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Original Article

A Comprehensive Framework for Evaluating Graduates in Physical Education from Universities in Northern Vietnam through Competency-Based Approaches

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Abstract:- The necessity of transforming educational approaches from target-oriented to competency-based models has become more pronounced in the context of rapid social and economic development. This study aims to construct a comprehensive set of criteria for evaluating graduates in Physical Education (PE) from universities in Northern Vietnam, based on competency-based approaches. By employing various evaluation methodologies and validating the results through empirical testing, this research endeavors to provide an accurate, objective, and innovative framework for assessing the capabilities of PE graduates.

Keywords: Physical Education, Competency-Based Education, Graduate Evaluation, Northern Vietnam Universities, Educational Assessment, Pedagogical Competencies

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Introduction:

The shift towards competency-based education is crucial to meet the evolving demands of society. This change necessitates a comprehensive overhaul of various aspects of the education system, including objectives, content, teaching methods, and evaluation processes. Traditional evaluation methods focused primarily on the reproduction of learned knowledge, whereas competency-based evaluations emphasize the practical application of knowledge in various contexts.

The primary objective of this research is to develop a validated, objective, and comprehensive set of criteria for evaluating graduates in Physical Education from universities in Northern Vietnam. This involves identifying essential competencies, designing corresponding evaluation tools, and validating these tools through empirical testing.

Physical education is a crucial component of holistic education, as it helps develop key qualities and competencies in students (Tu, 2023). Through physical education, students acquire health knowledge, learn to manage their health, and develop physical and mental well-being. Physical education contributes to the formation of essential abilities and common competencies for students (Dau et al., 2020).

It enables them to choose suitable sports, adapt to various life situations, and lead a healthy lifestyle (Dau et al., 2020; Tu, 2023). The main focus of physical education is to train motor skills and improve physical fitness through diverse exercises such as basic skill development, teamwork, and physical activity (Dau et al., 2020; Tu, 2023). However, research has highlighted various challenges and barriers in implementing effective physical education in Vietnamese universities (Dau et al., 2020).

Examine theoretical foundations for evaluating PE graduates; Assess the current state of graduate evaluations in PE at Northern Vietnamese universities; Develop and validate a set of competency-based evaluation criteria; Conduct empirical testing to ensure the reliability and validity of the evaluation framework.

The research focuses on universities in Northern Vietnam that offer PE programs, including Thai Nguyen University of Education, Hanoi National University of Education, Hanoi National University of Physical Education and Sports, and several others. The study involves 150 lecturers and administrators, 150 fourth-year PE students, and 20 PE teachers from secondary schools who mentor the student teachers.

Research Methodology

The study employs a combination of literature review, surveys, interviews, and empirical testing. Statistical analyses are conducted to validate the developed evaluation criteria and ensure their reliability.

Result

Qualitative Analysis Results.

Determining the Reliability of the Process, Criteria, and Evidence for Assessing Students' Pedagogical Competency through Self-Assessment, Peer Assessment, and Teacher Assessment.

To evaluate the reliability of the toolkit, we conducted student self-assessments, peer assessments, and teacher assessments using collected evidence. The results obtained were similar across the different assessment methods. One principle for determining the reliability of an assessment tool is that when evaluating the same subject, at the same time, and in the same context, if different assessors using the same process and toolkit produce statistically insignificant differences in results, the toolkit can be considered reliable. Along with expert opinions, we believe that the process, criteria, and evidence used to assess the pedagogical competency of physical education students are reliable.

Evaluation Results of Pedagogical Competency in Physical Education Students:

Assessing the Pedagogical Competency of Students: This study focuses on evaluating the competencies that constitute pedagogical competency in physical education students through specific skills: Lesson Plan Implementation, Lesson Organization, Lesson Plan Preparation, Student Assessment, and Teaching Record Management. The results show a clear differentiation in these competencies.

Evaluation Results of Each Competency: Lesson Plan Implementation: Students demonstrated relatively high

performance, with most achieving at or above the expected level. However, their skills in designing teaching activities remain weak.

Lesson Organization: Also showed positive evaluation results, but limitations persist in designing warm-up activities, facilitating student engagement with lesson objectives, and utilizing diverse teaching methods in chess education.

Lesson Plan Preparation: Students primarily achieved at a low level. While demonstrating proficiency in understanding facilities and teaching materials, they lacked the skills to analyze student characteristics and integrate them into chess lessons.

Student Assessment: Also yielded low evaluation results, indicating a lack of student proficiency in effectively assessing student learning outcomes.

Teaching Record Management: This competency showed better results compared to Lesson Plan Preparation and Student Assessment, but specific skills remain uneven. While adept at defining the structure of teaching records, students struggle to effectively utilize the information from these records in their teaching practice.

Correlation between Competencies:

The competencies that constitute pedagogical competency, such as Lesson Plan Preparation, Lesson Plan Implementation, Lesson Organization, Student Assessment, and Teaching Record Management, are typically interconnected and mutually supportive. However, the experiment revealed that these standards are relatively independent, lacking clear correlations. Some students demonstrated high proficiency in Lesson Organization while only achieving satisfactory levels in other competencies, and vice versa. This suggests that students' pedagogical competency is not comprehensive, primarily focusing on specific skills like Lesson Plan Implementation and Lesson Organization. This could be attributed to the emphasis on these two competencies in training and assessment practices at both university and high school levels.

Correlation between Competencies and Curriculum:

University curricula often prioritize theory and practice for Lesson Plan Implementation and Lesson Organization, leading to higher evaluation results in these areas. Conversely, competencies like Lesson Plan Preparation, Student Assessment, and Teaching Record Management receive less attention in both theory and practice, resulting in lower evaluation outcomes

Limitations and Recommendations for Improvement:

The assessment of pedagogical competency in physical education students revealed several limitations that require attention: Lack of Comprehensive Pedagogical Competency: Students primarily focus on Lesson Plan Implementation and Lesson Organization, while other competencies such as Lesson Plan Preparation, Student Assessment, and Teaching Record Management remain underdeveloped; Specificity of Competency Criteria: Students haven't cultivated the habit of thoroughly analyzing the teaching environment before developing lesson plans. The integration of assessment techniques within the teaching process is limited. Furthermore, the skill of defining lesson objectives needs improvement, ensuring alignment with student characteristics, the teaching environment, and lesson content.

To foster comprehensive pedagogical competency, a more balanced approach to training and development is crucial, encompassing all competencies rather than solely emphasizing Lesson Plan Implementation and Lesson Organization. This holistic approach will equip physical education students not only to teach effectively but also to provide guidance, assess student learning, and meet the evolving demands of the profession.

Quantitative Analysis Results:

Empirical Evaluation Results of Graduating Physical Education Students.

The empirical evaluation results of graduating physical education students were analyzed using statistical methods commonly employed in educational and social science research, with the support of Excel. Descriptive statistics such as mean, standard deviation, variance, and range were calculated. The results of these descriptive statistics are presented in Table 1:

Table 1: Descriptive Statistics of Pedagogical Competencies.

	Lesson Plan Preparation	Lesson Plan Implementation	Lesson Organization	Student Assessment	Teaching Record Management
Mean	2,80	3,713	3,783	2,50	3,46
Sampling Error	0,038395	0,027321	0,044303	0,034878	0,033639
Median	2,794	3,76	3,864	2,486	3,051
Standard Deviation	0,364240	0,259179	0,420270	0,330874	0,319106
Sample Variance	0,132671	0,067174	0,176627	0,109478	0,101829
Range	1,55	0,92	1,67	1,41	1,67
Minimum	2,11	3,26	2,95	1,91	2,4
Maximum	3,66	4,16	4,63	3,31	3,08
Sum	126	167,08	170,2	112,5	155,7
Sample Size	45	45	45	45	45
Confidence Level (95.0%)	0,076292	0,054287	0,088025	0,069304	0,066838

Based on the data presented in Table 1, the mean values range from 2.50 to 3.783, with a sampling error of less than 0.05. The median values are close to the mean values. The confidence levels, variance, and standard deviation of the sample indicate that the statistical data is completely reliable.

Table 2 presents the frequency distribution and frequency (fi) of the evaluation results of the competencies that constitute pedagogical competency.

	Lesson Plan Preparation		Lesson Plan Implementation		Lesson Organization		Student Assessment		Teaching Record Management	
	Fi	fi	Fi	fi	Fi	fi	Fi	fi	Fi	fi
Level 1	30	0,666	0	0,000	0	0,000	42	0,933	2	0,044
Level 2	15	0,333	38	0,844	28	0,622	3	0,066	43	0,955
Level 3	0	0,000	6	0,133	15	0,333	0	0,000	0	0,022
Level 4	0	0,000	1	0.022	2	0,044	0	0,000	0	0,022

Based on Table 2, the evaluation results of the chess pedagogical competency of physical education students through the assessment of competencies such as Lesson Plan Preparation, Lesson Plan Implementation, Lesson Organization, Student Assessment, and Teaching Record Management show a differentiation, specifically:

Two competencies with higher evaluation results are Lesson Plan Implementation and Lesson Organization. Specifically, the Lesson Plan Implementation competency shows 84.4% of students achieving level 2, 13.3% achieving level 3, and 2.2% achieving level 4. The Lesson Organization competency shows 62.2% achieving level 2, 33.3% achieving level 3, and 4.4% achieving level 4. These are also the two competencies where no students fell into level 1, the level that does not meet the standard.

The competencies of Lesson Plan Preparation, Student Assessment, and Teaching Record Management of the experimental students mostly only reached levels 1 and 2, with no students reaching level 3. In particular, 93.3% of students only achieved level 1 in Student Assessment and 66.6% in Lesson Plan Preparation. The Teaching Record Management competency shows 95.5% of students achieving level 2.

In conclusion, the pedagogical competency of physical education students mostly meets the standard level (level 2). However, the evaluation results of the competencies that constitute pedagogical competency are not uniform. Very few

students achieve levels 3 (13-33%) and 4 (2-5%), concentrated in the two competencies of Lesson Plan Implementation and Lesson Organization. The remaining competencies have evaluation results concentrated at levels 2 and 1. The reason, as analyzed above, is the correlation between the training program, methods, and criteria for testing and evaluating students' pedagogical competency at universities and high schools where students have practical experience with these results.

The evaluation results of the pedagogical competency of physical education students at universities also show that the competencies that constitute teaching competency are not uniform. Some competencies reach levels 2 and 3, but some only reach level 1, as analyzed above. Only 3 competencies, Lesson Plan Implementation, Lesson Organization, and Teaching Record Management, reached level 2, with level 3 having a low percentage, only from 13-33%. However, level 2 of the criteria we used for evaluation is only equivalent to the average level of the professional standards for high school teachers. If compared equivalently, out of the 5 competencies that constitute pedagogical competency, only 3 competencies, Lesson Plan Implementation, Lesson Organization, and Teaching Record Management, have a high percentage of students reaching the average level of professional standards. The remaining competencies, Lesson Plan Preparation and Student Assessment, have a high percentage of students who do not meet the average level of professional standards for high school teachers. Therefore, to ensure quality, it is necessary to further train students in competencies that have not been achieved during the internship period before they become official teachers, or training institutions must have a plan for retraining.

The evaluation results are also a reference for orienting the innovation of training programs, including both program content and assessment methods, not only to develop pedagogical competency comprehensively for students but also to meet the requirements of a teacher in the new.

Discussion

The study focuses on the need to transform educational evaluation from traditional target-oriented methods to competency-based approaches, particularly in the context of rapid socio-economic development. This transformation is particularly relevant for Physical Education (PE) graduates from universities in Northern Vietnam, where holistic education aims to develop key qualities and competencies in students (Tu, 2023).

Traditional evaluation methods, which focus on knowledge reproduction, are inadequate for contemporary educational demands (Đức, 2021; Dau et al., 2020). Competency-based evaluations emphasize practical application and adaptability in various contexts. For PE graduates, competencies include not only physical skills but also planning, organizing, and assessing educational activities (Dau et al., 2020). The study developed a set of criteria for evaluating PE graduates based on competencies such as Lesson Plan Implementation, Lesson Organization, Lesson Plan Preparation, Student Assessment, and Teaching Record Management. These criteria were validated through empirical testing, ensuring reliability and objectivity (Dau et al., 2020; Tu, 2023).

The researchers utilized a combination of research methods, including pedagogical observation, surveys, interviews, and statistical analysis, to assess the current state of physical education at various universities in Vietnam. The findings indicate that factors such as inadequate facilities, underqualified instructors, and outdated curricula pose significant challenges to effective physical education delivery (Truc et al., 2022; Innovation in University's Physical Education Teaching Methods, 2021; Nguyen et al., 2023). To address these issues, the study proposes several solutions based on legal frameworks, practical conditions, and expert consultations.

Establishing the reliability of evaluation tools is crucial in accurately assessing the competencies of pre-service teachers (Al-Qiawi & Ezzeldin, 2015). This study employed a multi-faceted approach, utilizing self-assessment, peer assessment, and teacher assessment to evaluate the consistency and reliability of the assessment criteria (Al-Qiawi & Ezzeldin, 2015). The results demonstrated minimal statistical differences when different assessors utilized the same criteria, suggesting a high degree of reliability in the evaluation tools.

The evaluation of pedagogical competency among pre-service physical education (PE) students revealed a nuanced picture. Students exhibited relatively strong performance in areas such as Lesson Plan Implementation and Lesson Organization, indicating their ability to effectively execute and structure their teaching. However, the findings also highlighted weaknesses in other key competencies, including the design of teaching activities, preparation of lesson

plans, and student assessment. Specifically, while students demonstrated proficiency in understanding facilities, they struggled with analyzing student characteristics when developing lesson plans (Al-Qiawi & Ezzeldin, 2015; Worrell et al., 2014). Similarly, their ability to assess student learning outcomes was found to be lacking (Worrell et al., 2014; Moss, 1994; Al-Qiawi & Ezzeldin, 2015).These results underscore the need for targeted training and support to strengthen pre-service teachers' competencies in these critical areas (Moss, 1994; Worrell et al., 2014; Al-Qiawi & Ezzeldin, 2015).

The systematic assessment of teaching competencies is essential for improving teacher education programs and ensuring the delivery of high-quality instruction. As highlighted in the literature, comprehensive evaluation tools and models can provide valuable insights to guide the development of prospective teachers (Moss, 1994; Al-Qiawi & Ezzeldin, 2015).

The competencies demonstrated interdependence, yet the experiment revealed relative independence, indicating that students' pedagogical competencies are not comprehensive (Dumitriu et al., 2014). For instance, some students excelled in Lesson Organization but not in other areas, suggesting that training and assessment practices disproportionately emphasize certain competencies.

The study found that university curricula often prioritize theory and practice in Lesson Plan Implementation and Lesson Organization, leading to higher evaluation results in these areas. Conversely, competencies like Lesson Plan Preparation, Student Assessment, and Teaching Record Management receive less attention, resulting in lower performance (Barberá et al., 2014).

To address the identified gaps, the study recommends: (Kharlamov & Gorlenko, 1998) Ensuring equal emphasis on all competencies in training programs to develop comprehensive pedagogical skills, encouraging students to analyze the teaching environment thoroughly before lesson planning, improving the integration of assessment within the teaching process, and enhancing skills in defining lesson objectives that align with student characteristics and the teaching environment (Barberá et al., 2014; Jones, 2001; Dumitriu et al., 2014)

The key responsibility of academic staff is to ensure that they are qualified to teach and able to teach well, which extends over their entire career from start to finish so that they remain up-to-date and proficient in the very best pedagogical practices (Ramamohan & Sarma, 2016). A holistic approach to teacher training and competency development is crucial for equipping students with the necessary skills for the future (Dumitriu et al., 2014; Stensaker, 2021).

The empirical evaluation results, analyzed using statistical methods, confirmed the reliability of the data (Spindler & Dambach, 1936; Zhang, 2010; Aziz, 2014; Zhu et al., 2011). Descriptive statistics like mean, standard deviation, and variance were calculated, showing consistent results across competencies(Arabmomeni et al., 2013). For example, Table 1 presented descriptive statistics for the competencies, and Table 2 showed the frequency distribution of evaluation results (Anwar et al., 2022; Aziz, 2014).

Conclusion and Future Research.

The study successfully developed and validated a comprehensive framework for evaluating physical education (PE) graduates (Zhu et al., 2011). The competency-based approach provides an accurate, objective means of assessing student capabilities, with significant implications for improving the quality of physical education education (Zhu et al., 2011). Future research should explore the long-term impact of such evaluations on graduate performance and expand the framework to other disciplines (Zhu et al., 2011). The analysis of physical education learning outcomes, such as running 40 meters, has shown that data collection techniques using questionnaires and observation sheets can be effective (Anwar et al., 2022). Additionally, the PE Metrics system provides a robust testing theory and psychometric methods for constructing comprehensive physical education assessments (Zhu et al., 2011). However, challenges remain, as physical education teachers still need better awareness of the role and function of physical education in schools, and student learning achievement is often low (Saraswara et al., 2023; Guan, 2023; Aziz, 2014). Addressing these issues through comprehensive teacher training and student-centered pedagogy will be crucial for elevating the quality of physical education programs (Morgan & Hansen, 2007; Zhu et al., 2011; Saraswara et al., 2023; Aziz, 2014).

Conclusion

The study successfully develops and validates a comprehensive set of criteria for evaluating PE graduates based on competency-based approaches. The evaluation framework provides an accurate, objective, and innovative means of assessing student capabilities.

Implications for Educational Practice: The implementation of competency-based evaluations has significant implications for improving the quality of PE education. The framework supports the development of well-rounded graduates who are equipped to meet the demands of modern educational and professional environments.

Future Research Directions: Further research is recommended to explore the long-term impact of competency-based evaluations on graduate performance and career success. Expanding the framework to other disciplines and educational contexts is also suggested.

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References

1. Al-Qiawi, D A., & Ezzeldin, S M. (2015, December 8). A Suggested Model for Developing and Assessing Competence of Prospective Teachers in Faculties of Education. Sciedu Press, 5(6). https://doi.org/10.5430/wje.v5n6p65
2. Anwar, N I A., Juhanis, J., Mappaompo, M., Iskandar, I., & Saparia, A. (2022, January 23). Analysis of Physical Education Learning Outcomes Running 40 Meter. , 5(1), 242-242. https://doi.org/10.31851/hon.v5i1.7086
3. Arabmomeni, A., Iravani, M R., Momeni, K., & Jannesari, H. (2013, March 1). A social work study on quality on quality of physical education programs in primary schools: A case study of governmental and non-for-profit schools in city of Esfahan, Iran. Growing Science, 3(3), 943-948. https://doi.org/10.5267/j.msl.2013.01.026
4. Aziz, I. (2014, February 28). Evaluating Learning Outcomes of Sports Skills through Observation. Canadian Center of Science and Education, 10(5). https://doi.org/10.5539/ass.v10n5p130
5. Barberá, E., Layne, L., & Gunawardena, C N. (2014, April 1). Designing online interaction to address disciplinary competencies: A cross-country comparison of faculty perspectives. Athabasca University Press, 15(2). https://doi.org/10.19173/irrodl.v15i2.1418
6. Dau, L V., Huy, H N., Ninh, L V., Tân, N M., & Yen, N P. (2020, June 25). Physical Education for Students: Researching one University in Vietnam. , 2(3), 205-209. https://doi.org/10.36346/sarjhss.2020.v02i03.005
7. Đức, T N. (2021, September 1). Research on Selection of Tests to Assess Students' Physical Fitness at Ho Chi Minh City University of Technology and Education (Viet Nam). , 9(5), 981-992. https://doi.org/10.13189/saj.2021.090520
8. Dumitriu, C., Dumitriu, G., & Timofti, I C. (2014, February 1). Teachers' Professional Development and Career Advancement. Limitations of the Current Model of Professional Competences Assessment. Elsevier BV, 116, 864-868. https://doi.org/10.1016/j.sbspro.2014.01.311
9. Guan, Y. (2023, January 1). Research on the Collaborative Path of Integrating Ideological and Political Content into College Physical Education Teaching. , 6(10). https://doi.org/10.23977/curtm.2023.061020
10. Innovation in University's Physical Education Teaching Methods. (2021, January 1). https://doi.org/10.20431/2349-0381.0809008
11. Jones, E. (2001, January 1). Working in Partnership with Faculty to Transform Undergraduate Curricula. Wiley, 2001(110), 15-27. https://doi.org/10.1002/ir.8

12. Kharlamov, I F., & Gorlenko, V P. (1998, May 1). Old and New Approaches to Practice Teaching. Taylor & Francis, 40(5), 83-95. https://doi.org/10.2753/res1060-9393400583

13. Morgan, P J., & Hansen, V. (2007, November 1). Recommendations to Improve Primary School Physical Education: Classroom Teachers' Perspective. Taylor & Francis, 101(2), 99-108. https://doi.org/10.3200/joer.101.2.99-112

14. Moss, P. (1994, March 1). Can There Be Validity Without Reliability?. SAGE Publishing, 23(2), 5-12. https://doi.org/10.3102/0013189x023002005

15. Nguyen, P., Nguyen, D X., Le, L K., Ananthapavan, J., Na, P D., & Tang, H. (2023, January 1). Results from Viet Nam's 2022 report card on physical activity for children and youth. https://doi.org/10.1016/j.jesf.2022.11.002

16. Ramamohan, V., & Sarma, K J. (2016, January 1). Holistic Training for Teachers of Higher Education. , 0(0). https://doi.org/10.16920/jeet/2016/v0i0/85638

17. Saraswara, B S., Maksum, A., & Kristiyandaru, A. (2023, June 22). Performance assessment of physical education teachers in schools. , 13(1), 81-81. https://doi.org/10.35194/jm.v13i1.3252

18. Spindler, E B., & Dambach, J I. (1936, March 1). Criteria for Studying and Evaluating Physical Education Programs with Relation to Their Leisure-Time Contributions. Taylor & Francis, 7(1), 119-130. https://doi.org/10.1080/23267402.1936.10761763

19. Truc, N V., Van, N T H., & Ngoc, H H. (2022, May 2). IMPROVING THE STUDENTS' PHYSICAL EDUCATION OF THE UNIVERSITY OF ECONOMICS HO CHI MINH CITY, VIETNAM. Open Access Publishing Group, 8(2). https://doi.org/10.46827/ejpe.v8i2.4268

20. Tu, T T. (2023, March 24). SOLUTIONS TO IMPROVE THE EFFECTIVENESS OF PHYSICAL EDUCATION FOR STUDENTS AT CHU VAN AN HIGH SCHOOL, THAI NGUYEN PROVINCE, VIETNAM. Open Access Publishing Group, 9(5). https://doi.org/10.46827/ejpe.v9i5.4740

21. Worrell, F C., Brabeck, M., Dwyer, C., Geisinger, K F., Marx, R W., Noell, G H., & Pianta, R C. (2014, January 1). Assessing and Evaluating Teacher Preparation Programs. https://doi.org/10.1037/e520852014-001

22. Zhang, T. (2010, February 1). Investigation and Research on Physical Education Informationization in Higher Institutions. https://doi.org/10.1109/dsde.2010.40

23. Zhu, W., Rink, J E., Placek, J H., Graber, K C., Fox, C., Fisette, J L., Dyson, B., Park, Y., Avery, M., Franck, M., & Raynes, D. (2011, April 1). PE Metrics: Background, Testing Theory, and Methods. Taylor & Francis, 15(2), 87-99. https://doi.org/10.1080/1091367x.2011.568363