

The Influence of Teacher's Attributes and Learning Interest on the Engagement of the Physical Education Students

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ABSTRACT

This study examined the influence of teachers' attributes and learning interest on the engagement of Physical Education students in selected higher education institutions in Davao de Oro, Philippines. The investigation was grounded in Richard Ryan and Edward Deci's Self-Determination Theory and the Interest-Driven Creator Theory of Ching Sing Chai and colleagues. A quantitative non-experimental descriptive-correlational design was employed. Data were collected from 357 college students enrolled in PATHFIT 2 using adopted and validated survey instruments. Statistical tools included mean, Pearson product-moment correlation, and multiple regression analysis. Results revealed that teachers' attributes ($M = 4.59$), learning interest ($M = 4.28$), and student engagement ($M = 4.39$) were all rated very high. Significant positive relationships were found between teachers' attributes and student engagement ($r = 0.343$, $p < .001$) and between learning interest and student engagement ($r = 0.664$, $p < .001$). Learning interest demonstrated the stronger association with engagement. Regression analysis further showed that teachers' attributes and learning interest jointly explained 52.4% of the variance in student engagement ($R^2 = 0.524$, $p < .001$). Among all domains, Stored Attainment Value and Knowledge-Seeking Attention emerged as the strongest predictor, indicating that students who highly value academic success and actively seek knowledge are more likely to demonstrate greater behavioral, cognitive, emotional, and agentic engagement. The findings underscore the importance of nurturing meaningful learning interest and sustaining teachers' positive professional and humanistic qualities to maximize student engagement in Physical Education.

Keywords: Teachers' Attributes, Learners' Interest, Student Engagement, Physical Education, Agentic Engagement, Correlational Research, Philippines

INTRODUCTION

Educators were not only responsible for broadcasting the content of a subject matter but for preparing young generation to be globally competent individuals. The educational system had been compelled to adapt to the new trends of teaching and to equip teachers that could help the schools, teachers as well as students to acquire globally competent education. Thus, it was imperative to investigate the impact of teachers' attributes and learning interest on the engagement of physical education students. The interplay between teachers' attributes and students' interests was vital in fostering an engaging learning atmosphere, which was necessary for improving outcomes in physical education (Wang, 2022; Strati et al., 2017).

Globally, many countries around the world faced serious problems on the impact of teachers' attributes to students. In addition, Research indicated that teacher support plays a significant role in enhancing student engagement, which was essential for academic success and overall development (Huang & Wang, 2023) Pan et al., 2017). And this study confirms that the teacher support substantially influences the students' academic outcomes and engagement, which highlights the critical role in the development of the students and their academic success.

In physical education, where student engagement is closely associated with physical activity levels and motivation, teachers attribute specifically their ability to provide a student and foster positive relationships to the students—play a vital role in enhancing the learning of the students and their participation. This study confirms that teacher support significantly predicts the active involvement of the students and their engagement in physical

education, as well as their determination to participate in classroom physical activities (Su & Liu, 2025; Rozy et al., 2026). For instance, Huang and Wang highlighted the mediating role of student engagement in connecting teacher support to academic achievement, emphasizing that students relied heavily on teacher support to maintain engagement, especially in challenging learning environments (Huang & Wang, 2023).

Along with this, one of the main conclusions of a study in Columbia, on students' experiences learning remotely was that students were reluctant to approach their professors or instructors, which led to issues with motivation and engagement. Other major issues included personal scheduling demands, faculty communication, and increasing levels of stress and anxiety among students and teachers, which indicate that teaching and learning in classrooms are hindered by inadequate preparation and support for educators.

This condition may lead to reduced teaching effectiveness, lower self-efficacy, and weakened intentions to remain in the profession. Recent studies confirm that teacher-related stressors—such as communication demands and workload—are significantly associated with increased stress levels, which in turn influence teachers' self-efficacy and overall classroom effectiveness (Yang et al., 2025).

In this study, a pertinent theory that elucidated the relationship between teachers' attributes and student engagement was Self-Determination Theory (SDT) by Ryan and Deci (1977). SDT posited that individuals had innate psychological needs—autonomy, competence, and relatedness—that, when satisfied, fostered intrinsic motivation and engagement. In educational settings, teachers who supported these needs could significantly enhance student engagement.

Recent research has examined the influence of teaching styles on students' engagement, curiosity, and exploratory learning behaviors, emphasizing that supportive and autonomy-enhancing instructional approaches significantly increase students' active involvement, interest, and willingness to explore learning tasks (Huang, L. & Wang, D., 2023; Su, W. & Liu, Q., 2025).

Their research found that an autonomy-supportive teaching style positively correlated with higher levels of student engagement and curiosity. This aligned with SDT, suggesting that when teachers provided autonomy supported, they fulfilled students' psychological needs, thereby promoting engagement. Additionally, the concept of teacher self-efficacy was relevant. Teachers with high self-efficacy—confidence in their teaching abilities—were more likely to implement innovative and engaging teaching practices.

Following this, presented in Figure 1 was the conceptual framework of the study. As the framework showed, the first independent variable was teacher's attributes. Teacher's attributes referred to the characteristics, attitude, or traits that the college instructors manifested when they were interacting with students, which also reflected their teaching styles, approaches, and habits. These were only limited to interactions relating to their academic endeavors. The attributes of teachers, particularly those related to fairness and empathy, played a significant role in fostering a positive learning environment and enhancing student motivation.

This finding is supported by recent research indicating that when teachers implement fair and supportive classroom practices—particularly in assessment, interaction, and management—students tend to develop more positive perceptions of their learning environment, which in turn enhances their engagement, motivation, and academic performance. A conducive and well-managed classroom environment has been shown to significantly influence students' participation and learning outcomes (Hanaysha et al., 2023). One significant aspect of teacher-student interaction was the emotional intelligence of both parties.

Research indicated that teachers with high emotional intelligence fostered better perceptions of the teaching profession among students, which enhanced students' potential to develop as future educators (Hutabarat & Phongsavath, 2023). This emotional connection not only enhances student engagement but also contributes to a positive learning atmosphere, which is essential for effective teaching.

Furthermore, harmonious teacher–student relationships have been shown to correlate with improved student competence and learning performance, indicating that the quality of these interactions is crucial for educational success (Liu, 2024).

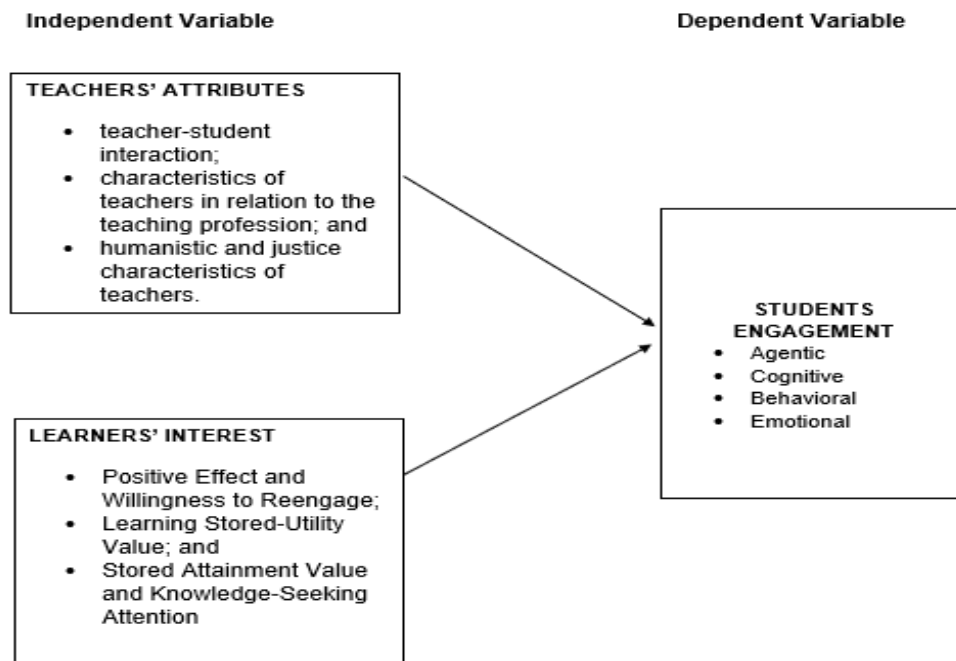


Figure 1. Conceptual Framework of the Study

Thus, the main objective of this study was to determine the influence of teachers' attributes and learning interest on the engagement of physical education college students. Furthermore, the study sought to describe the level of teachers' attributes from the perspective of college students in terms of teacher-student interaction, characteristics of teachers in relation to the teaching profession, and humanistic and justice characteristics of teachers. It also aimed to describe the level of learning interest among physical education students in terms of positive effect and willingness to reengage, learning stored-utility value, and stored-attainment value and knowledge-seeking attention. Additionally, the study sought to determine the level of engagement of physical education students in terms of agentic, behavioral, cognitive, and emotional domains. Another objective was to determine the significant relationship between teachers' attributes and learning interest and the engagement of physical education students, as well as to identify which domains of teachers' attributes and learning interest significantly influenced student engagement. To answer the fourth and fifth objectives, the study hypotheses were tested at a 0.05 level of significance: first, that there was no significant relationship between teachers' attributes and learning interest and the engagement of physical education students; and second, that no domain in teachers' attributes and learning interest significantly influenced the engagement of physical education students.

Moreover, the findings might also have assisted school officials in evaluating current procedures and regulations in the hopes of improving academic achievement among children enrolled in physical education. This served as the foundation for developing teacher and students' development programs. Lastly, the fact that this study evaluated the current methods used by Davao de Oro College instructors made it significant. The data may have served as the foundation for policy development and program planning for higher education institutions by the Commission on Higher Education (CHED), which advanced higher education.

MATERIALS AND METHODS

Research Respondents

The study's respondents were college students from the Davao de Oro Province who were enrolled in PATHFIT 2 (PE2) during the second semester of the school year 2024–2025. Students who were not enrolled in the said subject were excluded from the list of respondents. This study surveyed 357 respondents. The sample size of respondents was calculated from 3,270 PE students using the Raosoft Online Sample Size Calculator at a 95%

confidence level. A random sampling technique was employed to choose respondents from three institutions. The respondents were 186 students who were enrolled in PATHFIT 2 from Monkayo College of Arts, Sciences, and Technology, 54 students from Colegio De Nabunturan, and 117 students from Davao De Oro State College.

Moreover, the research was conducted in the first district of Davao de Oro Province. Davao de Oro, formerly known as Compostela Valley, was a province in the Philippines' Davao Region that covered the southeastern part of Mindanao. The province's land area was 4,560.09 square kilometers (1,760.66 square miles). The population as of the 2020 Census was 767,547. This represented 14.64% of the overall population of the Davao Region, 2.92% of the entire Mindanao Island group, and 0.70% of the Philippines' total population (DILG, 2021).

Furthermore, this study was specifically conducted at three colleges in Davao de Oro: Collegio De Nabunturan, Nabunturan, Davao de Oro; Davao De Oro State College, Montevista and Compostela-Main Branch; and Monkayo College of Arts, Sciences, and Technology (MonCAST), Monkayo, Davao de Oro. These three schools had a total of 3,270 P.E. students enrolled in PATHFIT 2 (PE2) during the second semester of the 2024–2025 school year.

Research Instrument

In this study, the researcher used an adopted and modified survey questionnaire. The modified questionnaire was subjected to validation and modification to ensure its relevance and clarity for the respondents. To gather the data for the first independent variable, which was Teacher Attributes, the researcher used the instrument from “Developing a Teacher Characteristics Scale” by Yaratan and Muezzin (2016). It was composed of three indicators: teacher-student interaction; characteristics of teachers in relation to the teaching profession; and humanistic and justice characteristics of teachers.

The second set of instruments focused on the learning interest of physical education students. The research instrument for this variable was adopted from “Students’ Individual Interest in Physical Education: Development and Validation of a Questionnaire” by Roure et al. (2021), with indicators namely Positive Effect and Willingness to Reengage; Learning Stored-Utility Value; and Stored Attainment Value and Knowledge-Seeking Attention. For each item, the college students rated their level of interest using a five-point Likert Scale anchored at (5) Very High, (4) High, (3) Neutral, (2) Low, and (1) Very Low.

The third instrument measured student engagement among Physical Education students and was adapted from the Student Engagement in Schools Questionnaire (SESQ) developed by Hart et al. (2011). This instrument consisted of several indicators including affective engagement, behavioral engagement, cognitive engagement, goal orientations, attributions, learning self-efficacy, and motivating instructional contexts. Each item was rated by respondents using the same five-point Likert scale from Strongly Agree to Strongly Disagree.

Prior to the conduct of the study, the validated quantitative survey instrument was pilot tested on 50 students of Assumption College of Nabunturan who were enrolled in PATHFIT 2. After the pilot testing of the instrument, it was analyzed to determine its reliability index. The result of the reliability index for the instrument was 0.86, which was described as good.

Design and Procedure

This study utilized non-experimental quantitative research, examining causal-effect correlations through regression analysis. A correlational research design analyzed correlations between two or more variables without the researcher altering or manipulating any of them. Moreover, correlational studies sought to determine whether there were differences in the features of a population based on whether or not its subjects were exposed to an event of interest in a naturalistic context.

However, correlational studies differed from comparative studies in which the evaluator did not have control over the allocation of subjects to comparison groups or the administration of interventions to specific groups. Instead, the researcher identifies a set of variables, including the desired outcome, and examines hypothesized relationships among them. The outcome is referred to as the dependent variable, while the variables tested for their influence are

known as independent variables (Andrade, 2021).

Moreover, the quantitative research design had various advantages, including the ability to generalize findings to larger populations, the possibility of statistical analysis and hypothesis testing, and the ability to identify patterns and correlations between variables. Quantitative data were numerical values that could be evaluated statistically. Data were collected by a survey, which measured factors and established correlations between them. In addition, the focus of the study was to determine the level of effect of teacher attributes and learning interest on the engagement of college students. Correlational approaches were frequently contrasted with group comparison approaches. A correlation can be described in terms of the strength and direction of the relationship between variables, the extent to which one variable predicts another, and the degree to which variables covary, reflecting a systematic observation of associations without manipulation (Schober et al., 2021).

Furthermore, the researcher considered the following steps when conducting this investigation. First, the researcher completed the outline defense, after which internal and external specialists validated the research tools. In addition, the researcher obtained approval from the UM Ethics Review Committee (UMERC) and conducted a pilot testing of the instrument to ensure reliability. Additionally, the research was authorized and certified by the Graduate School's Program Coordinator and the College School Administrator, respectively. Moreover, the researcher administered the survey to the respondents after orienting them on the intention of the study and providing instructions to guarantee that the responses were true and accurate. Finally, the results were tabulated, analyzed, and interpreted once they were completed.

Level of Teachers Attributes among College students

Indicators	$\bar{x}$	SD	Description
A. Teacher -student interaction	4.56	0.46	Very High
B. Characteristics of teachers in relation to the teaching profession	4.56	0.51	Very High
C. humanistic and justice characteristics of teachers.	4.66	0.44	Very High
Overall	4.59	0.41	Very High

The statistical tools that were used to analyze the data included the mean, Pearson-r, and multiple regression analysis. The mean was used to determine the level of teachers' attributes and learning interest among college students. Pearson-r was used to determine the significant relationship between teachers' attributes and learning interest and the engagement of physical education students. Multiple regression was used to assess the considerable influence of teachers' attributes and learning interest on the engagement of physical education students.

Ethical considerations were also carefully observed throughout the research process. Several ethical issues were addressed to ensure that the study was conducted responsibly and respectfully. These included obtaining the right to conduct the study, maintaining the confidentiality of the respondents' information, and ensuring their anonymity. The researcher ensured that all data collected were used solely for academic purposes and that the identities of the participants were always protected. These ethical practices were implemented to safeguard the rights and welfare of the respondents involved in the study.

RESULTS AND DISCUSSION

Level of Teachers' Attributes

Based on the results displayed in table 1, the overall level of teachers' attributes was rated Very High ($\bar{x} = 4.59$, $SD = 0.41$), this means that there is strong consistency in terms of perception of teachers' professional, interpersonal, and ethical qualities among respondents. The relatively low standard deviation emphasizes further uniformity in the answers, indicating consensus about the excellent qualities of the teachers. Effective teaching is multifaceted, including instructional competence, interpersonal interaction, and ethical orientation, all of which together contribute to favorable student outcomes and classroom environments, according to recent educational research (Zhang et al., 2023).

Moreover, teacher–student interaction obtained a Very High mean score ($\bar{x} = 4.56$, $SD = 0.46$), reflecting that there is a strong engagement, communication, and relational support between teachers and students. Such interaction is widely recognized as a critical component of effective teaching, as it fosters students' academic engagement, emotional well-being, and sense of belonging in the learning environment. Recent empirical evidence demonstrates that meaningful teacher–student interaction significantly enhances students' learning engagement and classroom well-being, particularly in both traditional and technology-mediated instructional contexts (Zhang et al., 2023). Moreover, teachers' interpersonal behaviors, including responsiveness, approachability, and emotional support, have been shown to strengthen student motivation and participation, reinforcing the importance of interaction as a core instructional attribute (Kyriakides et al., 2023).

Additionally, respondents firmly believed that instructors demonstrated professionalism, instructional ability, and devotion to their jobs, as seen by the Very High ranking ($\bar{x} = 4.56$, $SD = 0.51$) for the characteristics of teachers in respect to the teaching profession. It is often known that professional traits like excitement, readiness, clarity of instruction, and student-centered practices are crucial indicators of academic success and student motivation. According to recent research, instructors' professional characteristics have a substantial impact on students' learning outcomes, interest and self-efficacy in a variety of subject areas and educational levels (Scheifele et al., 2025). This result emphasizes how important professional teacher qualities are to maintain efficient teaching and learning procedures. Overall, the findings suggest that teachers in the studied context demonstrate exceptionally high levels of interactional, professional, and humanistic attributes. This comprehensive profile aligns with current educational literature, which posits that high-quality teaching extends beyond instructional delivery to include strong relational skills and ethical responsibility toward learners. Such integrated teacher attributes are empirically linked to improved student engagement, well-being, and academic success, highlighting their importance in contemporary educational practice (Zhang et al., 2023).

Level of Learning Interest

Based on the result in table 2, it indicates that the overall level of learning interest among the respondents is rated Very High ($\bar{x} = 4.28$, $SD = 0.60$); it means that students showed a strong and continuous interest in learning activities. The comparatively low standard deviation indicates that respondents' perceptions of their interest in learning are largely similar. It is often acknowledged that learning interest is a crucial motivational construct that affects students' engagement, perseverance, and academic success, especially when they believe that learning tasks are significant and worthwhile (Hidi & Renninger, 2023)

Furthermore, the indicator stored attainment value and knowledge-seeking attention registered with very high mean score among the dimensions ($\bar{x} = 4.48$, $SD = 0.58$), meaning that the students placed strong importance on academic success and demonstrated focused attention toward acquiring knowledge. Attainment value reflects the personal importance of doing well in a task, while knowledge-seeking attention reflects learners' cognitive investment in understanding content. Recent empirical findings suggest that when students attach high attainment value to learning, they exhibit stronger self-regulation, concentration, and intellectual curiosity, which in turn promote deeper learning and academic success (Gaspard et al., 2024).

Table 2: Level of Learning Interest among College Students

Indicators	$\bar{x}$	SD	Description
A. Positive Effect and Willingness to Reengage;	4.16	0.77	High
B. Learning Stored-Utility Value	4.21	0.70	Very High
C. Stored Attainment Value and Knowledge-Seeking Attention	4.48	0.58	Very High
Overall	4.28	0.60	Very High

In line with this, the very high level of learning interest among college students may reflect the presence of supportive instructional environments that encourage curiosity, exploration, and meaningful engagement with learning tasks. When students experience learning activities that stimulate their curiosity and align with their personal goals, their interest tends to develop progressively and becomes more stable over time. The interest development framework explains that learning interest evolves through interactions between the learner and the learning environment, where supportive teaching practices and meaningful tasks trigger and sustain engagement. Recent research emphasized that interest is a dynamic motivational variable that enhances students' attention, persistence, and deeper cognitive processing during learning activities (Renninger, Barton, & Bautista, 2026). This perspective supports the present findings that students demonstrate a consistently high level of interest in learning, suggesting that instructional conditions may effectively nurture students' motivation and engagement.

Overall, the findings suggest that students possess a robust level of learning interest characterized by positive emotional engagement, perceived usefulness of learning, and strong value placed on academic achievement. These results align with contemporary motivational theories, which emphasize that learning interest is sustained when affective, cognitive, and value-based components interact synergistically. Such a high level of learning interest is empirically linked to improved engagement, persistence, and academic performance, underscoring its importance in educational contexts (Wigfield et al., 2023).

Level of Students' Engagement

Table 3 presents the level of student engagement across four dimensions agentic, cognitive, behavioral, and emotional engagement. The results indicate that the overall level of engagement was rated Very High ($\bar{x} = 4.39$, $SD = 0.49$), it reveals that students generally demonstrated strong involvement in learning activities. The relatively low standard deviation indicates consistency in students' engagement experiences. Contemporary educational research emphasizes that student engagement is a multidimensional construct encompassing behavioral, cognitive, emotional, and agentic components, all of which are essential predictors of academic achievement and learning persistence (Reeve & Shin, 2023).

Table 3: Level of Engagement among College Students

Indicators	$\bar{x}$	SD	Description
A. Agentic	4.23	0.63	Very High
B. Cognitive	4.31	0.64	Very High
C. Behavioral	4.53	0.51	Very High
D. Emotional	4.51	0.58	Very High
Overall	4.39	0.49	Very High

In terms of behavioral engagement, the findings reveal a Very High level ($\bar{x} = 4.53$, $SD = 0.51$), it demonstrates that students consistently participated in learning activities, completed tasks, and adhered to classroom expectations. Behavioral engagement is often considered the most observable dimension of engagement and serves as a foundation for other forms of engagement. Contemporary research confirms that high behavioral engagement is strongly associated with improved academic performance and reduced disengagement, particularly in structured learning environments (Lei et al., 2023).

Similarly, emotional engagement was rated Very High ($\bar{x} = 4.51$, $SD = 0.58$), meaning, the students experienced positive emotions such as interest, enjoyment, and a sense of belonging during learning activities. Emotional engagement plays a crucial role in sustaining motivation and supporting students' willingness to persist in learning tasks. Recent studies highlight that positive emotional engagement enhances students' academic resilience and strengthens their connection to the learning process, thereby supporting overall engagement and achievement (Oga-Baldwin & Fryer, 2023).

Also, the results show that cognitive engagement was rated Very High ($\bar{x} = 4.31$, $SD = 0.64$), this means that students invested substantial mental effort in understanding learning materials, applying strategies, and engaging in higher-order thinking. Cognitive engagement is characterized by self-regulation, persistence, and the use of deep learning strategies, which are critical for meaningful learning. Recent empirical evidence indicates that students who demonstrate high cognitive engagement are more likely to achieve deeper conceptual understanding and long-term academic success (Fredricks et al., 2024).

Empirical studies further confirm that student engagement plays a crucial role in improving learning outcomes, as it reflects the extent to which students invest effort and actively participate in educational activities. When students are engaged across behavioral, cognitive, emotional, and agentic dimensions, they are more likely to achieve better academic performance and demonstrate deeper learning. This reinforces the idea that engagement serves as a key mechanism linking instructional practices and student success in higher education (Xu et al., 2023).

Overall, the findings suggest that students demonstrated high to very high levels of engagement across all dimensions, reflecting a learning environment that effectively supports active participation, cognitive investment, emotional involvement, and learner agency. These results align with contemporary engagement theories, which emphasize that holistic engagement is essential for fostering meaningful learning experiences and positive academic outcomes (Fredricks et al., 2024).

Significance on the relationship between Teachers Attributes, Learning Interest and Student Engagement

Table 4 shows the results of the correlation analysis examining the relationship between teachers' attributes and learning interest with student engagement. The findings reveal a statistically significant relationship between

teachers' attributes and engagement ($r = 0.343$, $p = 0.001$), leading to the rejection of the null hypothesis. The r -value indicates a moderate positive correlation, meaning, as teachers' attributes improve, student engagement also tends to increase. The coefficient of determination ($r^2 = 0.1176$) implies that approximately 11.76% of the variance in student engagement can be explained by teachers' attributes. This result supports existing research asserting that teacher qualities such as effective interaction, professionalism, and humanistic practices play a crucial role in fostering student engagement by creating supportive and motivating learning environments (Reeve & Shin, 2023).

Table 4: Significance on the relationship between Teachers attributes to Engagement and Learning interest to Engagement

Independent Variables	Dependent Variable	r-value	r-squared	P-value	Decision
<u>Teachers attributes</u>	DV	0.343 *	0.1176	0.001	Rejected H_0
Learning interest	Engagement	0.664 *	0.4409	0.001	Rejected H_0

$p < 0.05$

Similarly, the analysis shows a strong and statistically significant relationship between learning interest and engagement ($r = 0.664$, $p = 0.001$), it results in the rejection of the null hypothesis. The strength of this correlation indicates that learning interest is a substantial predictor of student engagement. The r^2 value of 0.4409 suggests that approximately 44.09% of the variance in engagement is attributable to students' learning interest. This finding aligns with contemporary motivational theories, which posit that students who experience enjoyment, perceive value in learning, and place importance on academic success are more likely to exhibit higher levels of behavioral, cognitive, emotional, and agentic engagement (Wigfield et al., 2023).

Overall, the results indicate that both teachers' attributes and learning interest are significant determinants of student engagement, with learning interest exerting a stronger predictive influence. These findings underscore the importance of fostering high-quality teaching practices alongside strategies that enhance students' interest in learning to promote holistic engagement. Such results are consistent with recent empirical literature emphasizing the interaction between instructional quality and motivational constructs in shaping student engagement outcomes (Fredricks et al., 2024).

Regression Analysis on the influence of Teachers Attributes to Student Engagement

Table 5 presents the results of the multiple regression analysis conducted to determine the influence of selected predictors on student engagement. The overall regression model was found to be statistically significant ($R = 0.344$, $R^2 = 0.118$, $F = 15.814$, $p = 0.001$), indicating that the set of independent variables collectively explained 11.8% of the variance in student engagement. This finding suggests that while the predictors included in the model contribute meaningfully to engagement, a substantial proportion of variance may still be attributed to other motivational, contextual, or instructional factors not included in the analysis. Contemporary research emphasizes that student engagement is influenced by a complex interaction of personal, instructional, and environmental variables, which often extend beyond teacher-related factors alone (Fredricks et al., 2024).

Table 5: Regression Analysis on the influence of the domains of Teachers Attributes to Engagement.

Independent Variable	Unstandardize d Coefficient		Standardize d Coefficient	t - value	p- value	Decision
	B	SE	B			
Constant	2.429	0.293				
A. Teachers' attributes	0.121	0.079	0.108	1.532	0.127	Do not Rejected H_0
B. Learning interest	0.127	0.076	0.126	1.672	0.095	Do not Rejected H_0
C. Engagement	0.181	0.084	0.156*	2.144	0.033	Rejected H_0
Dependent Variable: Engagement						
R = 0.344*		R ² = 0.118		F-ratio = 15.814		P-value= 0.001

Regarding individual predictors, teachers' attributes did not significantly predict student engagement ($B = 0.121$, $\beta = 0.108$, $t = 1.532$, $p = 0.127$), leading to the non-rejection of the null hypothesis. This result suggests that although teachers' attributes may be positively associated with engagement at the correlational level, their unique contribution to predicting engagement diminishes when other variables are controlled for in the regression model. Recent studies suggest that the influence of teachers' attributes on engagement is often indirect, operating through mediating variables such as learning interest, motivation, and perceived autonomy support rather than exerting a strong direct effect (Reeve & Shin, 2023).

Similarly, learning interest was not found to be a statistically significant predictor of engagement in the regression model ($B = 0.127$, $\beta = 0.126$, $t = 1.672$, $p = 0.095$), resulting in the non-rejection of the null hypothesis. Although learning interest is widely recognized as a strong motivational factor, its non-significant predictive effect in this model may indicate overlap with other engagement-related constructs or shared variance with other predictors. Prior research indicates that learning interest often interacts with contextual factors and instructional support, making its isolated predictive effect less pronounced in multivariate analyses (Hidi & Renninger, 2023).

In contrast, engagement-related domain C emerged as a significant predictor of student engagement ($B = 0.181$, $\beta = 0.156$, $t = 2.144$, $p = 0.033$), leading to the rejection of the null hypothesis. The significant standardized coefficient indicates that this domain made a unique and meaningful contribution to explaining student engagement when controlling for other variables in the model. This finding aligns with recent empirical studies demonstrating that specific engagement-related behaviors and experiences—such as active participation, emotional involvement, and cognitive investment—serve as direct and robust predictors of overall engagement outcomes (Lei et al., 2023).

Overall, the regression results suggest that while teachers' attributes and learning interest are important components of the learning process, their influence on engagement may be largely indirect or context dependent. The significant contribution of the engagement-related domain underscores the importance of fostering conditions that directly promote students' active involvement in learning activities. These findings are consistent with contemporary engagement frameworks, which emphasize that engagement is best predicted by immediate learning experiences and participatory behaviors rather than by distal instructional characteristics alone (Fredricks et al., 2024).

Regression Analysis on the Influence of the domains of Learning interest to Engagement

Table 6 presents the results of the multiple regression analysis examining the influence of selected predictors on student engagement, with engagement treated as the dependent variable. The overall regression model was found to be statistically significant ($R = 0.724$, $R^2 = 0.524$, $F = 129.557$, $p = 0.001$), this means, that the independent variables collectively explained 52.4% of the variance in student engagement. This relatively high explanatory power suggests that learning-related motivational and engagement domains play a substantial role in predicting students' engagement levels. Recent studies emphasize that engagement is strongly shaped by motivational resources and contextual support, particularly those linked to interest development and active participation (Skinner et al., 2023).

Table 6: Regression Analysis on the Influence of the domains of Learning interest to Engagement

Independent Variable	Unstandardize d Coefficient		Standardize d Coefficient	t - value	p- value	Decision
	B	SE	β			
Constant	1.524	0.149				
A. <u>Teachers</u> attributes	0.133	0.032	0.199*	4.157	0.001	Rejected H_0
B. Learning interest	0.048	0.024	0.088*	1.977	0.049	Rejected H_0
C. Engageme nt	0.474	0.042	0.534*	11.289	0.001	Rejected H_0
Dependent Variable: Engagement						
R = 0.724*		R ² = 0.524		F-ratio =129.557		P-value= 0.001

*P<0.05

The regression results show that teachers' attributes emerged as a significant predictor of engagement ($B = 0.133$, $\beta = 0.199$, $t = 4.157$, $p = 0.001$), leading to the rejection of the null hypothesis. This finding indicates that improvements in teachers' professional, interpersonal, and humanistic qualities significantly contribute to higher levels of student engagement when considered within a multivariate model. This result is consistent with contemporary research suggesting that autonomy-supportive, responsive, and well-prepared teachers create classroom environments that actively promote students' behavioral, emotional, and cognitive engagement (Reeve & Shin, 2023).

Similarly, learning interest was found to be a statistically significant predictor of engagement ($B = 0.048$, $\beta = 0.088$, $t = 1.977$, $p = 0.049$), resulting in the rejection of the null hypothesis. Although the standardized coefficient indicates a relatively smaller effect size compared to other predictors, the result confirms that students' perceived interest in learning contributes uniquely to engagement. Recent motivational research highlights that learning interest enhances students' willingness to invest effort, sustain attention, and persist in learning tasks, thereby reinforcing engagement across academic activities (Wigfield et al., 2023).

Among the predictors, engagement-related domain C demonstrated the strongest and most significant influence on student engagement ($B = 0.474$, $\beta = 0.534$, $t = 11.289$, $p = 0.001$). The large, standardized coefficient indicates that this domain accounts for a substantial portion of the explained variance in engagement. This finding aligns with

empirical evidence suggesting that proximal engagement-related behaviors—such as active participation, emotional involvement, and cognitive investment—serve as the most direct determinants of overall engagement outcomes (Lei et al., 2023).

Moreover, recent empirical studies reinforce the strong explanatory power of learning-related variables in predicting student engagement, as reflected in the high R^2 value of the present model. Research indicates that motivational constructs such as interest, self-efficacy, and perceived value significantly contribute to students' active involvement in learning activities. When students perceive learning tasks as meaningful and aligned with their personal interests, they are more likely to demonstrate persistence, effort, and deeper cognitive engagement. This supports the present finding that learning interest significantly predicts engagement, as it functions as a key motivational resource that drives students' willingness to participate and sustain attention in academic tasks (Geng et al., 2024).

Overall, the findings indicate that teachers' attributes, learning interest, and engagement-related domains jointly exert a strong influence on student engagement, with the model explaining more than half of the observed variance. These results reinforce contemporary engagement frameworks that emphasize the interaction between instructional quality and motivational factors in shaping students' active involvement in learning. The significant predictive roles of both external (teacher-related) and internal (interest-related) factors highlight the need for integrated instructional strategies that foster supportive teaching practices while simultaneously nurturing students' interest and active participation in learning (Fredricks et al., 2024).

CONCLUSION AND RECOMMENDATIONS

The findings of this study revealed that The study concluded that teachers' attributes, learning interest, and student engagement were all rated at very high levels, indicating that students perceived their teachers as highly professional, supportive, and fair, while also demonstrating strong interest and active participation in learning. Significant positive relationships were found between teachers' attributes, learning interest, and student engagement, with learning interest showing the strongest association. This suggests that students who value learning, enjoy academic tasks, and actively seek knowledge are more likely to be behaviorally, cognitively, emotionally, and agentic engaged. Regression analysis further revealed that both teachers' attributes and learning interest significantly influenced student engagement when considered within a comprehensive model, highlighting the combined role of external instructional support and internal motivational factors. Overall, the findings affirm that student engagement is best promoted when teachers demonstrate strong professional and humanistic qualities and when students possess high levels of interest and motivation toward learning. These results emphasize the need for educational strategies that enhance teacher effectiveness and foster meaningful learning experiences to sustain student engagement and improve educational outcomes.

Based on the results and conclusions of the study, several recommendations are made. Students are encouraged to participate in class activities to build interest in Physical Education, to set goals for their own fitness and to have a positive attitude towards learning. Physical Education teachers are encouraged to continually develop their professional skills, in particular using student-centered and inclusive teaching strategies which engage and excite students. School administrators should ensure that Physical Education is delivered through a robust program that is adequately facilitated and supported by appropriate instructional materials and professional development opportunities. Finally, future studies are invited to repeat this research with larger and more varied samples and with additional variables such as school climate, parental support, and technology integration to be investigated that may impact student engagement in PE.

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