515	.846
For determining my own abilities, experiencing new challenges	26.9749	34.779	.628	.834
For having opportunity to show bravery, creative freedom, and express myself	27.1198	33.374	.722	.824
For pleasing parents and family	27.5014	35.653	.429	.855
For pleasing teachers, friends, teammates	27.4150	36.031	.418	.855
Cronbach’s Alpha = .854		N of Items = 9		

As presented in Table 4, the total Cronbach’s Alpha coefficient the nine items in the third cluster is 0.854 which is bigger than the standard figure of 0.6. In specific, all of question items in the cluster with the Corrected Item-Total Correlation are greater than allowable standards (>0.3). The

results indicate that the nine items are reliable for later use.

The next cluster consists of 8 items seeking the level of high school students’ interests of learning P.E. The cluster was checked reliability by Cronbach’s Alpha test and the results are shown in Table 5 below.

Table 5: Description of Cronbach’s Alpha reliability coefficient of the scale of interest in learning Physical Education of high school students

Question items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach’s Alpha if Item Deleted
Actively, attentively listening to teachers, watching examples of movements, taking notes, memorizing well and repeating the exercises and movements that have been learned	23.3194	23.939	.668	.782
Expressing opinions, raising questions to teachers during class.	23.4056	23.484	.706	.777
Determining to overcome difficulties, completing assigned tasks and exercises	23.2361	24.003	.669	.783
Being serious in doing tests and exams	22.9778	25.309	.544	.800
Being easily bored in studying	23.7139	27.235	.289	.835
Being passive in acquiring knowledge	23.6972	27.610	.260	.839
Having associative thinking, comparing problems related to the lesson	23.5611	24.358	.614	.790
Thinking, asking questions and asking for detailed explanations of issues (exercises, movements) that they don’t know	23.4167	23.843	.638	.786
Cronbach’s Alpha = .821		N of Items = 8		

The results presented in table 5 show that the Cronbach’s Alpha coefficient total is 0.821 which is higher than 0.6. However, only six out of the eight items reached the results which are greater than the allowable standards (>0.3). Meanwhile, there are two items namely “Being Easy to get bored in learning and Being passive in acquiring knowledge”

have the total correlation coefficient is lower than 0.3. It can be concluded that these 2 items should be deleted.

- Due to the omission of two items in the cluster, the cluster was checked the reliability again. Table 6 below presents the results of the test.

Table 6: Description of the second Cronbach's Alpha reliability coefficient of the scale of interest in learning Physical Education of high school students

Question items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Actively, attentively listening to teachers, watching examples of movements, taking notes, memorizing well and repeating the exercises and movements that have been learned	17.2083	17.363	.732	.857
Expressing opinions, raising questions to teachers during class.	17.2944	16.905	.780	.849
Determining to overcome difficulties, completing assigned tasks and exercises	17.1250	17.202	.764	.852
Being serious in doing tests and exams	16.8667	18.433	.619	.875
Having associative thinking, comparing problems related to the lesson	17.4500	18.404	.587	.881
Thinking, asking questions and asking for detailed explanations of issues (exercises, movements) that they don't know	17.3056	17.321	.692	.864
Cronbach's Alpha = .884	N of Items = 6			

The results of the second Cronbach's Alpha test of the items in Table 6 show that the total Cronbach's Alpha coefficient is 0.884 which is acceptable score and all the items have Corrected Item-Total Correlation is larger than the allowable standards (>0.3). In the end, the cluster asking about high school students' interest in learning Physical Education is

included six items.

Finally, the last cluster of the questionnaire asking about positive behavior in studying Physical Education of high school students is checked by Cronbach's Alpha test and the results are in Table 7 below.

Table 7: Description of the Cronbach's Alpha reliability coefficient of the scale to evaluate positive behavior in learning Physical Education of high school students

Question items	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Enthusiastically participating in classroom learning activities, being fond of speaking and reasoning	23.8222	48.520	.724	.797
Memorizing and repeating movements and exercises well	23.6250	43.567	.372	.873
Actively and flexibly applying existing knowledge and motor skills to new issues (exercises)	23.8417	48.401	.753	.795
Regularly updating information on sports of schools, cities, countries, and the world, etc.	24.0833	47.837	.716	.796
Enthusiastically participating in all forms of learning activities, supporting sample movements, and acting as a fugleman, etc.	23.9639	48.648	.738	.796
Knowing how to apply movement techniques in training and competition in sports	23.8806	48.980	.734	.798
Being self-aware, actively practicing more outside of school hours	24.0111	48.546	.735	.796
Finding and reading relevant documents	24.2222	47.137	.371	.850
Cronbach's Alpha = .831	N of Items = 8			

The results of the Cronbach's Alpha test presented in Table 2.8 reveal that the Cronbach's Alpha coefficient total is 0.831 which is higher than 0.6 and all eight items with acceptable Corrected Item-Total Correlation. It can be indicated that the cluster with eight items asking about the high school students' positive behaviour in learning Physical Education.

Conclusion

The study has reached its aim of identifying the criteria and scales for evaluating the high school student engagement in learning Physical Education. In particular, the study determined a questionnaire which includes five criteria (clusters) with 36 items as follows. The first

criterion with 5 question items is about the evaluation of high school students' awareness in learning Physical Education

- The second criterion with 8 question items aims at evaluating high school students' needs in learning Physical Education ;
- The third criterion with 9 question items asking about Motivation in learning Physical Education of high school students;
- The fourth criterion with 6 question items exploring about the level of interest in learning Physical Education of high school students in Ho Chi Minh City;
- The last criterion finding out the positive behavior in

learning Physical Education of high school students in Ho Chi Minh City with 8 question items.

In summary, the present study has successfully reached the objective of determining a reliable and valid questionnaire with five clusters asking about the high school students' engagement in learning Physical Education.

References

1. Aristóva L. Learning Positivity of students, Education Publishing House, 1986.
2. Ministry of Education and Training. Decision No. 53/2008/QĐ - BGDĐT dated September 18, 2008 Promulgating regulations on assessment and grading of students' physical fitness.
3. Mai Thi Nu. Proposing some solutions to improve the positivity in Physical Education school hours of students of Khanh Hoa University, Master thesis of Educational Science - Ho Chi Minh City University of Physical Education and Sports, 2017.
4. Nguyen Thac - Pham Thanh Nghi, *University Pedagogical Psychology*, Pedagogical University Publishing House, Hanoi, 2008.
5. Hoang Trong, Chu Nguyen Mong Ngoc. "Analyzing research data with SPSS", Hong Duc Publishing House, 2008, 2.
6. Nguyen Thanh Trung. Some measures to improve the positivity in physical education school hours of students at Tay Do University, Master's Thesis in Education Science- Ho Chi Minh City University of Physical Education and Sports, 2015.