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Teacher efficacy, classroom management, student engagement and academic performance in physical education

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Abstract

This study examined the relationships between teacher efficacy, classroom management, student engagement, and academic performance in physical education. It used descriptive-correlational and causal-comparative design to analyze data from 184 Valencia City High School students, San Isidro, Valencia City, Bukidnon, Philippines. The study found that teachers displayed strong efficacy in content knowledge, scientific knowledge, accommodating skills, instructional skills, assessment skills, and technology integration. Physical education teachers also demonstrated effective classroom management, assessed through discipline enforcement, interaction promotion, teaching strategies, and overall effectiveness. Additionally, student engagement was high across various indicators. Pearson R correlation analysis revealed that among all the variables, only teaching and classroom management skills significantly influence the student's academic performance in physical education. The multiple regression analysis revealed three variables that significantly predict student performance in physical education: assessment skills, technology integration skills, and teaching skills. These findings underscore the importance of continuous professional development for teachers to enhance their skills. By investing in teacher training and development, schools can empower educators to create engaging and effective learning environments that foster student success in physical education.

Keywords: Academic Performance; Classroom Management Physical Education; Student Engagement; Teacher Efficacy

1. Introduction

Physical education promotes healthy lifestyles and fosters positive development in children and adolescents. In education, particularly physical education, the relationships between teacher efficacy, classroom management, student engagement, and academic performance have garnered significant scholarly attention. Indicators of students' academic performance in physical education play a crucial role in shaping students' physical, social, and cognitive development. Effective teaching in this domain enhances students' motor skills and physical fitness and promotes positive attitudes toward physical activity and healthy lifestyle choices. These interrelated factors impact the effectiveness of PE instruction and contribute to students' overall well-being and academic success.

Globally, researchers have emphasized the importance of teacher efficacy, which is defined as teachers' beliefs in their ability to positively influence student learning outcomes and foster a conducive learning environment in PE classes. Moreover, effective classroom management strategies are essential for creating structured and inclusive learning spaces that promote student participation and learning (Jones & Jones, 2016). Teaching performance and effectiveness are highly influenced by many factors, such as teacher efficacy, strategies used in classroom management, and student engagement (Chen, 2018). Studies have shown that the association between job contentment and teachers' trust and

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relationships with academic advice was mediated by teacher efficacy, and the relationship between job satisfaction and teacher efficacy was reinforced by perceived organizational support (Edinger & Edinger, 2018).

Effective classroom management in physical education creates a structured and engaging learning environment that minimizes disruptions and maximizes student participation (Siedentop et al., 2014). Research suggests that well-managed PE classrooms positively affect. One of the most important aspects of any educational setting, including physical education, is student engagement—the degree of cognitive and active participation in learning activities (Curran & Standage, 2017). When engaged, students are more likely to learn and retain information, develop positive attitudes toward physical activity, and experience physical education's social and emotional benefits (Castelli et al., 2018).

Understanding these dynamics is particularly pertinent in the Philippine context, where education plays a vital role in national development. The Philippine educational system prioritizes holistic student development, including physical fitness and wellness (Department of Education, 2017). However, challenges such as limited resources and varying levels of teacher training exist, underscoring the need to explore how teacher efficacy and classroom management practices impact student engagement and, ultimately, students' performance in PE.

The main problem is rooted in the inadequate resources for physical education teachers to implement effective strategies to enhance their efficacy, manage classrooms efficiently, engage students effectively, and consequently improve students' performance (Webster et al., 2015). This problem is significant because it directly influences the quality of education students receive in physical education classes. For example, low teacher efficacy may lead to less engaging teaching practices, decreasing student motivation and participation and ultimately affecting student learning and well-being.

Addressing this problem is crucial as it affects individual students' educational experiences and has broader implications for promoting lifelong physical fitness and well-being. By convincing stakeholders of the importance of addressing these issues, we can advocate for targeted interventions and professional development programs that empower physical education teachers to enhance their efficacy, improve classroom management skills, engage students more effectively, and ultimately elevate the overall quality of physical education instruction.

While the independent relationships between teacher efficacy, classroom management, and student engagement in PE have been explored, a limited body of research has investigated how these factors interact and influence students' academic performance. Understanding these interconnected dynamics is crucial for developing effective professional development programs for physical education teachers and, ultimately, improving student outcomes.

This study aimed to address this gap in knowledge by examining the relationships between teacher efficacy, classroom management, student engagement, and academic performance in physical education. The findings contributed to a more comprehensive understanding of the factors influencing successful physical education teaching and inform strategies to enhance teacher effectiveness.

1.1. Research Questions

This study examined teacher efficacy, classroom management, students' engagement and performance in physical education in Valencia City, Bukidnon, Philippines. Specifically, it sought to answer the following:

1.1.1. What is the physical education teachers' efficacy level in terms of:

- Content Knowledge;
- Scientific Knowledge;
- Accommodating Skills;
- Instructional Skills;
- Assessment Skills and;
- Technology Integration Skills?

1.1.2. What is the level of physical education teachers' classroom management skills in terms of:

- Imposing Discipline;
- Promoting Interaction;
- Teaching Strategies and;
- Teaching Skills?

1.1.3. What is the students' level of engagement in physical education?
1.1.4. What is the academic performance level of the students in physical education subjects?
1.1.5. Is there a significant relationship among teacher efficacy, classroom management, student engagement, and academic performance in physical education?
1.1.6. Which of the variable, singly or in combination best predicts student's academic performance in physical education?

2. Methodology

This study was conducted at Valencia City High School in Bukidnon, Philippines, a school offering junior and senior high school academic tracks with over 350 students. The research employed descriptive correlational and causal-comparative designs using questionnaires to explore these variables and their impact on teacher performance in physical education.

The study involved 184 students selected through stratified random sampling to ensure representation across grade levels. Data were gathered using three established survey instruments: the Physical Education Teaching Efficacy Scale, the Classroom Management Strategies Assessment Questionnaire, and the Student Engagement in Physical Education Assessment Questionnaire. These tools measured various dimensions such as content knowledge, classroom management strategies, and cognitive, psychomotor, and affective engagement, all scored on a 5-point Likert scale. Academic performance data in physical education were also collected through official school records.

Ethical research protocols were strictly followed, including approvals from relevant educational authorities and informed consent from respondents. The instruments were validated by experts and tested for reliability through a pilot study, yielding high Cronbach's alpha values (0.886, 0.949, and 0.931 respectively), indicating strong reliability.

To analyze and interpret the data, descriptive statistics, including mean and standard deviation, will be used for problems 1 through 4. Problem 5 will be addressed using the Pearson R moment correlation technique to determine the significant relationships among teachers' self-efficacy, classroom management strategies, student engagement, and students' academic performance in physical education. Finally, multiple linear regression will be employed for problem 6 to identify which variables, individually or combined, best predict students' academic performance in physical education. The Statistical Package for the Social Sciences (SPSS) software will be used to carry out all statistical treatments.

3. Results and discussion

The relationship between academic achievement, classroom management, student engagement, and teacher efficacy are critical in today's changing educational environment, especially when it comes to physical education. This study explored the relationship between successful classroom management techniques and higher levels of student involvement and teachers' beliefs in their capacity to affect student achievement. Comprehending these dynamics improves teaching methods and creates an atmosphere in which students can grow academically, socially, and physically. This chapter examine and evaluate data gathered from the students to give a thorough rundown of these crucial elements that influence effective physical education programs.

3.1. Problem 1 - What is the physical education teachers' efficacy level in terms of:

- Content Knowledge;
- Scientific Knowledge;
- Accommodating Skills;
- Instructional Skills;
- Assessment Skills and;
- Technology Integration Skills?

Table 1 Mean Scores for Physical education teachers' efficacy

Sub-variables	**Mean**	**SD**	**Description**	**Interpretation**
Content Knowledge	4.03	0.96	Agree	Moderate Level of Efficacy
Scientific Knowledge	4.10	0.94	Agree	Moderate Level of Efficacy
Accommodating Skills	4.18	0.88	Agree	Moderate Level of Efficacy
Instructional Skills	4.22	0.88	Agree	Moderate Level of Efficacy
Assessment Skills and	4.20	0.79	Agree	Moderate Level of Efficacy
Technology Integration Skills	4.20	0.83	Agree	Moderate Level of Efficacy
Overall Mean	4.16	0.88	Agree	Moderate Level of Efficacy

Legend

Scale	Interval	Description	Qualitative Interpretation
5	4.51- 5.00	Strongly Agree	Very High Level of Efficacy
4	3.51- 4.50	Agree	High Level of Efficacy
3	2.51- 3.50	Undecided	Moderate Level of Efficacy
2	1.51- 2.50	Disagree	Low Level of Efficacy
1	1.00-1.50	Strongly Disagree	Very Low of Efficacy

Table 1 provides a comprehensive summary of the mean scores reflecting physical education teachers' efficacy across various skill areas. The data reveals that Instructional Skills achieved the highest mean score of M=4.22 (SD=0.88), indicating a strong confidence among teachers in their instructional capabilities. Following closely are Assessment Skills and Technology Integration Skills, both with a mean score of M=4.20 (SD=0.83), demonstrating that educators feel equally proficient in evaluating student performance and integrating technology into their teaching practices.

Next, Accommodating Skills garnered a mean score of M=4.18 (SD=0.88), reflecting teachers' effectiveness in adapting their instruction to meet diverse student needs. Scientific Knowledge received a mean score of M=4.10 (SD=0.94), suggesting that while teachers possess a solid foundation in scientific principles related to physical education, there may be room for enhancement in this area.

Finally, Content Knowledge recorded the lowest mean score of M=4.03 (SD=0.96), indicating that this may be an area where teachers feel less confident or require further development. The overall mean score of M=4.16 (SD=0.88) is categorized as "agree," reflecting a moderate level of efficacy among physical education teachers across all skill domains. The standard deviation of SD=0.88 suggests a degree of variability in the responses, indicating that while many teachers exhibit confidence in their skills, there are notable differences in individual perceptions of efficacy across the various domains assessed. This nuanced understanding highlights the need for targeted professional development initiatives to bolster areas where confidence may be lacking, ultimately enhancing the overall effectiveness of physical education instruction.

The analysis and interpretation align well with existing literature regarding the efficacy of physical education instructors, particularly in their instructional and assessment capabilities. The high mean score of M=4.22 for Instructional Skills is supported by McKenzie et al. (2018), who assert that effective teaching methods significantly enhance both teacher confidence and student engagement. This correlation underscores the importance of strong instructional practices in fostering a positive learning environment.

Furthermore, the proficiency in Assessment Skills, reflected in the mean score of M=4.20, resonates with findings from Doolittle et al. (2020), which indicate that higher levels of self-efficacy are associated with effective assessment practices. This suggests that physical education teachers who feel competent in assessing student performance are likely to experience increased self-confidence, further enhancing their teaching effectiveness.

Additionally, the mean score of M=4.20 for Technology Integration Skills aligns with the observations made by Ribble and Bailey (2019), who note that educators who effectively integrate technology into their teaching tend to exhibit greater confidence in their overall teaching abilities. This finding highlights the critical role that technological proficiency plays in enhancing teachers' self-efficacy and effectiveness within physical education contexts.

Collectively, these studies emphasize the significance of instructional, assessment, and technology integration skills in elevating overall teacher efficacy in physical education. The results suggest that targeted professional development initiatives focusing on these competencies could further empower physical education teachers, ultimately leading to improved student outcomes and engagement (Alarcon & Monterola, 2024).

3.2. Problem 2 - What is the level of physical education teachers' classroom management skills in terms of:

- Imposing Discipline;
- Promoting Interaction;
- Teaching Strategies and;
- Teaching Skills

Table 2 presents the Summary of Mean Scores for the Level of physical education teachers' classroom management skills. As shown in the table, respondents obtained the highest mean score of M=4.33, SD=0.722 for teaching skills followed by teaching strategies with a mean score of M=4.25, SD=0.86, promoting interaction with mean score of M=4.20, SD=0.819, and last is imposing discipline with a mean score of M=4.12, SD=0.897. The overall mean score is M=4.23, SD=0.825 described as agree and interpreted that the teachers' classroom management skills are moderately observed. Meanwhile, the overall mean of SD=0.825 implied that the data are more scattered around the mean.

Table 2 Mean Scores for the Level of Physical Education Teachers' Classroom Management Skills

Indicators	**Mean**	**SD**	**Description**	**Interpretation**
Imposing Discipline	4.12	0.897	Agree	Moderately Observed
Promoting Interaction	4.20	0.819	Agree	Moderately Observed
Teaching Strategies and	4.25	0.862	Agree	Moderately Observed
Teaching Skills	4.33	0.722	Agree	Moderately Observed
Overall Mean	4.23	0.825	Agree	Moderately Observed

Legend

Scale	Range	Description	Interpretation
5	4.51-5.00	Strongly Agree	Always observed
4	3.51-4.50	Agree	Moderately Observed
3	2.51-3.50	Undecided	Fairly Observed
2	1.51-2.50	Disagree	Seldom Observed
1	1.00-1.50	Strongly Disagree	Not Observed

Physical education teachers possess a modest level of classroom management skills, as shown by recent studies. While Martin and Sass (2018) and Alarcon et al. (2024). underline the significance of varied teaching tactics in sustaining student engagement, Emmer and Evertson (2016) emphasize that good classroom management is based on strong teaching skills. Effective discipline techniques are essential for a healthy learning environment, according to Simonsen et al. (2020) and Latham and Vogt (2019), who both suggest that encouraging interaction improves classroom dynamics. Furthermore, Marzano et al. (2017) emphasize how important comprehensive classroom management techniques are to raising student achievement. All of these findings point to the possibility that physical education teachers could be more effective in the classroom even though they have just average classroom management abilities.

3.3. Problem 3 - What is the respondents' level of engagement in physical education?

Table 3 presents the respondents' level of engagement in physical education. As shown in the table, respondents obtained the highest mean score of M=4.33, SD=0.667 for item number 10 "It serve as a means of social communication" followed by item number 15 "Be self-motivated and actively practice outside of class" with a mean of M=4.26, SD=0.719, and item number 11 "Attentively listen to the teachers' guidance" with a mean score of M=4.25, SD=0.642. On the other hand, respondents obtained the lowest mean score of M=3.97, SD=0.784 for item number 6 "I actively apply prior knowledge and skills flexibly to new exercises" followed by item number 7 "It enhances my motor skills" with a mean score of M=3.98, SD=0.836, and item number 21 "Material conditions are satisfactory" with a mean score of M=3.99, SD=0.760. The overall mean score is M=4.13, SD=0.77 described as agree and interpreted that the respondents' are moderately engaged in physical education. Meanwhile, the overall mean of SD=0.722 implied that the data are more scattered around the mean.

Table 3 Level of engagement in physical education

Indicators	Mean	SD	Description	Interpretation
I participate in answering teacher's questions, provide additional answers, and exchange opinions with classmates	4.17	0.684	Agree	Moderately Engaged
I memorize the movements and perform them effectively	4.14	0.678	Agree	Moderately Engaged
I think critically and ask for detailed explanations of unclear issues (exercises, movements)	4.00	0.897	Agree	Moderately Engaged
I engage in associative thinking, compare and contrast the issues found in the lesson	4.01	0.806	Agree	Moderately Engaged
I actively apply prior knowledge and skills flexibly to new exercises	3.97	0.784	Agree	Moderately Engaged
It enhances my motor skills	3.98	0.836	Agree	Moderately Engaged
I am encourage to develop regular physical exercise habits	4.06	0.813	Agree	Moderately Engaged
I am guided toward healthy activities and keep them away from social vices	4.11	0.752	Agree	Moderately Engaged
It serve as a means of social communication	4.33	0.667	Agree	Moderately Engaged
Attentively listen to the teachers' guidance	4.25	0.642	Agree	Moderately Engaged
Demonstrate determination in handling challenges and completing assigned tasks and exercises	4.01	0.809	Agree	Moderately Engaged
Grasp the lesson, have good retention, and effectively perform the taught exercises and movements	4.16	0.718	Agree	Moderately Engaged
Be self-motivated and actively practice outside of class	4.26	0.719	Agree	Moderately Engaged
Attend classes regularly	4.23	0.717	Agree	Moderately Engaged
Take the exams seriously	4.21	0.709	Agree	Moderately Engaged
The organization of the event is satisfactory	4.14	0.650	Agree	Moderately Engaged
The schedule and the pace of the lessons are satisfactory	4.13	0.772	Agree	Moderately Engaged
The hourly volume allocated to the lessons is suitable	4.02	0.856	Agree	Moderately Engaged
Material conditions are satisfactory	3.99	0.760	Agree	Moderately Engaged
Education allows sufficient participation, sharing ideas and knowledge	4.19	1.57	Agree	Moderately Engaged
The method of evaluating knowledge is appropriate	4.17	0.761	Agree	Moderately Engaged

The assessment is correct and fair	4.17	0.739	Agree	Moderately Engaged
The contributions of the lessons are important for the professional project	4.22	0.671	Agree	Moderately Engaged
The amount of work required is balanced	4.20	0.666	Agree	Moderately Engaged
The educational process is adapted to the level of knowledge and type training	4.17	0.754	Agree	Moderately Engaged
The teaching content is adapted to previous knowledge, to the level of knowledge	4.16	0.670	Agree	Moderately Engaged
Over-all Mean	4.13	0.77	Agree	Moderately Engaged

Legend

Scale	Range	Description	Interpretation
5	4.51-5.00	Strongly Agree	Highly Engaged
4	3.51-4.50	Agree	Moderately Engaged
3	2.51-3.50	Undecided	Fairly Engaged
2	1.51-2.50	Disagree	Seldom Engaged
1	1.00-1.50	Strongly Disagree	Not Engaged

Numerous recent studies corroborate the conclusions about physical education engagement. Smith et al. (2018) stress the value of social contact and contend that peer-communication-encouraging activities boost participation. According to Johnson and Lee (2020), encouraging intrinsic motivation is crucial since it has a substantial impact on students' levels of physical activity outside of the classroom. Garcia et al. (2021) discovered that paying close attention to teachers increases student engagement, while Martinez and Chen (2019) talk about the difficulties students have when applying their existing knowledge flexibly in new circumstances, suggesting that instructional tactics need to be improved. Finally, Thompson et al. (2022) show that although physical education can improve motor abilities, many students report feeling less confident. This suggests that there is a discrepancy between expectations and experiences that has to be addressed in the construction of curricula.

3.4. Problem 4 - What is the academic performance level of the students in physical education subjects?

Table 4 Academic Performance Level of the Students in Physical Education Subjects

Category	Frequency	Percent	Mean	SD	Interpretation
75-79	1	0.6	90.90	4.35	Outstanding
80-84	15	8.4			
85-89	45	24.8			
90-above	120	66.2			
Total	181	100.0			

Legend

Range	Interpretation
90-Above	Outstanding
85-89	Very Satisfactory
80-84	Satisfactor
75-79	Fairly Satisfactory
74 and below	Did not Meet Expectation

Table 4 depicts the Academic performance level of the students in physical education subjects. As shown in the table, 66.2% have an academic performance 90 and above, 24.8% are under 85 to 89, 8.4% are under 80 to 84, and 0.6% are under 75 to 79. The overall mean score is M=90.90, SD=4.35 interpreted that the respondents' have an outstanding performance in physical education. Meanwhile, the overall mean of SD=4.35 implied that the data are very much scattered around the mean.

Recent studies showing the beneficial effects of physical activity on overall academic attainment corroborate the excellent academic performance in physical education as shown by the data. Regular physical education attendance has been linked to improved cognitive function (Chen et al., 2019), and higher levels of student engagement have been linked to improved academic performance (Wang & Liu, 2021). Additionally, a meta-analysis shows a substantial correlation between levels of physical activity and academic achievement, and good physical education instruction has a major impact on student success (O'Sullivan & Tsangaridou, 2018). (Donnelly et al., 2016). Additionally, the socioemotional advantages of physical education boost academic success by lowering anxiety and enhancing self-esteem (McMahon et al., 2020).

3.5. Problem 5 - Is there a significant relationship between teacher efficacy, classroom management, student engagement, and academic performance in physical education?

Table 5 Results of Pearson R Correlation Analysis for the Significant Relationship Between Teacher Efficacy, Classroom Management, Student Engagement, And Academic Performance in Physical Education

Variables	N	R	Effect Size	P	Interpretation
Content Knowledge	181	0.084	Small	0.202	Not Significant
Scientific Knowledge	181	0.089	Small	0.236	Not Significant
Accommodating Skills	181	0.054	Small	0.471	Not Significant
Instructional Skills	181	0.053	Small	0.477	Not Significant
Assessment Skills	181	0.011	Small	0.930	Not Significant
Technology Integration Skills	181	0.088	Small	0.240	Not Significant
Teachers' Efficacy	181	**0.068**	Small	**0.364**	Not Significant
Imposing Discipline	181	0.139	Small	0.062	Not Significant
Promoting Interaction	181	0.053	Small	0.475	Not Significant
Teaching Strategies	181	0.099	Small	0.185	Not Significant
Teaching Skills	181	0.176	Small	0.018	Significant
Classroom Management Skills	181	**0.148**	Small	**0.046**	Significant
Engagement	181	0.060	Small	0.422	Not Significant

Legend

Correlation Coefficient Range	Effect Size/Strength of Relationship (Cohen, 1988)
.50 and above	Strong/Large Correlation
.30 to .49	Moderate Correlation
.10 to .29	Weak/Small Correlation

Table 15 presents the results of Pearson r correlation analysis for the significant relationship between teacher efficacy, classroom management, student engagement, and academic performance in physical education. As shown in the table, the variables content knowledge (p>.05), scientific knowledge (p>.05), accommodating skills (p>.05), instructional skills (P>.05), assessment skills (p>.05), technology integration skills (p>.05), teachers' efficacy (p>.05), imposing discipline (p>.05), promoting interaction (p>.05), teaching strategies (p>.05), and engagement (p>.05) have no significant relationship on students' performance in physical education subjects. This lack of significant correlation suggests that these variables may not substantially influence student outcomes in this context.

Meanwhile, the variables teaching skills (p<.05, r=0.176), and classroom management skills (p<.05, r=0.148) have a small positive significant relationship on students' PE performance. This means that if teaching skills and classroom management will improve, students' PE performance may also improve though the possibility is small.

These results underscore the critical role that teaching skills and classroom management play in influencing student engagement and academic success in physical education settings. The implication is clear, while many factors contribute to teaching efficacy, focusing on refining teaching skills and enhancing classroom management strategies could yield meaningful improvements in student performance. This aligns with existing literature that emphasizes the importance

of effective classroom management as a foundation for successful teaching and learning outcomes in physical education environments.

The results of the Pearson R correlation analysis, as presented in Table 15, indicate a slight positive correlation between teaching skills and classroom management skills with students' performance in physical education. However, the analysis reveals no significant relationships among many other variables, including teacher efficacy and various skills. This finding is consistent with existing research that emphasizes the importance of effective instruction and classroom management on student outcomes. For instance, Kunter et al. (2018) highlight that high-quality teaching methods are crucial for enhancing student performance, which aligns with the observed positive correlation of teaching skills in this study.

Moreover, Emmer and Evertson (2016) assert that effective classroom management is essential for fostering a conducive learning environment, reinforcing the significance of the significant correlations found for Teaching Skills ($p < .05$, $r = 0.176$) and Classroom Management Skills ($p < .05$, $r = 0.148$). These results suggest that improvements in these areas could lead to better student performance in physical education, albeit the effect size is small.

Additionally, Fredricks et al. (2019) propose that increasing teacher efficacy may have an indirect positive impact on student performance. While the current study did not find a direct significant relationship between teachers' efficacy and student outcomes, this notion suggests that enhancing teacher confidence could still play a role in improving educational results over time. Tschannen-Moran and Woolfolk Hoy (2019) further contend that student engagement is critical for academic achievement, indicating that fostering a supportive classroom environment through effective management strategies can enhance overall student involvement.

Furthermore, Li et al. (2020) discovered that specific teaching strategies positively influence students' participation in physical education. This aligns with the current findings that underscore the importance of teaching skills and classroom management as key factors affecting students' academic performance.

3.6. Problem 6 - Which of the variable, singly or in combination best predicts students' academic performance in physical education?

Table 6 Results of Multiple Regression Analysis for the Variables That Singly or In Combination Best Significantly Predicts Students' Performance in Physical Education

Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**T**	**Sig.**	**Interpretation**
		B	**Std. Error**	**Beta**			
1	(Constant)	95.497	5.484		17.413	0.000	Significant
	Content Knowledge	0.458	0.625	0.068	0.732	0.465	Not Significant
	Scientific Knowledge	0.678	0.676	0.100	1.003	0.317	Not Significant
	Accommodating Skills	0.429	0.789	0.059	0.544	0.587	Not Significant
	Instructional Skills	-0.019	0.830	-0.002	-0.023	0.982	Not Significant
	Assessment Skills	3.072	0.882	0.334	-3.484	0.001	Significant
	Technology Integration Skills	1.754	0.755	0.212	2.325	0.021	Significant
	Imposing Discipline	-1.285	0.719	-0.167	-1.788	0.076	Not Significant
	Promoting Interaction	1.369	1.017	0.139	1.347	0.180	Not Significant
	Teaching Strategies and	-0.311	0.999	-0.031	-0.311	0.756	Not Significant
	Teaching Skills	2.052	0.840	0.229	-2.441	0.016	Significant
	Classroom Management Skills	1.050	0.839	0.094	1.252	0.212	Not Significant

$R=.363$ $R^2=.132$ $F=2.32$ $P=..011$

Table 6 presents the Results of Multiple Regression Analysis for the Variables that singly or in Combination best significantly predicts students' performance in Physical education. As depicted in the table, the r value is 0.363 signifying a weak positive relationship between respondents' PE performance and the independent variables used. The R2 value of 0.132 implies that the significant variables namely assessment skills ($p<.05$), technology integration skills ($p<.05$), and teaching skills ($p<.05$) explained 13.2 % of the variability of respondents' PE performance. The probability value of $p=0.011$ of $F=2.32$ however indicates a statistically significant relationship between the respondents' PE performance and the independent variables used. Meanwhile, the variable that significantly best predicted or influenced respondents' PE performance is assessment skills ($p<.05$, Beta=0.334) followed by teaching skills ($p<.05$, Beta=0.229), and technology integration skills ($p<.05$, Beta=0.212) while the rest of the variables statistically failed to predict or influence respondents' PE performance.

The regression equation implies that the respondents' PE performance was statistically significantly predicted or influenced by assessment skills, technology integration skills, and teaching skills. As to the significant effect size of the said predictor variables, for 1-point increase of assessment skills, the respondents' PE performance will have an increase of 0.307, 1-point increase of technology integration skills, the respondents' PE performance will have an increase of 1.75, and 1-point increase of teaching skills, the respondents' PE performance will have an increase of 2.05.

These findings highlight the critical role that these specific skills play in enhancing student outcomes in physical education. The significant positive relationships suggest that as teachers improve their assessment practices, integrate technology more effectively, and refine their teaching skills, they can create a more impactful learning environment that fosters better student engagement and academic performance.

The results of the multiple regression analysis show that, in line with recent research, students' success in physical education (PE) is significantly predicted by their abilities in assessment, technological integration, and instruction. Li et al. (2023) emphasized that technology integration improves student engagement and performance in physical education settings, while Kim et al. (2021) showed a substantial correlation between enhanced physical education outcomes and effective teaching approaches. Furthermore, Marottoli et al. (2024) concurred with the current study's conclusion about the predictive relevance of assessment skills in detecting student requirements and enhancing performance.

4. Conclusion

Based on the findings of the study, the following conclusions were drawn

The consistent responses and the moderately high mean scores across all sub-variables point to a positive perception of efficacy among the physical education teachers. This suggests that teachers feel well-prepared and confident in their ability to deliver effective instruction. However, while the results are encouraging, it is important to note that "moderately observed" implies there is still room for improvement.

The findings suggest that physical education teachers perceive themselves as effective classroom managers, demonstrating confidence in their ability to maintain discipline, foster interaction, and implement effective teaching strategies and skills. The moderately high means across all indicators indicate a strong foundation in classroom management. However, while the results are positive, the "moderately observed" interpretation suggests there is still potential for further development.

The findings suggest that respondents are moderately engaged in physical education, demonstrating a positive attitude and active participation in class activities. While the overall mean indicates a satisfactory level of engagement, further investigation into specific aspects of the curriculum or teaching methods could identify areas for improvement. For instance, exploring strategies to enhance engagement in activities with slightly lower means, like "I actively apply prior knowledge and skills flexibly to new exercises," could lead to even greater student involvement and enjoyment. Ultimately, maintaining a consistently high level of engagement in physical education is crucial for promoting lifelong physical activity and overall well-being.

The findings strongly suggest that students are performing at an outstanding level in physical education subjects. The high mean score and the large percentage of students achieving 90 or above indicate that the students are not only participating but also excelling in the subject. This could be attributed to various factors such as effective teaching strategies, engaging curriculum, or potentially a grading system that encourages high performance. Further investigation into the pedagogical approaches and assessment methods used in physical education could provide

valuable insights into the factors contributing to this high level of academic success. It's also important to consider the potential for ceiling effects, where the assessment may not adequately differentiate performance at the highest levels.

The study indicate that effective teaching skills and overall classroom management, but not teacher efficacy as a whole or engagement, have a statistically significant, though small, positive relationship with academic performance in physical education. This suggests that while teachers' perceived efficacy and student engagement are important, they might not directly translate into higher academic scores in this context. Instead, the practical application of teaching skills and the overall management of the classroom environment play a more direct role in influencing student performance.

The findings suggest that a teacher's assessment skills, technology integration skills, and teaching skills are significant predictors of student academic performance in physical education. This highlights the importance of effective assessment strategies, incorporating technology into instruction, and strong overall teaching skills in promoting student success in the subject. While the model explains a modest amount of variance, focusing on these areas may lead to improved student outcomes.

Recommendations

Based on the findings of the study, the following recommendations were drawn

Firstly, enhancing physical education teachers' efficacy in areas like content knowledge, scientific knowledge, accommodating skills, instructional skills, assessment skills, and technology integration skills is crucial. This can be achieved by implementing targeted professional development programs that focus on these areas. Such programs may provide opportunities for teachers to observe effective teaching practices, engage in collaborative learning, and foster a culture of collective efficacy. This approach not only bolsters teacher self-efficacy but also improves the overall learning environment for students.

Improving classroom management skills is another key area. Physical education teachers may engage in professional development focused on effective discipline strategies that promote a positive and respectful atmosphere. Regular feedback from students can help refine teaching approaches, creating a more dynamic and supportive learning environment that maximizes student success and enjoyment in physical education.

To boost student engagement in physical education, integrating more opportunities for skill application and motor skill development into the curriculum is recommended. Encouraging social interaction and self-motivation will likely increase student satisfaction and participation. Implementing a Comprehensive School Physical Activity Program (CSPAP) can further enhance engagement and academic performance by promoting physical activity throughout the day. Additionally, ongoing professional development for PE educators and inclusive practices can foster a supportive environment.

Enhancing academic performance in physical education requires targeted professional development programs focused on improving teaching and classroom management skills. Workshops and training sessions may provide innovative strategies to promote student engagement and effective learning environments. Regular evaluations and feedback mechanisms are essential for continuous improvement. Encouraging collaboration among teachers to share best practices can also strengthen these skills, ultimately benefiting student outcomes.

Lastly, understanding the relationship between teacher efficacy, classroom management, student engagement, and academic performance is vital. Research suggests that teacher self-efficacy positively influences student outcomes, and similar effects might be observed in physical education. Identifying which variables best predict student academic performance can help tailor interventions to maximize impact.

Compliance with ethical standards

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Disclosure of conflict of interest

The authors also declare the absence of any conflict of interest, the strict avoidance of plagiarism, impartiality in the interpretation of findings, and the exclusive use of the results for research purposes.

Statement of informed consent

The authors affirm their adherence to ethical research practices. This includes obtaining informed consent from all participants, ensuring their freedom to withdraw at any point, and guaranteeing anonymity. Furthermore, the well-being of the respondents was prioritized throughout the study.

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