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Research innovative solutions for physical education work at Ho Chi Minh city university of technology and education

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Abstract

Through the overall survey on the status of physical education work at the University of Technical Education Ho Chi Minh City, the topic has analyzed, evaluated and proposed effective solutions such as: Regularly updating teaching materials and curriculum; Innovating many teaching methods towards positive learners; Increasing investment in facilities, yards, and equipment for teaching and learning; Enlist the school's interest in physical education activities; Strengthen coordination between Physical Education faculty and professional departments. Once these measures are put into practice, it will significantly improve the effectiveness of physical education here.

Keywords: Curriculum, coordination, document, facilities, method, physical education, solution

1. Introduction

Ho Chi Minh City University of Technical Education is a multidisciplinary and multi-field university in the direction of career - application, in which a number of training fields are in the direction of research and development. The University is Vietnam's leading training and applied research center in technology and vocational education, on a par with other prestigious regional and international universities. It also serves as a sustainable development driving force for the nation's vocational education system and carries out its mission of research, technology transfer and vocational education science; provide human resources and high-quality scientific products for national construction and development, and at the same time contribute to fundamental and comprehensive renovation of Vietnam's education and training for international integration.

Physical education has significantly contributed to the school's general training career, especially to educate students to comprehensively develop virtue, intellect, physicality and beauty. However, the actual survey shows that this work is still inadequate and limited. Therefore, serious research is needed to find feasible solutions to improve this work.

2. Methods

2.1. Research purposes

Innovative solutions for physical education.

2.2. Participaters

The study object included 20 officers and lecturers of the Center for Physical Education and Defense (formal and informal) and 320 male and female students with normal health, participating in physical education under various disciplines of Ho Chi Minh City University of Technology and Education.

2.2. Proceed

The study was conducted from February 2019 to March 20, 2020 at HCMC University of Education and Technology.

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2.3. Measurement tools

Common methods used in the process of researching include synthesizing and analyzing relevant document methods; sociological investigation method; statistical and calculation method.

Evaluation tools include:

- Likert scale - 5 levels

Students and lecturers are surveyed by two questionnaires on a Likert scale - 5 levels: Strongly agree (5đ); Agree (4đ); Normal (3đ); Disagree (2đ); Totally disagree (1đ). In which, distance value = (maximun - minimun) / n = (5 - 1) / 5 = 0.8.

Values are averaged around: 1.00 - 1.80: Strongly disagree; 1.81 - 2.60: Disagree; 2.61 - 3.4: Normal; 3.41 - 4.2: Agree; 4.21 - 5.00: Strongly agree.

- Measure the reliability of observed variables by Cronbach's Alpha coefficient

Value of Cronbach's Alpha coefficient:

- From 0.8 to nearly 1: very good measurement scale.
- From 0.7 to nearly 0.8: good measurement scale.
- From 0.6 or more: qualified measurement scale.

For this research, we accepted Cronbach's Alpha coefficient \geq 0.6.

- Chi square Indicator - χ^2

Used to evaluate qualitative characteristics (identifier, hierarchy, nature, category, etc.) on frequencies that do not require distributions according to the standard probability law. In this study, we used this test to compare the choice of observed variables between students and lecturers.

- Accrediting hypothesis of the average value of two independent samples (independent samples t-test)

Used to analyze and assess the similarity between the opinions of lecturers and students by conducting hypothesis testing on the means of two independent samples (Independent Samples T-Test).

3. Results

3.1. Current situation of physical education at Ho Chi Minh City University of Technology and Education

The project has designed measurement tools with Likert scale - 5 levels; followed by measuring the reliability of observed variables by Cronbach's Alpha coefficient; Finally, 9 factors with 44 variables have been synthesized to investigate the status of physical education work at HCMC University of Technology and Education,

Based on the actual survey, combined with comparing lecturers and students's satisfaction towards the factors surrounding of physical education, the topic has discovered:

- The factors that were well evaluated by both students and lecturers and need to be promoted are:

The curriculum of physical education subjects was quite reasonable. Specifically: The number of enough lessons prescribed by the Ministry of Education and Training; Reasonable distribution in 3 semesters; Met the target of physical training for students; Diversity and met learners' needs and interests; Consistent with lecturers's professional capacity.

The staff of physical education teachers have met the following requirements: Ensure the number of students / lecturers as prescribed; Has met the standard of knowledge; Professional competence have quite been complete; Energetic, enthusiastic, dedicated to the profession;

Solidarity, mutual assistance.

The inspection and evaluation of physical education at the HCNC University of Technology and Education was quite good, it needs to be promoted; Both lecturers and students had quite high consensus for the 4 variables of testing and evaluating physical education. They were criterion of: Objective, accurate and fair; Comprehensive in terms of quantity and quality; Planning, combining many forms as well as time of inspection and evaluation; Publicity, transparency, test results and evaluation.

Extracurricular Activities: There were differences between lecturers and students's opinion, but generally they have agreed with the strengths of extracurricular movement activities at HCMC University of Technology and Education. Specifically: Organized methodically, regularly and periodically; Diversity with many sports; Attracted a large number of students to participate; Achieved many professional achievements; Met the needs of overtime training for students.

- The factors that have not been appreciated by students and lecturers and need to be researched to find improvement solutions are:

Documents and syllabus for teaching and learning physical education: both lecturers and students had high consensus when they underestimate the observed variables of the materials and syllabus factors for teaching and learning. Specifically: Documents and syllabus need to follow the subject curriculum; Need to be updated regularly; Incompleted for all modules; Most of them came from outside sources, not compiled by the lecturers themselves; Not regularly referenced by learners. Therefore, lecturers should be encouraged to actively compile to complete the curriculum for the physical education subjects.

Teaching method of Physical Education: has not been highly appreciated and needs to be improved. Specifically: Need to change according to simplified incense so that students can easily understand, absorb and practice; Need more vivid to attract learners; Not still really scientific and logical; Not combine many methods of communication; Information technology application still not was required.

Yards, equipmentsand conditions for physical education learning: both lecturers and students have underestimated the status of the yard and conditions for physical education and learning. This is the factor that needs to be improved. Specifically: facilities were Incomplete and not suitable for student ages; Need to diversify more categories; Not up to the standards of quality to meet professional requirements.

The attention of the university leaders on physical education: Not yet appreciated, it is necessary to take measures to enlist and mobilize the attention of the School Council, the Board of Directors for the physical education as well as school sports activities. Specifically: Wages, bonuses and benefits have not really been adequate for lecturers; Yards, facilities, tools, equipments for teaching and learning physical education have not been fully equipped; Not yet met the funding for extracurricular movement activities inside and outside of the university; Physical education lecturers have not been regularly encouraged to conduct scientific research and professional learning; There have not been many guidelines and policies for developing physical education.

Collaboration between physical education lecturers and other professional departments: Both lecturers and students have a high consensus when evaluating at the level of "hesitation and disagreement" compared to the level of "agreement". Specifically: Has not cooperated well with the Student Affairs

Department to organize sports tournaments for students; Not well coordinated with the Trade Union in organizing sports activities for lecturers inside and outside the university; Not well coordinated with Youth Union and Student Union in the field of sport for students; Not coordinating well with the Equipment and Materials Department and the Administration Department of facilities in the cases related to physical education; Not well coordinated with the Health Station to check and care student's health.

This is more evident when summing up the mean of all variables in the same survey factor of both lecturers and

students. The results are clearly shown in Table 1.

Thus, the results noted that, 5 factors: learning materials, textbooks for teaching and physical education; Teaching methods of teaching staff; Conditions of facilities, equipment for physical education work; the university leader's attention; Collaboration between physical education lecturers and professional departments, with mean values of only 2.28 ~ 3.17 (in the range of "Disagree" to "Normal"). These five factors have not yet been appreciated which means that following research needs to be done to find improvement solutions.

Table 1: Summary and comparison of the mean values of factors evaluated by lecturers (n = 20) and students (n = 320)

Factors	Encode	Objects	The sum of the observed variables			Comparison	
			\bar{X}	\pm SD (Std. Deviation)	ϵ (Std Error Mean)	t	Sig. (2-tailed)
Curriculum of formal physical education	CUR	L	4.21	.496	.111	-1.285	.200
		S	3.97	.812	.045		
Documents and textbooks for teaching and learning	DOC	L	2.3	.987	.220	-.119	.905
		S	2.28	.709	.039		
Lecturer team	LEC	L	4.04	.413	.092	.876	.382
		S	4.16	.610	.034		
Method of teaching	MET	L	2.83	.717	.160	-.337	.736
		S	2.75	.953	.053		
Examination and evaluation	EXA	L	3.61	.754	.168	1.341	.181
		S	3.82	.699	.039		
Facilities, yards, learning conditions	FAC	L	2.54	.933	.208	1.467	.143
		S	2.84	.905	.050		
Extracurricular activities	EXT	L	3.41	.847	.189	1.675	.095
		S	3.72	.812	.045		
Concern of the university leadership towards physical education	CON	L	2.28	.790	.176	3.469	.001
		S	2.93	.824	.046		
Collaboration between physical education faculty members and departments	SAT	L	2.33	.616	.137	4.771	.000
		S	3.17	.772	.043		

Note:

- L: Lecturer

- S: Student

3.2. Selecting solutions to improve the effectiveness of physical education at Ho Chi Minh City University of Technology and Education

Based on the actual survey, conventional topics:

- Which factors have a total mean value = 3.41 ~ 5.00 (in the range "Agree" and "Strongly agree") of the evaluation of lecturers and students are considered to be qualified good and continue to promote.

- Conversely, factors evaluated by lecturers and students with a total mean value \leq 3.40 (in the range "Completely disagree" to "Normal") are considered to be not achieved and need to be improved.

From this basis, the project will propose effective and feasible solutions to improve the effectiveness of physical education at HCMC University of Technology and Education.

After investigating the real situation of factors that directly and indirectly affect physical education, the topic of continuing the final step is to survey the opinions of lecturers and students to find solutions for improvement physical education work. This factor is conducted through 9 elements, corresponding to 2 statements in the questionnaire (Agree: 1 point; Disagree: 0 points).

The interview results presented in Table 2 noted that the rate of choosing the solutions. Comparison of observed variables in the same object (lecturers or students) found that the "agree" level accounted for advantages over the level of "disagree" in 5 variables as follows: SOL2_Regularly update teaching materials and curriculum (90% of lecturers' opinions

and 93.8% of students' opinions); SOL4_Innovating many teaching methods towards positive learners (90.0% and 80.9%); SOL6_Increase investment in facilities, yards and equipment for teaching and learning (85% and 85.9%); SOL8_Enactment of school's interest in physical education activities (85% and 80.3%); GP9_Increase coordination between physical education lecturers and professional departments (90% and 86.3%). This is clearly shown in the

index of the calculation χ^2 index > table χ^2 index (the difference is statistically significant with $P < 0.001$). This is one of the basis for the topic to choose, offer improved solutions.

In contrast, there are also 4 variables where the opinion of lecturers or students with the level of "disagree" is more dominant than the level of "agree". These are the variables: GP1_Change content, curriculum according to learners' interests to increase their interest (55% and 37.8%); GP3_Improve professional qualifications and scientific research activities of physical education lecturers (65% and 59.4%); GP5_Closely monitor the assessment and evaluation of physical education subjects (60% and 51.3%); GP7_Increase extracurricular movement activities (60% and

61.6%). Clearly expressed through the calculation χ^2 index > table χ^2 index (the difference is statistically significant with $P < 0.01 \sim 0.001$). Because these 4 variables do not have high

agreement among lecturers and students, improvement solutions are not necessary.

Matching to identify the observed variables respectively between 2 objects that are lecturers and students, all 9 variables belonging to the solution factor have similar opinions about the evaluation.

This is clearly shown in the calculation χ^2 indexes < table χ^2 index (the difference is not significant, not statistically significant with Sig. = .145 - .619 > .05).

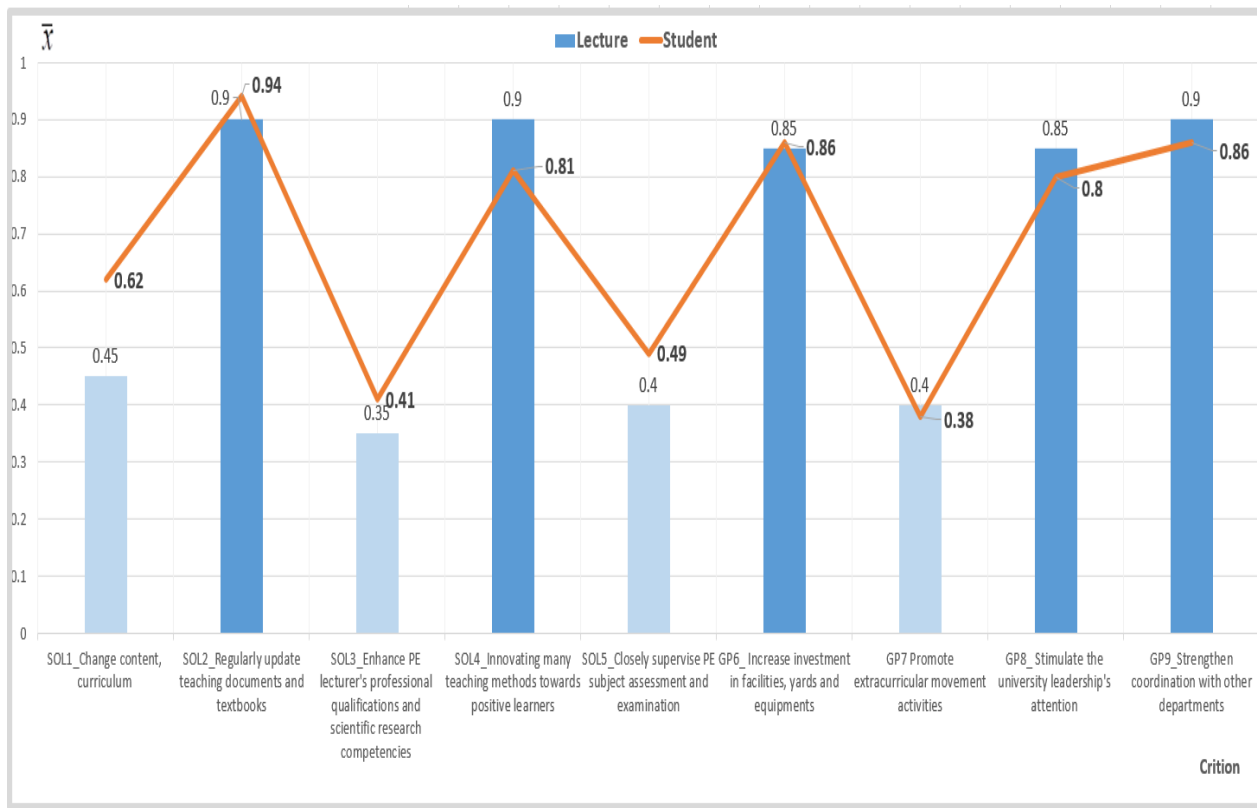


Fig 1: Comparison of the mean of the selection of solutions to improve the effectiveness of physical education for lecturers (n = 20) and students (n = 320)

Table 2: Situation of choosing solutions to improve the effectiveness of physical education

Criterion	Objects	Agree				Disagree		Compare with the same object $\chi^2_{001} = 10.83$		Comparison between lectures and students			
		n_i		$\%$		n_i		$\%$		χ^2	P	Pearson Chi-Square	Asymp. Sig. (2-sided)
		L	S	L	S	L	S	L	S				
SOL1_Change content, curriculum according to learners' hobbies to increase their interest	L	9	45.0	11	55.0	10.63	<.001	.437	.508				
	S	199	62.2	121	37.8	180.80	<.001						
SOL2_Regularly update teaching documents and textbooks	L	18	90.0	2	10.0	17.26	<.001	.085	.771				
	S	300	93.8	20	6.3	301.33	<.001						
SOL3_Enhance physical education lecturer's professional qualifications and their scientific research competencies	L	7	35.0	13	65.0	11.47	<.001	1.024	.312				
	S	130	40.6	190	59.4	176.66	<.001						
SOL4_Innovating many teaching methods towards positive learners	L	18	90.0	2	10.0	17.26	<.001	.226	.634				
	S	259	80.9	61	19.1	236.00	<.001						
SOL5_Closely supervise physical education subject assessment and examination	L	8	40.0	12	60.0	10.94	<.001	.014	.907				
	S	156	48.8	164	51.3	170.77	<.001						
SOL6_Increase investment in material facilities, yards and equipment for teaching and learning	L	17	85.0	3	15.0	15.68	<.001	.010	.920				
	S	275	85.9	45	14.1	258.83	<.001						
SOL7_Strengthen extracurricular movement activities	L	8	40.0	12	60.0	10.94	<.001	.006	.938				
	S	123	38.4	197	61.6	179.79	<.001						
GP8_Stimulate the university leadership's interest in physical education activities	L	17	85.0	3	15.0	15.68	<.001	.264	.607				
	S	257	80.3	63	19.7	233.39	<.001						
SOL9_Increase coordination between physical education faculty and concerned departments	L	18	90.0	2	10.0	17.26	<.001	.606	.436				
	S	276	86.3	44	13.8	260.37	<.001						

Note:
 - L: Lecturer
 - S: Student

Comparing the mean value of observed variables through the t-student index on the solution to improve the efficiency of physical education of lecturers and students presented in Table 3 and chart 1 found: There is no mean difference statistically significant between the opinions of lecturers and students in all 9 survey solution variables (Sig = .172 - .907 > .05). It means that between lecturers and students, there is a high consensus when choosing improvement solutions. Overall, both lecturers and students highly appreciate the 5

observed variables that need to be improved: SOL2, SOL4, SOL6, SOL8 and SOL9 with $\bar{X} = .80 \sim .94$ (within ½ of the scale "Agree" "). In contrast, there are 4 observed variables: SOL1, SOL3, SOL5, SOL7 with $\bar{X} = .35 \sim .62$ (within trong scale of "Disagree"). Thus, the 5 solution variables presented above (SOL2, SOL4, SOL6, GP8 and SOL9) need to be studied and applied to improve physical education.

Table 3: Summary and comparison of mean values for choosing solutions between lecturers (n = 20) and students (n = 320)

Solutions	Objects	Comparison			The result of solution selection	
		\bar{X}	t	Sig. (2- tailed)	Selected	Not selected
SOL1_Change content, curriculum according to learners' hobbies to increase their interest	Lecturer	.45	1.531	.172		x
	Student	.62				
SOL2_Regularly update teaching documents and textbooks	Lecturer	.90	.660	.510	x	
	Student	.94				
SOL3_Enhance physical education lecturer's professional qualifications and scientific research competencies	Lecturer	.35	.496	.620		x
	Student	.41				
SOL4_Innovating many teaching methods towards positive learners	Lecturer	.90	-1.011	.313	x	
	Student	.81				
SOL5_Closely supervise physical education subject assessment and examination	Lecturer	.40	.758	.449		x
	Student	.49				
SOL6_Increase investment in material facilities, yards and equipment for teaching and learning	Lecturer	.85	.116	.907	x	
	Student	.86				
SOL7_Strengthen extracurricular movement activities	Lecturer	.40	-.139	.890		x
	Student	.38				
GP8_Stimulate the university leadership's interest in physical education activities	Lecturer	.85	-.513	.608	x	
	Student	.80				
SOL9_Increase coordination between physical education faculty and concerned departments	Lecturer	.90	-.474	.636	x	
	Student	.86				

4. Discussion

The preparation of physical education curriculum at HCMC University of Technology and Education is still limited. Up to now, the Department of Physical Education has only 4 textbooks (Athletics, Chess, Football and Volleyball) which have been accepted and published. The lecturers have not focused on compiling theoretical lectures to provide for students. If so, the lectures are often limited in content, outdated knowledge, and is rarely updated.

Teaching method of physical education has long been traditional. Lecturers give lectures and students are passive in perceiving and receiving information. Therefore, changing the teaching methods to promote students's autonomy in class time is necessary.

Department of Physical Education is one of the pioneers selected by the leadership of Ho Chi Minh City University of Technology and Education to implement the project on autonomy. After researching and reviewing the overall spending and spending capacity, the Department of Physical Education is fully able to undertake the self-operation task to accumulate funding for construction and renovation of yards, physical training and sports facilities for serving teaching and extracurricular physical training activities throughout the school the university.

In order to bring the true values of physical education and sports to students, it is necessary to recognize properly and soon take practical actions of leaders, directly of the Board of Directors.

Development of physical education is very important, urgent and requires attention, coordination from many components, many functional agencies in schools and society. The Vietnamese government always has the right vision and has put in place many systems of legal documents on this issue.

The remaining is the operation and application of the guidance of those document systems into practice.

5. Conclusion

Based on the actual survey through lecturers and students' opinions on the factors surrounding physical education at Ho Chi Minh City University of Technology and Education, we discovered that physical education also exist many inadequacies and limitations. Factors that are well appreciated by lecturers and students and need to be promoted include: Physical education content curriculum; Teaching staff of physical education; Inspection and evaluation; Extracurricular movement activities.

Based on the actual survey of physical education factors

through the χ^2 index and then using the hypothesis test of the average value of two independent samples (independent samples t-test), the topic has been proposed 5 solutions that help improve the effectiveness of the physical education at Ho Chi Minh City University of Technical and Education, as following:

- Regularly update materials, curriculum.
- Innovating many teaching methods towards positive learners.
- Increasing investment in facilities, yards and equipment for teaching and learning.
- Enlist the concern of the school leadership for physical education activities.
- Strengthening coordination between physical education teachers and related departments.

These solutions are concretized through the purpose, content and organization of implementation on the basis of principles

such as: Ensuring practicality; Ensure science; Ensure uniformity; Ensure feasibility; Ensure the effectiveness. HCMC University of Technology and Education needs to seriously consider and adjust the issues that are still inadequate in physical education activities and soon deploy, apply 5 improvement solutions that the project has synthesized.

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