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THE MEDIATING EFFECT OF TECHNOLOGY INTEGRATION ON THE RELATIONSHIP BETWEEN CREATIVE TEACHING BEHAVIOR OF TEACHERS AND STUDENT ENGAGEMENT IN ENGLISH

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Abstract:
This study investigated the mediating effect of technology integration on the relationship between creative teaching behavior and student engagement in English among 188 Junior High School English teachers in the Schools Division of Davao Oriental. Using a quantitative non-experimental descriptive-correlational design with mediation analysis, it examined the levels of creative teaching behavior, student engagement, and technology integration, as well as the relationships among these variables. The findings showed that teachers demonstrated a very high level of creative teaching behavior in terms of abstraction, inquisitiveness, motivation, and critical thinking. Student engagement in English was likewise high to very high across cognitive, affective, behavioral, and social dimensions. Teachers also exhibited a very high level of technology integration, reflected in positive attitudes, strong subjective norms, and high perceived behavioral control. Correlation analysis revealed significant positive relationships among creative teaching behavior, technology integration, and student engagement. Most importantly, mediation analysis confirmed that technology integration fully mediated the relationship between creative teaching behavior and student engagement. This suggests that technology integration is a key mechanism through which creative teaching practices enhance students' engagement in English learning.

Keywords: creative teaching behavior, student engagement, technology integration

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1. Introduction

Technology integration has been shown to enhance the effectiveness of teachers' creative teaching practices by providing meaningful and structured contexts that promote student engagement (Katz-Buonincontro *et al.*, 2020). Similarly, Zhou *et al.* (2025) emphasize that active pedagogies support cognitive, emotional, and social engagement, thereby amplifying the impact of creative instructional strategies. Despite these benefits, student disengagement remains a persistent issue, particularly in English language classrooms, where learners often demonstrate low motivation and limited participation (Mekki *et al.*, 2022). This is concerning, as disengaged students are more likely to experience poor academic performance (Cobb-Fossnes, 2020).

Globally, student disengagement is recognized as a significant educational challenge. Holquist *et al.* (2020) describe many learners as chronically disengaged, often exhibiting boredom, lack of effort, and inattentiveness. These students are more prone to behavioral problems and face an increased risk of dropping out. Such outcomes not only hinder academic achievement but also lead to long-term consequences, including reduced career opportunities and social marginalization. These concerns underscore the need for effective interventions, particularly those that incorporate creative and engaging teaching approaches.

In Indonesia, low engagement in English classes has been associated with teacher-centered instruction and the limited use of innovative teaching strategies (Turmudi, 2022; Rintaningrum, 2023). Contributing factors include insufficient training in creative pedagogy, limited access to technological resources, and low teacher confidence in integrating digital tools effectively (Hidayat *et al.*, 2024). Similarly, in the Philippines, reliance on traditional teaching methods and inadequate technology integration continue to hinder student engagement (Villanueva *et al.*, 2024). However, studies indicate that technology-mediated approaches, such as digital storytelling and online discussions, can significantly enhance student participation and motivation (Cantago *et al.*, 2024; Nacionales, 2023).

Creativity plays a crucial role in fostering engagement, as it enhances both learning and motivation (Li & Xue, 2023). Supporting this perspective, a study conducted in Davao City found a positive relationship between teachers' use of technology and students' engagement in English learning (Carcosia *et al.*, 2025). These findings suggest that integrating creative teaching practices with effective use of technology can lead to improved student outcomes.

Despite these insights, there is limited research examining how creative teaching behavior, technology integration, and student engagement interact within the local context, particularly in Davao Oriental. Most existing studies consider these variables independently, leaving a gap in understanding their combined effects. This study addresses this gap by employing path analysis to explore the direct and indirect relationships among these variables.

Addressing this issue is essential for improving student engagement, reducing dropout rates, and promoting better academic and long-term outcomes. Furthermore, it can provide valuable insights for teacher professional development and inform educational policy.

2. Statement of the Problem

This study examined the mediating effect of technology integration on the relationship between creative teaching behavior and student engagement in English in public secondary schools in the Division of Davao Oriental. Specifically, it sought to answer the following research questions:

1. What is the level of creative teaching behavior of public secondary teachers in terms of:
    1.1 abstraction;
    1.2 inquisitiveness;
    1.3 motivation; and
    1.4 critical thinking?
2. What is the level of student engagement in English class in terms of:
    2.1 cognitive engagement;
    2.2 affective engagement;
    2.3 behavioral engagement; and
    2.4 social engagement?
3. What is the level of technology integration of public secondary teachers?
4. Is there a significant relationship between
    4.1 creative teaching behavior and student engagement
    4.2 creative teaching behavior and technology integration; and
    4.3 technology integration and student engagement?
5. What is the mediating effect of technology integration on the relationship between creative teaching behavior and student engagement?

2.1 Objectives of the Study

The study determined the mediating effect of technology integration on the relationship between creative teaching behavior and student engagement in English. Specifically, the objectives were as follows:

1. Determine the level of creative teaching behavior in terms of the following:
    1.1 abstraction;
    1.2 inquisitiveness;
    1.3 motivation; and
    1.4 critical thinking.
2. Determine the level of student engagement in English in terms of:
    2.1 cognitive engagement;
    2.2 affective engagement;

2.3 behavioral engagement; and
2.4 social engagement.

3. Determine the level of technology integration of teachers.
4. Determine the significant relationship between:
   4.1 creative teaching behavior and student engagement;
   4.2 creative teaching behavior and technology integration; and
   4.3 technology integration and student engagement.
5. Determine the mediating effect of technology integration between creative teaching behavior and student engagement in English through;
   5.1 teachers' attitudes;
   5.2 perceived social pressures (subjective norms); and
   5.3 sense of control over the use of technology (perceived behavioral control).

2.2 Significance of the Study

This study examines how strengthening teachers' creative teaching behaviors enhances student engagement, with technology integration serving as a mediating factor. It provides insights that may guide policymakers, school leaders, teachers, students, and researchers in developing strategies that promote active learning.

2.2.1 School Heads

School heads may use the findings to improve technological infrastructure, strengthen partnerships with stakeholders, and support professional development programs focused on creative and technology-integrated teaching practices.

2.2.2 Teachers

Teachers may be encouraged to enhance their instructional approaches by incorporating innovative and digital strategies. Continuous professional development can help them remain responsive to students' needs while fostering higher levels of participation and motivation.

2.2.3 Students

Students may benefit from more engaging and interactive learning environments. Creative, technology-supported teaching approaches can enhance their motivation, confidence, and academic performance, while also developing essential skills such as communication, collaboration, and digital literacy.

2.2.4 Future Researchers

Future researchers may use this study as a reference for further investigations, as it offers a conceptual framework and empirical basis for examining related variables in different contexts.

2.3 Scope and Limitations

This study focused on Junior High School English teachers in Davao Oriental who have at least three years of teaching experience and who integrate technology into their instruction. It excluded other grade levels and relied on survey data from willing participants, with the analysis limited to selected variables.

2.4 Conceptual Framework

Figure 1 presents the conceptual framework of the study, focusing on the relationship between teachers' creative teaching behavior and student engagement in English. The independent variable is teachers' creative behavior, which includes abstraction, inquisitiveness, motivation, and critical thinking (Sharma & Sharma, 2018).

The dependent variable is student engagement, which consists of cognitive, affective, behavioral, and social dimensions (Mekki *et al.*, 2022). Social engagement refers to students' interactions in the classroom, including collaboration, group work, role-playing, and the sharing of ideas.

Technology integration serves as the mediating variable, reflecting how teachers' attitudes, subjective norms, and perceived behavioral control influence their use of technological tools in English classes. It also explains how these factors affect the level of student engagement.

Overall, this framework illustrates the relationships among creative teaching behavior, technology integration, and student engagement within the learning process.

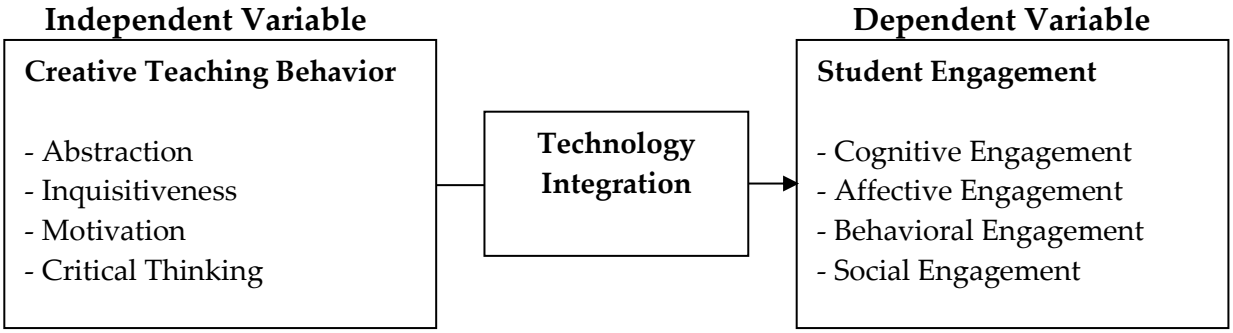

Figure 1: The Conceptual Framework Showing the Relationship of Creative Teaching Behavior and Student Engagement as the Mediating Effect of Technology Integration

3. Definitions of Terms

For clarity, the following terms are defined operationally as used in this study. These definitions are intended to provide a clearer understanding of key concepts and how they are applied within the investigation.

- **Creative Teaching Behavior –** refers to the extent to which English teachers demonstrate creativity in their instructional practices. In this study, it is operationally defined as teachers' observable application of abstraction,

inquisitiveness, motivation, and critical thinking strategies, as measured through responses to the Creative Teaching Behavior questionnaire.

- **Student Engagement –** refers to the level of students' active involvement in English learning activities. In this study, it is operationally defined in terms of cognitive, affective, behavioral, and social engagement, as reflected in students' responses to the engagement survey after exposure to creative teaching and technology integration.
- **Technology Integration –** refers to the degree to which teachers incorporate digital tools into English instruction to facilitate learning. In this study, it is operationally defined as the frequency and effectiveness of using educational technologies (e.g., videos, multimedia, and digital platforms), as indicated in the technology integration scale.
- **Mediating Effect –** refers to the role of technology integration in explaining the relationship between creative teaching behavior and student engagement. In this study, it is operationally defined as the indirect effect of creative teaching behavior on student engagement through technology integration, as determined using statistical mediation techniques (e.g., regression or path analysis).

4. Literature Review

4.1 Creative Teaching Behavior

Teachers' experiences play a significant role in fostering creativity in the classroom. Creative teaching enables educators to design engaging and interactive learning environments, particularly in English instruction (Hidayat *et al.*, 2023). Teachers who move beyond traditional methods and adopt innovative strategies are more effective in developing students' creative skills (Bereczki & Kárpáti, 2018). In language learning, creativity involves generating meaningful and practical ideas through collaboration and active participation (Rohman *et al.*, 2019).

Creativity must be both original and useful. While novel ideas are valuable, they should also be applicable within educational contexts (Beghetto, 2021; Kaufman *et al.*, 2022). Teachers' creativity is influenced by various factors, including evolving technological demands and workplace conditions, which require adaptability and innovation (Hatsanmuang & Sanrattana, 2023). Collaborative practices among teachers further enhance creativity by promoting the development of effective strategies and solutions (Joo *et al.*, 2023; Liu *et al.*, 2021).

Apak *et al.* (2021) identified four key dimensions of creative teaching behavior: abstraction, inquisitiveness, motivation, and critical thinking.

- Abstraction involves generating original ideas and applying knowledge creatively. It promotes flexible thinking and helps learners develop deeper understanding through the interpretation and connection of concepts (Huang *et al.*, 2019).
- Inquisitiveness refers to curiosity and questioning, which are essential for stimulating learning. Curious learners tend to be more engaged and motivated, as

curiosity drives exploration and critical thinking (Stenger, 2014; Von Stumm *et al.*, 2011).

- Motivation supports creativity by encouraging both teachers and students to actively engage in learning. Both intrinsic and extrinsic motivation enhance persistence and achievement (Zhang, 2014).
- Critical Thinking enables learners to analyze, evaluate, and synthesize information. It promotes deeper understanding and independent learning, which are essential in modern education (Ruggiero, 2012; Alsaleh, 2020).

Together, these dimensions highlight how creative teaching fosters innovation, engagement, and meaningful learning experiences.

4.2 Student Engagement

Student engagement is essential for academic success, motivation, and overall well-being (Sinatra *et al.*, 2015; Alrashidi *et al.*, 2016). In contrast, disengagement is associated with absenteeism, poor academic performance, and long-term social challenges (Lawson & Lawson, 2020). Engagement is commonly categorized into four dimensions: cognitive, affective, behavioral, and social.

- Cognitive Engagement refers to the mental effort students invest in understanding concepts. It involves persistence, self-regulation, and deep learning processes, which are closely linked to academic achievement (Greene, 2015).
- Affective Engagement focuses on students' emotions, such as interest, enjoyment, or boredom. Positive emotional connections to learning enhance motivation and participation (Bedenlier *et al.*, 2020).
- Behavioral Engagement includes observable actions such as participation, attendance, and effort. It reflects students' willingness to be actively involved in learning activities (Nguyen *et al.*, 2018).
- Social Engagement emphasizes interaction and collaboration with peers and teachers, promoting meaningful communication and cooperative learning (Artess *et al.*, 2017).

Overall, student engagement is a multidimensional construct influenced by instructional practices, the classroom environment, and learners' personal experiences.

4.3 Technology Integration

Technology plays a transformative role in education by enhancing teaching practices and improving student engagement (Richardson *et al.*, 2016). Effective integration supports active learning, collaboration, and real-world connections (Host, 2019). It involves the purposeful use of digital tools to enrich instruction, assessment, and problem-solving (Bataller, 2018).

Various technological tools support English language learning:

- Multimedia tools enhance comprehension through videos and interactive content.
- Computer-Assisted Language Learning (CALL) provides personalized and interactive practice.

- Online collaboration platforms facilitate communication and group work.
- Mobile applications support flexible and independent learning.
- Self-assessment tools promote reflection and self-regulation.
- Social media platforms offer opportunities for authentic communication.

Technology integration enhances engagement by creating interactive and personalized learning environments. It fosters collaboration, autonomy, and motivation, helping students develop language skills and 21st-century competencies (Zhou, 2021; Kumar, 2024).

4.4 Correlations Between Variables

Research indicates strong relationships among creative teaching behavior, technology integration, and student engagement. Creative teaching positively influences student engagement by fostering curiosity, participation, and motivation (Joo *et al.*, 2023). It also encourages the use of technology, as teachers who demonstrate creativity are more likely to integrate digital tools effectively (Henriksen *et al.*, 2018).

Technology integration further enhances engagement by supporting interactive, collaborative, and personalized learning experiences (Katyara *et al.*, 2022). These interconnected relationships suggest that creative teaching, when supported by technology, significantly improves learning outcomes.

4.5 Theoretical Foundations

This study is anchored in Connectivism (Siemens, 2005), which emphasizes learning through networks and digital connections. Technology enables learners to access information, collaborate, and construct knowledge actively.

It is also supported by Sociocultural Theory (Vygotsky, 1978), which highlights the importance of social interaction and collaboration in learning. Digital tools serve as mediational means that facilitate communication and knowledge construction.

Additionally, Computer-Assisted Language Learning (CALL) provides a framework for integrating technology into language instruction, supporting meaningful interaction and language skill development (Chapelle, 2001).

Together, these theories underscore the importance of technology, collaboration, and creativity in enhancing student engagement and language learning.

5. Material and Methods

5.1 Design and Sampling

This study employed a quantitative, descriptive-correlational research design to examine the relationships among variables using numerical data. Quantitative research involves systematic data collection and statistical analysis to ensure accuracy, objectivity, and reliability (Fleetwood, 2024). The descriptive-correlational approach was utilized to assess and determine the relationships among creative teaching behavior, student engagement, and technology integration without manipulating any variables (Bhandari,

2023). This design allowed the researcher to describe existing conditions and examine how the variables are related within the Schools Division of Davao Oriental.

The study involved 188 public Junior High School English teachers, which is considered sufficient for quantitative analysis (Hair *et al.*, 2021). A complete enumeration (census sampling) technique was employed, wherein all members of the target population were included in the study to minimize sampling error. Only teachers from the Schools Division of Davao Oriental participated in the research.

5.2 Research Instrument

Data were collected using an adapted survey questionnaire consisting of three main sections: creative teaching behavior, student engagement, and technology integration. The instrument for creative teaching behavior, adapted from Sharma and Sharma (2018), included four indicators: abstraction, inquisitiveness, motivation, and critical thinking.
The questionnaire underwent pilot testing to ensure its reliability and internal consistency. Necessary revisions were made based on the pilot results to improve clarity and suitability for the target respondents.

Table 1: The mean interval, descriptive level, and descriptive interpretation of the creative teaching behavior

Mean Interval	Descriptive Level	Descriptive Interpretation
4.20-5.00	Very High	Always evident.
3.40-4.19	High	Oftentimes evident.
2.60-3.39	Moderately High	Occasionally evident
1.80-2.59	Low	Seldom evident
1.00-1.79	Very Low	Never evident

5.2.1 Student Engagement

The instrument for student engagement was adapted from Mekki *et al.* (2021). It consists of four dimensions: cognitive engagement (11 items), affective engagement (9 items), behavioral engagement (12 items), and social engagement (10 items). The instrument is designed to measure the extent of students' involvement in learning activities across these domains. It will also undergo pilot testing to establish its reliability and ensure its suitability for the target respondents.

Table 2: The mean interval, descriptive level, and descriptive interpretation of student engagement

Mean Interval	Descriptive Level	Descriptive Interpretation
4.20-5.00	Very High	Always evident
3.40-4.19	High	Oftentimes evident
2.60-3.39	Moderately High	Occasionally evident
1.80-2.59	Low	Seldom evident
1.00-1.79	Very Low	Never evident

5.2.2 Technology Integration

The instrument for technology integration was adapted from the standardized questionnaire developed by Eslit (2023). It consists of a total of 50 items designed to measure the extent of teachers' integration of technology in their instructional practices. The instrument will also undergo pilot testing to establish its reliability and ensure its appropriateness for the target respondents. The scale used to interpret teachers' level of technology integration is presented below.

Table 3: The mean interval, descriptive level, and descriptive interpretation of technology integration

Mean Interval	Descriptive Level	Descriptive Interpretation
4.20-5.00	Very High	Always evident
3.40-4.19	High	Oftentimes evident
2.60-3.39	Moderately High	Occasionally evident
1.80-2.59	Low	Seldom evident
1.00-1.79	Very Low	Never evident

5.2.3 Data Collection and Analysis

The research instruments were refined to ensure alignment with the study's objectives, incorporating feedback from the adviser, panel members, and expert reviewers. Data collection commenced upon approval from the University Research Ethics Board (UREB) and was conducted from March 30, 2025, to May 8, 2026.

The researcher secured permission from the Schools Division Superintendent (SDS) of Davao Oriental. Upon approval, endorsements were forwarded to district supervisors and school principals to facilitate the implementation of the study. Data collection was carried out through the distribution of an online questionnaire to respondents. The purpose of the study was clearly explained to ensure informed participation. Responses were collected electronically, organized systematically, and submitted to a statistician for analysis and interpretation.

All data were securely stored in cloud storage, a laptop, and other digital devices, with password protection applied to ensure confidentiality. Research data will be retained for five years, while identifiable information will be stored only for 12–24 months before being securely disposed of.

For data analysis, the mean was used to determine the levels of creative teaching behavior, student engagement, and technology integration. Pearson's r was employed to assess the relationships among the variables. Mediation analysis was conducted to examine whether technology integration mediates the relationship between creative teaching behavior and student engagement. This included the following components:

- **Path a:** Creative teaching behavior predicting technology integration
- **Path b:** Technology integration predicting student engagement
- **Path c:** Total effect of creative teaching behavior on student engagement
- **Indirect effect (a × b):** The mediation role of technology integration

5.3 Ethical Considerations

The study adhered to established ethical standards by safeguarding participant welfare and minimizing potential risks. Participants' rights were protected in accordance with the Data Privacy Act of 2012.

5.3.1 Selection of Participants

Respondents were public secondary English teachers with at least three years of teaching experience in the Schools Division of Davao Oriental. Participation was voluntary, and respondents were informed of their right to withdraw at any time without penalty. Individuals who did not meet the inclusion criteria or chose not to continue were excluded from the study.

5.3.2 Management of Withdrawals

Participants were informed of their right to withdraw freely at any stage of the online survey. No personally identifiable information was required, and any request to remove submitted responses was honored to ensure confidentiality and respect for participant autonomy.

5.3.3 Avoidance of Conflict of Interest

The researcher maintained transparency, avoided personal bias, and adhered to standardized research procedures, ensuring objectivity and accountability throughout the research process.

5.4 Benefits and Risks

5.4.1 Benefits

Participants gained valuable insights into their teaching practices, particularly in relation to creative teaching, technology integration, and student engagement. These reflections may support their professional growth and lead to improved instructional strategies. The findings of the study may also inform the development of programs, policies, and resource allocation aimed at enhancing English instruction. As a gesture of appreciation, participants received a small token upon completing the survey.

Indirectly, the study may contribute to long-term improvements in professional development, curriculum planning, and digital learning initiatives within the Schools Division.

5.4.2 Risks and Management

Potential risks associated with the study included concerns related to data privacy, technical difficulties, possible misinterpretation of survey questions, and survey fatigue. To mitigate these risks, the survey was designed to minimize the collection of sensitive data and ensure secure encryption of responses. Clear and concise instructions were provided to reduce misunderstanding.

In addition, the survey platform was optimized for accessibility, and participants were advised to complete the questionnaire under stable internet conditions. Regular monitoring of the data collection process was conducted to prevent unauthorized access and ensure data integrity.

5.5 Data Storage, Retention, and Feedback

All data were securely stored in encrypted systems and were accessible only to the researcher. Identifiable data were retained only temporarily, while anonymized data were stored for up to five years for verification and research purposes.

The findings of the study were shared with relevant stakeholders through formal reports, summaries, and presentations. Results were presented in aggregated form to ensure confidentiality. Feedback from stakeholders was also collected and considered for future research and recommendations.

4. Results and Discussion

4.1 Results and Discussion

This chapter presents the key findings of the study in alignment with its objectives, focusing on the most significant results. Detailed tables are not included in the main discussion and are provided in the appendix. The discussion highlights the overall levels of the variables, their significant relationships, and the mediating role of technology integration in the relationship between creative teaching behavior and student engagement in English.

The primary finding indicates that technology integration fully mediates the relationship between creative teaching behavior and student engagement. The indirect effect was found to be statistically significant (Estimate = 0.3945, p = 0.008), while the direct effect became non-significant when technology integration was introduced into the model (Estimate = 0.0156, p = 0.926). This suggests that creative teaching behavior influences student engagement primarily through the effective integration of technology.

The results of the correlation analysis further support this finding. Creative teaching behavior was positively associated with student engagement (r = 0.286, p = 0.002) and technology integration (r = 0.457, p < .001). In addition, technology integration showed a positive relationship with student engagement (r = 0.478, p < .001). These results indicate that while creative teaching contributes to engagement, its impact is strengthened when supported by the effective use of technological tools.

Table 1: Key Inferential Results of the Study

Objective/Analysis	Statistic	Value	Interpretation
Creative Teaching Behavior ↔ Student Engagement	r	0.286 (p = 0.002)	Significant positive relationship
Creative Teaching Behavior ↔ Technology Integration	r	0.457 (p < .001)	Significant positive relationship
Technology Integration ↔	r	0.478 (p < .001)	Significant positive relationship

Student Engagement			
Indirect Effect (CTB → TI → SE)	Estimate	0.3945 (p = 0.008)	Significant
Direct Effect (CTB → SE)	Estimate	0.0156 (p = 0.926)	Not significant
Total Effect (CTB → SE)	Estimate	0.4101 (p < .001)	Significant

Note: CTB = creative teaching behavior; TI = technology integration; SE = student engagement.

4.2 Discussion of the Major Finding and Summary of Variables

The mediation results provide a clearer explanation of how creative teaching behavior influences student outcomes. Although creative teaching behavior was initially found to be significantly associated with student engagement, its direct effect became non-significant in the mediation model, indicating full mediation. This suggests that the influence of teacher creativity on student engagement operates primarily through effective technology integration. While creative teachers may design innovative and learner-centered lessons, these approaches become more impactful when digital tools are used to enhance interaction, collaboration, and active participation.

This finding is consistent with existing literature that emphasizes the need to view creativity and technology integration as interconnected rather than separate constructs. Their combined application promotes more meaningful, adaptive, and engaging learning experiences that align with the demands of contemporary classrooms.

Furthermore, the results indicate that improving student engagement requires not only the presence of creative teaching practices but also sufficient support, resources, and training in technology integration. When these elements are effectively combined, students are more likely to demonstrate higher levels of cognitive, behavioral, social, and affective engagement.

Descriptive findings revealed that both creative teaching behavior and technology integration were rated at a **very high** level, while student engagement was rated **high**. Among the dimensions of creative teaching, inquisitiveness and motivation emerged as the strongest indicators. In terms of student engagement, cognitive engagement was the most prominent dimension. Additionally, teachers' attitudes were identified as the most influential factor in technology integration.

Table 2: Summary of the Levels of the Key Variables

Variable	Dimension	Mean	SD	Descriptive Level
Creative Teaching Behavior	Abstraction	4.61	0.47	Very High
Creative Teaching Behavior	Inquisitiveness	4.71	0.44	Very High
Creative Teaching Behavior	Motivation	4.70	0.43	Very High
Creative Teaching Behavior	Critical Thinking	4.65	0.46	Very High
Creative Teaching Behavior	Overall	4.67	0.42	Very High
Student Engagement in English	Cognitive Engagement	4.33	0.56	Very High
Student Engagement in English	Affective Engagement	4.11	0.67	High
Student Engagement in English	Behavioral Engagement	4.07	0.57	High

Student Engagement in English	Social Engagement	4.07	0.60	High
Student Engagement in English	Overall	4.15	0.54	High
Technology Integration	Teachers' Attitude	4.70	0.39	Very High
Technology Integration	Subjective Norm	4.46	0.51	Very High
Technology Integration	Perceived Behavioral Control	4.29	0.55	Very High
Technology Integration	Overall	4.48	0.41	Very High

Note: Only the summary indicators are retained in the main chapter to avoid repetition; detailed item-level tables may be placed in the appendix.

The findings indicate that teachers demonstrated a very high level of creative teaching behavior, particularly in terms of inquisitiveness and motivation. This suggests a strong emphasis on encouraging student participation, sustaining interest, and responding effectively to students' ideas. It supports the view that creativity in teaching involves not only originality but also adaptability and the ability to motivate learners.

Student engagement in English was found to be high, with cognitive engagement emerging as the strongest dimension. This implies that students were actively processing and understanding lesson content. However, relatively lower levels of affective, behavioral, and social engagement highlight the need for greater emphasis on fostering emotional connection, active participation, and collaborative learning.

Technology integration was also rated at a very high level, with teachers demonstrating strong positive attitudes toward the use of digital tools. However, the slightly lower level of perceived behavioral control indicates a need for continued support, training, and access to resources to further strengthen teachers' confidence in effectively integrating technology.

Significant relationships were found among all variables. Creative teaching behavior was positively associated with both technology integration and student engagement, while technology integration showed strong relationships with all dimensions of engagement. Notably, technology integration fully mediated the relationship between creative teaching behavior and student engagement, indicating that teacher creativity enhances student engagement primarily through the effective use of digital tools.

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This work is lovingly dedicated to my mother Ruth M. Borrega, whose dream was to complete her graduate studies. Though she is no longer with us, her aspirations, sacrifices, and enduring love continue to inspire me. May this achievement stand as a fulfilment of the dream she once held close to her heart.

Conflict of Interest Statement
The authors declare no conflicts of interest.

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