

Differences in the Implementation of Physical Education (PE) Learning Management Based on Years of Work: Analysis of Differences in the Quality of Quality Assurance Culture

Diferencias en la implementación de la gestión del aprendizaje en Educación Física (EF) en función de los años de trabajo: análisis de las diferencias en la calidad de la cultura de garantía de la calidad

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Abstract. This research aims to determine the implementation of Physical Education (PE) learning management related to 21st-century skills based on the service length of PE teachers in various schools with different quality assurance cultures. The sample in this study was secondary school PE teachers in Southeast Sulawesi Province, Indonesia. This research employed descriptive statistics and inferential factorial one-way Anova to analyze the data. One-way Anova test results in Sig. $0.009 < 0.05$ means a significant difference in the average of the three PE learning outcomes between teachers with work periods of 1-7, 8-15, and 16 years or more. Firstly, the Tukey post hoc test Sig value is $0.024 < 0.05$, meaning there is a difference in PE learning outcomes between 1-7 and 8-15 years of service. Testing the two Sig values is $0.983 > 0.05$, meaning there is no difference in PE learning outcomes for working years 1-7 and 16 years and above. Test the three Sig values. $0.016 < 0.05$, so there is a difference in PE learning outcomes between 8-15 and 16 years of service. This research concludes a significant difference in the average PE learning achievement between teachers with tenure of 1-7, 8-15, and 16 years or over. Thus, it can be concluded that the service length of PE teachers influences the effectiveness of implementing learning management containing 21st-century skills. Teaching experience plays a role in implementing teaching methods and techniques that suit the demands of 21st-century skills, including critical thinking, collaboration, communication, and creativity. This underlines the importance of continuous professional development for teachers, especially in improving teaching skills relevant to the student's needs in the current era of the 21st century. The results of this research can assist policymakers, school administrators, and teachers in designing and implementing more effective PE programs in classroom conditions and prioritizing needs according to the conditions of each school.

Keywords: PE Learning Management, 21s-Century, Work Period, Quality Assurance

Resumen. Esta investigación tiene como objetivo determinar la implementación de la gestión del aprendizaje de Educación Física (EF) relacionada con las habilidades del siglo XXI en función de la duración del servicio de los profesores de EF en varias escuelas con diferentes culturas de garantía de calidad. La muestra de este estudio fueron profesores de educación física de secundaria en la provincia de Sulawesi, Sudeste, Indonesia. Esta investigación empleó estadística descriptiva y Anova factorial inferencial unidireccional para analizar los datos. Resultados de la prueba Anova unidireccional en Sig. $0,009 < 0,05$ significa una diferencia significativa en el promedio de los tres resultados de aprendizaje de educación física entre docentes con períodos de trabajo de 1 a 7, 8 a 15 y 16 años o más. En primer lugar, el valor Sig de la prueba post hoc de Tukey es $0,024 < 0,05$, lo que significa que existe una diferencia en los resultados del aprendizaje de educación física entre 1-7 y 8-15 años de servicio. La prueba de los dos valores Sig es $0,983 > 0,05$, lo que significa que no hay diferencia en los resultados del aprendizaje de educación física para los años laborales 1 a 7 y 16 años y más. Pruebe los tres valores Sig. $0,016 < 0,05$, por lo que existe una diferencia en los resultados del aprendizaje de educación física entre 8-15 y 16 años de servicio. Esta investigación concluye una diferencia significativa en el rendimiento promedio en aprendizaje de educación física entre docentes con una antigüedad de 1 a 7, de 8 a 15 y de 16 años o más. Por lo tanto, se puede concluir que la duración del servicio de los profesores de educación física influye en la eficacia de implementar una gestión del aprendizaje que contenga habilidades del siglo XXI. La experiencia docente desempeña un papel en la implementación de métodos y técnicas de enseñanza que se adaptan a las demandas de las habilidades del siglo XXI, incluido el pensamiento crítico, la colaboración, la comunicación y la creatividad. Esto subraya la importancia del desarrollo profesional continuo de los docentes, especialmente en la mejora de las habilidades docentes relevantes para las necesidades de los estudiantes en la era actual del siglo XXI. Los resultados de esta investigación pueden ayudar a los formuladores de políticas, administradores escolares y maestros a diseñar e implementar programas de educación física más efectivos en las condiciones del aula y priorizar las necesidades de acuerdo con las condiciones de cada escuela.

Palabras clave: Gestión del aprendizaje de educación física, siglo XXI, periodo de trabajo, garantía de calidad

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Introduction

Physical Education (PE) is a crucial component in promoting character education, physical health, psychosocial and motor skills. Physical learning activities at school can provide a healthy lifestyle (Susanto et al., 2023). Apart

from that, PE activities in schools can also be used to develop 21st century skills. The aspects of 21st century skills, such as critical thinking, teamwork and digital literacy have a significant positive impact on the career readiness of young graduates (Crosta & Bakay, 2023). Forms of 21st century skills include; Critical thinking, cooperation, com-

munication and creativity are considered important in today's education. PE has great potential to facilitate the development of these skills through physical activity, sport and play. Applying these skills in a PE learning context also requires the right approach and strategy. Even though PE teachers have obtained educator certification and have sufficient teaching experience, there are still obstacles in implementing effective learning management that includes 21st century skills. Teachers face problems related to students having difficulty understanding the material and teachers also not understanding the application of 21st century skills (Fitria et al., 2023). These problems can be caused by various factors, including lack of training or resources, conservative learning methods, or lack of support from educational institutions. Teachers' readiness to adopt digital learning technology still varies, with the main barriers including a lack of training and resources (Villarba et al., 2023). Referring to this, having teacher certification and longer teaching experience certainly shows basic competency in teaching. However, this does not automatically guarantee the teacher's ability to implement learning approaches that are innovative and in line with the needs of the 21st century.

Teacher tenure is often considered an indicator of experience that can influence teaching approaches, adaptability to new methods, and classroom management capabilities. Professional teachers can manage learning well according to competency standards and can better achieve educational goals (Hayuningkyas, 2021). Senior teachers with longer experience certainly have the potential to have more mature and effective methods, while junior teachers have the potential to bring innovative and adaptive approaches to new technology in learning. On the other hand, cultural differences in school environments in different regions can also influence the implementation achievements of PE learning management in each school. This is because supportive and inclusive school environmental conditions contribute significantly to the effectiveness of physical education teaching and learning (Ali et al., 2014). Problems related to physical education culture in the school environment can also be overcome by integrating more creative and collaborative teaching methods (Zhang, 2021). This is important because cultural differences and an unsupportive school environment can indirectly cause differences in the quality of education quality assurance, especially in PE learning. Quality assurance in PE includes the policies, practices and procedures adopted by schools to ensure learning meets specific quality standards. This includes supervision activities, program evaluation, teacher training, and use of resources. Teacher supervision has been proven to have a positive effect on improving teaching performance (Yusuf et al., 2021). Evaluation of the implementation of the teacher professional competency improvement program significantly improves the quality of graduates through increasing teacher professionalism (Suhartini, 2023). The teacher professionalism training program has proven to be effective in increasing professionalism even though it is carried out

online (Salamah & Istiyono, 2022). Additionally, geographic region can also influence access to educational resources, opportunities for physical activity, and curriculum priorities. These differences can create variations in the way PE is managed and implemented, thereby affecting the quality of students' learning experiences.

Research related to physical education in schools has been conducted by many researchers, including (Hall-López, 2020); (Burgueño et al., 2021); (Botelho & Moreira, 2022); (Moya-Mata et al., 2023); (Meriño et al., 2024). Apart from that, research related to physical education and sport has been conducted by many researchers, including (Hall-López, 2020); (Burgueño et al., 2021); (Botelho & Moreira, 2022); (Setyawan et al., 2023); (Moya-Mata et al., 2023); (Setyawan et al., 2023); (Meriño et al., 2024); (Setyawan et al., 2024). However, there is still very little research that discusses quality assurance in PE in schools. Therefore, this research aims to identify and analyze differences in the implementation of PE learning management, with a focus on the implementation of PE learning management containing 21st century skills based on years of service in various schools which have different quality assurance cultures. This aims to determine learning outcomes and suggest strategies to increase the effectiveness of Physical Education (PE) in schools with different cultural conditions.

Method

This research is a comparative quantitative research which aims to determine the extent of variation or differences between related variables. Data analysis used descriptive statistics and inferential factorial one-way anova. One-way anova analysis is a one-way classification analysis that is based on observing one criterion or one factor that causes variation. Data prerequisite tests were carried out using the Kolmogorov-Smirnov normality test and homogeneity tests using Levene's Test of homogeneity of variance.

This research was conducted on the implementation of PE learning management containing 21st century skills in Southeast Sulawesi province based on length of service. The population in this study were secondary school level PE health sports teachers with years of service (1-7 years, 8-15 years, and 16 years and above) in Southeast Sulawesi province. The sample in this research was taken using a Simple Random Sampling system or simple random sampling technique. Simple Random Sampling is a technique for determining samples randomly without paying attention to existing strata, where the criteria for population members are considered homogeneous or relatively homogeneous (Sugiyono, 2019). Every teacher has the same opportunity to be selected as a respondent in this research.

The research instrument uses a Likert scale of 4 – 1 (Always – Never). The instrument consists of 33 questions/questions which are prepared based on theory and have been adapted to measure each indicator, and have been consulted with experts. The instrument has been tested for

validity (Product Moment Pearson Correlation SPSS) and reliability (Cronbach's Alpha SPSS) before being used in research. The results of the Product Moment Pearson Correlation validity test for all question items have an r-value greater than the r-table of 0.361 and a Sig. < 0.05 at the 5% significance level, so that all question items are declared valid. The reliability test results on Cronbach's alpha were 0.971 so it was concluded that all question items were declared reliable or consistent.

The data collection technique for this research was taken by distributing questionnaires to secondary school PE teachers in Southeast Sulawesi province. From the questionnaire distributed, 45 PE teachers received responses which were then classified into three cells, resulting in a sample of 30 teachers which represents an image of each school. The sample data is then classified or broken down into three cells; PE teachers with work periods of 1-7 years, 8-15 years, and 16 years and above. The next step is to make an interpretation of the data so that it contains meaning and can answer the problem being studied.

Results

Description

From the one-way one-way ANOVA analysis design, there are three groups of Middle School PE teachers with a working period of 1-7 years, 8-15 years, and 16 years and above which will be described separately. For a more detailed description of the results of research data on the implementation of PE learning management containing 21st century skills, you can see the following table 1:

Table 1.
The Results of Descriptive Tests

Descriptives								
PE Learning Management Implementation Achievement Results (Y)								
N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum	
				Lower Bound	Upper Bound			
Work Period 1-7 Years	10	121.60	10,298	3,256	114.23	128.97	106	132
Work Period 8-15 Years	10	104.30	20,472	6,474	89.65	118.95	56	128
Work Period 16 Years and above	10	122.70	6,567	2,077	118.00	127.40	114	132
Total	30	116.20	15,806	2,886	110.30	122.10	56	132

Based on the results of the descriptive analysis, it can be seen that the number of subjects (N) is 30 people, with details of 10 Middle School PE teachers with a working period of 1-7 years, 10 Middle School PE teachers with a working period of 8-15 years, and 10 PE teachers Middle School with a working period of 16 years and above in Southeast Sulawesi province. The average achievement of implementing PE learning management containing 21st century skills with a work period of 1-7 years is 121.60 with a standard deviation of 10,298, for a work period of 8-15 years it is 104.30 with a standard deviation of 20,472, and for a work period of 16 years and above is

122.70 with a standard deviation of 6.567. Based on the results of this analysis, it is known that the achievement of implementing PE learning management containing 21st century skills for a work period of 16 years and above is the highest, while the achievement of implementing PE learning management containing 21st century skills for a work period of 8-15 years is the lowest.

Hypothesis testing

Prerequisite Test

The first prerequisite test was carried out using the Shapiro-Wilk normality test with the condition that if Sig. > 0.05 then the data is normally distributed, conversely if Sig. < 0.05, meaning that the data is not distributed normally. Based on calculations, it is known that teachers with a service period of 1-7 years have a Sig value. $0.82 > 0.05$, Teachers with 8-15 years of service have a Sig. $0.124 > 0.05$, and teachers with a service period of 16 years and above have a Sig. $0.175 > 0.05$ so it can be concluded that the data is normally distributed.

Table 2.
The Results of Normality Test

Tests of Normality							
	PE Teacher Years of Service (X)	Kolmogorov-Smirnova			Shapiro-Wilk		
		Statistics	df	Sig.	Statistics	df	Sig.
PE Learning Management Implementation Achievement Results (Y)	Work Period 1-7 Years	,233	10	,133	,863	10	,082
	Work Period 8-15 Years	,198	10	,200*	,878	10	,124
	Work Period 16 Years and above	,207	10	,200*	,891	10	,175

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

The second prerequisite test is carried out using the Levene's Test of homogeneity of variance homogeneity test with the condition that if the Sig value is > 0.05 then it means that the data variation is homogeneous, conversely if the Levene Statistics value is < 0.05 then the data is not homogeneous. Based on calculations, it is known that the Sig value is $0.115 > 0.05$ so that the variations in the data obtained are homogeneous.

Table 3.
The Results of Homogeneity Tests

Test of Homogeneity of Variances					
		Levene Statistics	df1	df2	Sig.
		PE Learning Management Implementation Achievement Results (Y)	Based on Mean	2,348	2
Based on Median	1,999		2	27	,155
Based on Median and with adjusted df	1,999		2	11,994	,178
Based on trimmed mean	2,086		2	27	,144

Anova test

The one-way anova test was carried out after the normality and homogeneity test requirements were met. Meanwhile, if the normality and homogeneity tests are not met, then the step that can be taken is to use nonparametric analysis. One-way anova analysis is a one-way classification

analysis that is based on observing one criterion or one factor that causes variation. This research uses a one-way ANOVA test to determine whether there are differences in the achievements of PE learning management implementation containing 21st century skills in terms of work periods of 1-7 years, 8-15 years, and 16 years and above in Southeast Sulawesi province. The basis for making decisions in the one-way anova test is: if the Sig value is <0.05 , then H_0 is rejected and H_a is accepted, whereas if the Sig value is >0.05 , then H_0 is accepted and H_a is rejected.

Table 4.
The Results of Anova Tests

Anova					
PE Learning Management Implementation Achievement Results (Y)					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2130,200	2	1065.100	5,623	,009
Within Groups	5114,600	27	189,430		
Total	7244,800	29			

Based on the results of the one-way one-way ANOVA analysis of variance test, it shows a significance value of $0.009 < 0.05$, which means that there is a significant difference in the average of the three achievements of implementing PE learning management containing 21st century skills, namely between teachers with 1-7 years of service, 8-15 years, and 16 years and over. The test results show that the hypothesis which states that there is a difference in the implementation of PE learning management containing 21st century skills between teachers with work periods of 1-7 years, 8-15 years, and 16 years and above in Southeast Sulawesi province, is accepted. Because the Sig value is <0.05 , H_0 is rejected and H_a is accepted so that it can be continued with the Post Hoc Tukey follow-up test analysis.

Post Hoc Tukey Advanced Test

The Tukey HSD test was carried out to compare multiples and to determine whether the average value results on the dependent variable were significant in the total analysis of variance. The following is a comparison or average difference for each variant:

Table 5.
The Results of Multiple Comparisons Tests

Multiple Comparisons						
Dependent Variable: Results of PE Learning Management Implementation Achievements						
Tukey HSD						
PE Teacher Work Period	PE Teacher Work Period	Mean Difference	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Work Period 1-7 Years	Work Period 8-15 Years	17,300*	6,155	.024	2.04	32.56
	Work Period 16 Years and above	-1,100	6,155	.983	-16.36	14.16
Work Period 8-15 Years	Work Period 1-7 Years	-	6,155	.024	-32.56	-2.04
	Work Period 16 Years and above	-18,400*	6,155	.016	-33.66	-3.14
Work Period 16 Years and above	Work Period 1-7 Years	1,100	6,155	.983	-14.16	16.36
	Work Period 8-15 Years	18,400*	6,155	.016	3.14	33.66

*. The mean difference is significant at the 0.05 level.

Comparison of the Implementation of PE Learning Management for 1-7 and 8-15 Years of Service

The comparison of the average achievement of implementing PE learning management containing 21st century skills for teachers with a service period of 1-7 years with a service period of 8-15 years is 17,300. The difference in average sales ranges from 2.04 (Lower Bound) to 32.56 (Upper Bound) at the 95% confidence level. Based on the Multiple Comparisons Output, it is known that the significance value is $0.024 < 0.05$, so it can be concluded that there is a difference in the implementation of PE learning management containing 21st century skills for a work period of 1-7 years and a work period of 8-15 years. Thus, the conclusion is that there is a significant difference in the average implementation of PE learning management containing 21st century skills descriptively between the two variants of teacher tenure.

Comparison of the Implementation of PE Learning Management for Work Periods 1-7 and 16 Years and Over

The comparison of the average achievement of implementing PE learning management containing 21st century skills for teachers with a service period of 1-7 years with a service period of 16 years and above is -1,100. The difference in average sales ranges from -16.36 (Lower Bound) to 14.16 (Upper Bound) at the 95% confidence level. Based on the Multiple Comparisons Output, it is known that the significance value is $0.983 > 0.05$, so it can be concluded that there is no difference in the implementation of PE learning management containing 21st century skills for work periods of 1-7 years and work periods of 16 years and above. Thus, the conclusion is that there is no significant difference in the average implementation of PE learning management containing 21st century skills descriptively between the two variants of teacher tenure.

Comparison of PE Learning Management Implementation for Work Periods 8-15 and 16 Years and Over

The comparison of the average achievement of implementing PE learning management containing 21st century skills for teachers with a service period of 8-15 years and a service period of 16 years and above is -18,400. The difference in average sales ranges from -33.66 (Lower Bound) to -3.14 (Upper Bound) at the 95% confidence level. Based on the Multiple Comparisons Output, it is known that the significance value is $0.016 < 0.05$, so it can be concluded that there is a difference in the implementation of PE learning management containing 21st century skills for work periods of 8-15 years and work periods of 16 years and above. Thus, the conclusion is that there is a significant difference in the average implementation of PE learning management containing 21st century skills descriptively between the two variants of teacher tenure.

Discussion

Based on research results, teachers with a working period of 16 years and above have the highest implementation

achievements, indicating that teaching experience plays an important role in implementing 21st century skills in Physical Education learning. This could be because experienced teachers are better able to integrate new approaches with proven teaching methods, and may be more flexible and adaptive in dealing with various learning situations. Study (Maryani et al., 2022) Educational level and length of service influence teachers' pedagogical competence. Work experience has a significant positive effect on teacher performance (Qomariyah, 2023). The low implementation achievements for teachers with 8-15 years of service could be due to being in a transition period of curriculum change or massive technological change, so they need professional development that focuses on strengthening 21st century skills. Research (Aytaç, 2023) teachers have high resistance to curriculum changes. Teachers' perceptions of curriculum changes are in the doubtful or unsure category (Ünsal et al., 2019). Teachers are less involved in the curriculum change process (Susam & Demir, 2020). This shows the importance of ongoing training and professional support for all teachers, regardless of tenure, whether at low or high tenure.

On the other hand, the quality of the quality assurance culture in various schools also has the potential to have a significant impact on the effectiveness of implementing learning management. Workplace culture has a significant influence on teacher performance (Suwarsito et al., 2023). School climate and culture influence teachers' implementation of modern learning (McChesney & Cross, 2023). Organizational culture has a positive and significant effect on teacher competence (Sultan et al., 2023). School culture influences teacher performance by 38.1% (Mulyani et al., 2022). Schools with a strong quality assurance culture can better support the development and implementation of 21st century skills, creating a conducive environment for teachers to experiment and adopt new approaches.

Based on the research results, there is a significant difference in PE learning outcomes between teachers with 1-7 years of service and 8-15 years of service. This is possible because the level of education, training and teaching experience significantly influences teacher professionalism (Nurhidayah et al., 2022). It can also be concluded that the initial phase of a young teacher's teaching career may be faced with the challenge of implementing PE learning with 21st century skills. However, it could be that new or young teachers are more knowledgeable about innovation and technological adaptation so that they have differences in professionalism in teaching, still related to technology. Meanwhile, teachers with 8-15 years of service may face obstacles in adapting to curriculum changes, technological developments and lack of motivation for pedagogical renewal.

Based on the research results, there is no significant difference between work periods of 1-7 and 16 years and above. The results of this study contradict previous research, that teaching experience contributes significantly to increasing teacher professionalism (Novtantia et al., 2021). However, the absence of significant differences in the per-

formance achievements of implementing PE learning management containing 21st century skills could be possible due to similarities or differences in school culture, so that it could produce the opposite condition. This is confirmed by research (Suwarsito et al., 2023) that workplace culture has a significant influence on teacher performance. The conclusion is that it is possible for junior and senior teachers to both have enthusiasm, acceptance of new ideas, and experience which together contribute to the effectiveness of PE learning containing 21st century skills. Experienced senior teachers with a working period of 16 years and above may be followed by junior teachers with 1-7 years of service, so that there is equality in integrating 21st century skills effectively in PE learning.

Based on the research results, there are significant differences between teachers with 8-15 and 16 years of service and above, confirming that longer teaching experience can contribute to teachers' ability to implement 21st century skills in PE learning. Study (Izzati et al., 2022) found that work experience had a positive effect on teachers' professional commitment. The results of the research are further strengthened (Harisman et al., 2019) that teaching experience influences teacher professionalism, while more experienced teachers show a higher level of professionalism. Years of experience give teachers the ability to overcome pedagogical challenges and adopt more effective approaches to learning. At least teachers with longer experience have the potential to be more able to invest in developing teacher professionalism.

Conclusion

It can be concluded that the service length of Physical Education (PE) teachers influences the effectiveness of implementing learning management containing 21st-century skills. Teaching experience plays a role in implementing teaching methods and techniques that suit the demands of 21st-century skills, including critical thinking, collaboration, communication, and creativity. This underlines the importance of continuous professional development for teachers, especially in improving teaching skills relevant to students' needs in the current era of the 21st-century. This research is expected to provide new insight into the relationship between teacher tenure, quality assurance culture, and geographical factors in implementing skill-based PE learning in the 21st-century, especially in areas outside Java. Thus, the results of this research can help policymakers, school administrators, and teachers in designing and implementing more effective PE programs and classroom conditions and prioritizing needs according to the conditions of each school.

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