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Evaluating the Effectiveness of Implementing the Physical Education Curriculum

Ma Thi Ngan, PhD
Hanoi Metropolitan University

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ABSTRACT: Observations of the current Physical Education (PE) curriculum at Viet Bac University reveal that its three mandatory modules are characterized by a degree of pedagogical rigidity, which fails to foster learner engagement. The author developed a reformed PE curriculum comprising one mandatory module and two elective modules offering eight sports options—including traditional ethnic sports in the two elective modules —complemented by two hours of post-curricular self-study. To evaluate the effectiveness of this framework, a one-year pedagogical experiment was conducted, featuring Mandatory Module 1 (Gymnastics and Athletics) and Elective Module 2 (Vovinam Martial Art) for students at Viet Bac University. This article delineates the results concerning physical fitness assessments, academic performance, and stakeholder perceptions following the experimental period.

KEYWORDS: Physical Education, gymnastics, curriculum development, effectiveness evaluation…

INTRODUCTION

The transition of Physical Education (PE) toward an elective-based model represents more than a structural shift; it constitutes a pedagogical revolution centered on the learner. By synthesizing academic metrics, physical measurements, and psychological surveys, this study elucidates the substantive impact of the reformed curriculum.

Prior scholarship regarding Physical Education (PE) curricula includes contributions from several notable authors, such as: Tran Ngoc Cuong (2018) [2]; Hoang Minh Duc (2014) [3]; Tran Thi Thanh Huyen (2014) [4]; and Phan Thanh My (2006) [5]...

Stemming from the practical exigencies at Viet Bac University, the formulation of a reformed PE curriculum—featuring diversified content that permits learners to select preferred athletic disciplines for study and training—constitutes an essential undertaking. To substantiate the efficacy and evaluate the contextual suitability of this newly established PE framework, a comparative analysis of academic performance, empirical physical fitness measurements, and surveys of learner and instructor perceptions both prior to and following a one-year pedagogical experiment is indispensable.

The research process utilized the following methodologies: Literature analysis and synthesis; Pedagogical observation; Interviewing; and Statistical mathematics.

2. RESEARCH RESULTS AND DISCUSSION

2.1. Overview of the Physical Education Curricula

Traditional PE Curriculum**:** The existing program at Viet Bac University comprises 3 credits divided into 3 modules with the total number of 90 periods. It does not have elective subjects for students. Reformed PE Curriculum: Also consisting of 3 credits, divided into 3 modules as shown in Table 1

Table 1. Proposed/Reformed Physical Education Curriculum

No.	Content		Module Code	Periods		Credits	Timeline
				Theory (Periods)	Practice (Periods)		
1	PE I (Compulsory)	Athletics	BPE101	4	Sem I, Year 1	PE I (Compulsory)	Học kỳ I năm thứ nhất
		Gymnastics					
		Self-study		4	26		
2	PE II (elective 1 out of 4)	Volleyball	BPE102	2	Sem II, Year 1	PE II (elective 1 out of 4)	Học kỳ II năm thứ nhất
		Shuttlecock	BPE102			1	

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		Swimming	BPE102			1	
		Vovinam	BPE102			1	
		Self-study		2	28		
3	PE III (elective 1 out of 4)	Football	BPE103	2	Sem I, Year 2	PE III (elective 1 out of 4)	Học kỳ I năm thứ hai
		Badminton	BPE103			1	
		Taekwondo	BPE103			1	
		Tug-of-war	BPE103			1	
		Self-study		2	28		

Table 1 indicates that the total program comprises 90 periods, with each credit corresponding to 30 periods. In addition to Mandatory Module 1, the curriculum incorporates two elective modules offering eight sports options for student selection—including traditional ethnic sports—complemented by two hours of self-study after main instructional classes.

2.2. Pre-Experimental Baseline Assessment

Academic Performance in Physical Education: Since the experimental subjects of this dissertation are first-year students, prior academic records for the Physical Education module were not available at the start of the study.

Physical Fitness Level: To facilitate a comparison of physical proficiency between the two student cohorts, the author employed standardized fitness assessments in accordance with Decision No. 53/2008/QĐ-BGDĐT. The physical fitness evaluation of 271 K8 students, categorized into Experimental (EG) and Control (CG) groups (both Male and Female), is detailed in Table 2

As demonstrated in Table 2, the pre-experimental differences between the experimental and control groups—among both male and female students—concerning the classification of individual physical attributes and the overall fitness assessment across four metrics were statistically negligible. Fundamentally, both the experimental (EG) and control (CG) groups exhibited baseline equivalence ($P < 0.05$). Consequently, it is evident that the initial physical fitness levels of students in both cohorts were homogeneous across both genders

2.3. Post-Experimental Evaluation

The study conducted a comparative analysis of the academic performance of Cohort 8 students in the Control Group (CG) and the Experimental Group (EG) following a one-year pedagogical experiment with the Physical Education curriculum. The results are presented in Table 3

Table 3. Comparison of PE Academic Achievement (Post-Experiment)

Classification	**Control Group (CG) (n=136)**		**Experimental Group (EG) (n=135)**		Classification
	n	**Rate (%)**	**n**	**n**	
Excellent	0	0,00	Excellent	0	17,803 (p<0,01)
Good	4	2,94	Good	4	
Fair	32	23,53	Fair	32	
Average	91	66,91	Average	91	
Weak	9	6,62	Weak	9	

Table 3 illustrates that the academic performance in Physical Education (PE) for Cohort 8 students in the Experimental Group (EG) was significantly superior to that of the Control Group (CG) post-experiment. This disparity is statistically significant, with $X2 = 17.38$ (at a significance level of $p < 0.01$). These findings demonstrate that the implementation of the newly developed PE curriculum yields higher educational effectiveness compared to the traditional program.

Comparison of Physical Fitness Levels:

The study conducted a comparative analysis of the physical fitness levels of Cohort 8 students in both the CG and EG following a one-year pedagogical experiment. The results are detailed in Table 4

Table 2. Comparative Physical Fitness Metrics: Control (CG) vs. Experimental (EG) Groups (Baseline)

Group	**Tests**	$\overline{\overline{X}}$	**Students**	**Rate %**	**Group**	$\overline{X}$	**Students**	**Rate%**	χ^2
Male (CG) (n=48)	Standing long jump (cm)	223,47	38	79,17	**Male (EG) (n=49)**	221,75	35	71,43	0,88
	30m sprint from a standing start (s)	4,71	25	52,08		4,86	23	46,94	0,05
	4x10m shuttle run (s)	11,89	20	41,67		11,72	24	48,98	0,87
	5-minute endurance run (s)	935,4	21	43,75		927,1	23	46,94	0,087

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	Overall classification	**Good**	**1**	**2,08**		**Good**	**1**	**2,04**	**0,007**
		Pass	**18**	**37.50**		**Pass**	**18**	**36.73**	
		Fail	**29**	**60.42**		**Fail**	**30**	**61.22**	
Female (CG) (n=88)	Standing long jump (cm)	159,24	68	77,27	**emale (EG) n=86)**	154,04	62	72,09	0,48
	30m sprint from a standing start (s)	6,05	46	52,27		6,11	43	50,00	0,09
	4x10m shuttle run (s)	13,60	37	42,05		13,71	37	43,02	0
	5-minute endurance run (s)	643,8	40	45,45		713,3	42	48,84	0,05
	Overall classification	**Good**	**0**	**0,00**		**Good**	**0**	**0,00**	**0**
		Pass	**36**	**40.91**		**Pass**	**36**	**41.86**	
		Fail	**52**	**59.09**		**Fail**	**50**	**58.14**	

Bảng 4. So sánh thể lực theo tiêu chuẩn phân loại từng tiêu chí của sinh viên nhóm Đối chứng và nhóm Thực nghiệm sau thực nghiệm

Group	**Tests**	$\overline{X}$	**Students**	**Rate%**	Group	$\overline{X}$	**Students**	**Rate %**	χ^2
Male (CG) (n=48)	Standing long jump (cm)	224,61	39	81,25	**Male (EG) (n=49)**	234,95	49	100,00	9,98
	30m sprint from a standing start (s)	4,7	26	54,17		4,51	46	93,88	10,02
	4x10m shuttle run (s)	11,43	34	70,83		11,43	39	79,59	0
	5-minute endurance run (s)	968,7	43	89,58		1109,2	49	100,00	5,28
	Overall classification	**Good**	**3**	**6.25**		**Good**	**9**	**18.37**	**8,42**
		Pass	**23**	**47.92**		**Pass**	**30**	**61.22**	
		Fail	**22**	**45.83**		**Good**	**10**	**20.41**	
Female (CG) (n=88)	Standing long jump (cm)	160,34	72	81,82	**Female (EG) (n=86)**	179,42	79	91,86	3,76
	30m sprint from a standing start (s)	5,92	52	59,09		5,54	86	100,00	36,30
	4x10m shuttle run (s)	12,81	62	70,45		12,43	73	84,88	0,34
	5-minute endurance run (s)	902,4	79	89,77		950,2	86	100,00	9,38
	Overall classification	**Good**	**3**	**3.41**		**Good**	**14**	**16.28**	**16,85**
		Pass	**47**	**53.41**		**Pass**	**56**	**65.12**	
		Fail	**38**	**43.18**		**Good**	**16**	**18.60**	

Table 4 indicates that: The physical fitness ratings for both male and female students in the Experimental Group (EG) showed significantly higher proportions of 'Good' and 'Pass' classifications compared to the Control Group (CG). Conversely, the percentage of students classified as 'Fail' was lower in the EG than in the CG. This demonstrates that, following the experiment, the physical fitness levels of both male and female students in the EG were markedly superior to those in the CG.

2.4. Perceptions after the implementation of the new Physical Education (PE) curriculum

The study conducted a survey to gather opinions from 13 PE instructors and 135 students in the EG regarding their perceptions after the implementation of the new PE curriculum. The results are presented in Tables 5.

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Table 5. Students' opinions of the new PE curriculum (n = 135)

No	Content	$\overline{X} \pm \sigma$ (Score)	Rate (%)	Judgement
1	Evaluation of the newly designed Physical Education (PE) curriculum	4,548± 0,49	90,9	Exellent
2	The curriculum content contributes to the development of physical fitness and motor skills	4,214±0,65	84,3	Exellent
3	The teaching organization process is suitable for students' learning abilities	4,244±0,69	84,8	Exellent
4	Assessment and evaluation methods are appropriate, transparent, and fai	4,629±0,61	92,5	Exellent
5	The significance of elective PE modules for students' learning and training	4,170±0,73	83,4	Good
6	Showing interest and active participation during PE classes	3,992±0,84	79,8	Good
7	Regularly practicing outside of formal class hours	4,237±0,71	84,7	Exellent
8	Acquiring sufficient knowledge, skills, and methods from one sport for lifelong training after completing the PE course	4,281±0,73	85,6	Exellent
9	Academic grades achieved after completing the PE course	4,192±0,81	83,8	Good
10	Meeting physical training standards regulated by the Ministry of Education and Training after the course	4,074±0,87	81,4	Good
$\overline{X}$		4,258	85,1	Exellent
X^2		98 (P<0,001)		

Table 5 indicates that students' evaluations of the innovative Physical Education (PE) curriculum reached a high level of consensus, ranging from 79.85% to 92.59%. The newly developed PE program was rated as "Excellent," significantly outperforming other opinions with X2 = 98 (P<0,001).

3. CONCLUSION

The academic performance of the Experimental Group (EG) was superior to that of the Control Group (CG). Specifically, the proportion of students achieving Average, Good and Excellent grades increased, while the rates of Weak and Very Weak classifications decreased.

Physical fitness assessments also revealed that the EG outperformed the CG. Surveys regarding the objectives, content, and structure of the PE curriculum, as well as student interest, all yielded high satisfaction rates. These results affirm the effectiveness of the newly developed Physical Education program.

The students' feedback after participating in the experimental program was that developing such a new program was very necessary. The objectives, content, structure, and assessment methods are clear and entirely rational. The program is well-suited to the learners, effectively meeting their academic and physical training needs.

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