

# Teachers' Utilization of PowerPoint Presentation and Students Engagement in Classroom Learning: A Correlational Study

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**Abstract.** This study examined the relationship between teachers' utilization of PowerPoint presentations and students' engagement in classroom learning at Baliwasan Senior High School-Stand Alone, Zamboanga City. While previous studies have explored the use of PowerPoint as an instructional tool, limited evidence exists regarding its relationship with student engagement among senior high school learners in the Philippine context. A descriptive-correlational research design was employed in this study. The respondents consisted of fifty (50) Grade 11 teachers who actively utilized PowerPoint presentations in classroom instruction, selected through purposive sampling from a population of sixty (60) Grade 11 teachers. The student respondents consisted of one hundred seventeen (117) Grade 11 STEM students selected through stratified random sampling from a population of one hundred sixty-eight (168) students. Data were gathered using validated researcher-made questionnaires and were analyzed using mean, standard deviation and Spearman's rank-order correlation coefficient. Findings revealed that teachers demonstrated a very high level of PowerPoint utilization, with an overall mean of 4.47. Students reported a high level of engagement during PowerPoint-supported lessons, with an overall mean of 3.68. Correlation analysis showed a very weak positive relationship between teachers' PowerPoint utilization and students' engagement ( $r = .104$ ); however, the relationship was not statistically significant ( $p = .472$ ). These findings indicate that teachers' use of PowerPoint presentations was not significantly associated with students' engagement in classroom learning. The study concludes that although PowerPoint serves as an important instructional tool for lesson delivery and organization, student engagement may be influenced by a variety of instructional, classroom, and learner-related factors beyond the use of presentation technology alone.

**Keywords:** PowerPoint presentation; student engagement; classroom learning; instructional technology; senior high school

## Introduction

In technology-enhanced education, visual aids have emerged as essential tools for effective pedagogy. Among these, Microsoft PowerPoint has become one of the most widely adopted applications by teachers to facilitate classroom instruction. PowerPoint offers structured and visually enriched delivery of content through text, images, animations, and multimedia frameworks, which can enhance students' comprehension of complex concepts (Li & Yang, 2024; Sulistyaningrum et al., 2024). However, the extent to which PowerPoint improves learning outcomes largely depends on its quality of use, including interactivity, slide design, and pacing.

Student engagement, encompassing behavioral, emotional, and cognitive dimensions, is widely recognized as a critical determinant of effective learning, contributing to greater retention and improved academic performance (Fredricks, Blumenfeld, & Paris, 2004). Studies in secondary and higher education indicate that when PowerPoint is utilized interactively, such as through animated slides, discussion prompts, or multimedia integration, it can significantly increase students' interest and participation (Wirth, Liel, & McCartney, 2014). For instance, the study "The Impact of Using PowerPoint Presentations on Students' Learning and Motivation in Secondary Schools" reported that students instructed via PowerPoint exhibited higher motivation and outperformed peers taught through traditional methods (Procedia – Social and Behavioral Sciences, 2014). Furthermore, meta-analytic evidence suggests that PowerPoint-assisted

instruction may enhance learning outcomes in K–12 settings, though effect sizes are contingent upon the design and integration of slides (Does Teaching with PowerPoint Increase Students' Learning? A Meta-Analysis, 2018).

Nonetheless, the literature presents mixed findings. A quasi-experimental study revealed that providing teacher-prepared slides to students in advance sometimes produced neutral or negative effects on attendance and academic performance, depending on students' engagement and study strategies (Akgün, Albayrak, et al., 2021). These findings imply that merely using PowerPoint does not guarantee effective learning; rather, its impact is determined by the clarity of design, interactive elements, and pedagogical integration within classroom activities.

Despite the growing body of international research, there remains a notable gap in the Philippine context, particularly among senior high school learners. Existing studies have not sufficiently explored how Filipino teachers utilize PowerPoint to foster engagement across behavioral, emotional, and cognitive domains. This gap limits understanding of how technology-mediated instruction can be optimized for local classrooms, where diverse learning styles and resource constraints influence teaching practices.

In light of these insights, the present study aims to examine how senior high school teachers utilize PowerPoint presentations in classroom teaching and its relationship with students' engagement. Rather than merely establishing whether teachers use PowerPoint, this study focuses on how interactivity, slide design, and multimedia features influence students' behavioral, emotional, and cognitive engagement. Understanding this relationship is particularly important in senior high school contexts, where students prepare for higher education or employment and require instructional strategies that balance engagement with learning outcomes (Adawurah & Andoh, 2025).

Empirical evidence demonstrates that PowerPoint can positively affect learning and motivation. Mensah and Nabie (2021) found that using PowerPoint in geometry lessons improved senior students' achievement and motivation, while Ismail et al. (2014) reported that PowerPoint-enhanced secondary school instruction outperformed traditional chalk-and-board methods in fostering learning and motivation. Consequently, investigating the strategic use of PowerPoint in senior high school classrooms is imperative for designing teaching practices that promote student engagement and academic success.

## Research Questions

This study aims to investigate the extent to which Grade 11 teachers utilize PowerPoint presentations as a teaching tool and how this utilization is related to students' engagement in classroom learning. Specifically, it seeks to address the following problems;

1. To what extent do teachers utilize PowerPoint presentations in their classroom learning?
  - 1.1 Frequency of Use PowerPoint during class
  - 1.2 Quality and Organization of PowerPoint Content
  - 1.3 Interactivity and Multimedia Integration
2. What is the extent of student engagement in the classroom learning?
3. Is there a significant relationship between teachers' utilization of PowerPoint presentation and students' engagement in classroom learning?
- 4.

## Scope and Delimitation of the Study

This study focused on determining the relationship between teachers' utilization of PowerPoint presentations and students' engagement in classroom learning at Baliwasan Senior High School–Stand Alone, Zamboanga City. The respondents consisted of fifty (50) Grade 11 teachers who actively utilized PowerPoint presentations in classroom instruction and one hundred seventeen (117) Grade 11 STEM students during the School Year 2025–2026. The teacher respondents were selected through purposive sampling, while the student respondents were selected through stratified random sampling. The study examined teachers' utilization of PowerPoint presentations in terms of frequency of use, quality and organization of content, and interactivity and multimedia integration. Student engagement was assessed through indicators of attention, interest, participation, focus, and motivation. The findings of the study were limited to the Grade 11 teachers and STEM students of Baliwasan Senior High School–Stand Alone. Consequently, the results may not be generalized to other schools, grade levels, or academic strands. Furthermore, other factors that may influence student engagement, such as teaching styles, classroom environment, learner characteristics, and instructional strategies, were not included in the investigation.

## Literature Review

### Frequency of PowerPoint Use During Class

PowerPoint has become one of the most frequently utilized technologies in classroom instruction because it facilitates organized lesson delivery and visual presentation of information. Research indicates that regular use of PowerPoint can improve lesson structure and support students' understanding of concepts when accompanied by effective teaching practices. However, merely increasing the frequency of use does not automatically enhance student engagement. Studies suggest that excessive reliance on slide presentations without interactive activities may result in passive learning and reduced participation. Therefore, the effectiveness of PowerPoint depends not only on how often it is used but also on the pedagogical approaches employed during instruction (Bartsch & Cobern, 2003; Levasseur & Sawyer, 2006).

### Quality and Organization of PowerPoint Content

The quality of presentation materials significantly influences learning outcomes. According to Mayer's Cognitive Theory of Multimedia Learning, students learn more effectively when information is presented through carefully designed combinations of text, visuals, and audio. Well-organized slides reduce cognitive overload and assist learners in processing information efficiently. Conversely, overcrowded slides, excessive text, and irrelevant graphics may distract learners and impede comprehension (Mayer, 2005).

### Interactivity and Multimedia Integration

Interactive use of PowerPoint promotes student participation and engagement. Features such as embedded videos, discussion prompts, animations, and formative assessment activities can encourage active involvement in classroom learning. Studies suggest that multimedia elements positively affect motivation and engagement when they are directly aligned with instructional objectives. Effective multimedia integration promotes both behavioral and cognitive engagement among learners (Fredricks et al., 2004; Levasseur & Sawyer, 2006).

## Methodology

### Research Design

This study employed a descriptive-correlational research design to determine the relationship between teachers' utilization of PowerPoint presentations and students' engagement in classroom learning. Descriptive research was used to determine the extent of teachers' utilization of PowerPoint presentations and the level of students' engagement during classroom instruction. The correlational component was utilized to examine whether a significant relationship exists between teachers' utilization of PowerPoint presentations and students' engagement. This design was appropriate because it allowed the researcher to investigate naturally occurring classroom conditions without manipulating any variables. The study focused on identifying patterns of association between the variables rather than establishing cause-and-effect relationships.

### Sampling Design

The study was conducted among Grade 11 teachers and Grade 11 STEM students of Baliwasan Senior High School–Stand Alone during the School Year 2025–2026. The teacher population consisted of sixty (60) Grade 11 teachers from the total one hundred ten (110) teaching personnel of the Senior High School Department. Purposive sampling was employed in selecting the teacher respondents. Only teachers who actively and regularly utilized PowerPoint presentations during classroom instruction were included in the study. Based on the established criteria, fifty (50) Grade 11 teachers qualified and were selected as respondents. The student population consisted of one hundred sixty-eight (168) Grade 11 STEM students enrolled in four STEM sections. Stratified random sampling was utilized to ensure proportional representation from each section. Using Cochran's Formula for finite populations, a sample of one hundred seventeen (117) students was determined and selected proportionately from the four sections. For the correlational analysis, the teachers' utilization scores were paired with the corresponding student engagement scores from the classes they handled. These paired observations served as the basis for determining the relationship between teachers' utilization of PowerPoint presentations and students' engagement in classroom learning.

### Research Locale

This study was conducted at Baliwasan Senior High School – Stand Alone, located in Barangay Baliwasan, Zamboanga City. The school is situated approximately two to three kilometers from downtown Zamboanga City, making it accessible to learners from nearby communities. The institution officially

commenced operations on June 16, 2016, as part of the nationwide implementation of the K–12 Basic Education Program of the Department of Education. The school is administered by a school head with the assistance of ten head teachers who supervise various academic units. Baliwasan Senior High School – Stand Alone has adequate facilities and learning resources that support the delivery of quality education. It also implements various learner-development programs and interventions, including WINS (Wash in Schools), PROJECT W.A.T.C.H. (We Advocate Time Consciousness and Honesty), feeding programs, and literacy and numeracy initiatives aimed at improving students' academic performance and well-being. Baliwasan Senior High School–Stand Alone has a total of one hundred ten (110) teaching personnel in the Senior High School Department, of which sixty (60) are assigned to Grade 11. Among these Grade 11 teachers, fifty (50) actively utilize PowerPoint presentations as part of their classroom instruction and were therefore included as respondents in the study. At present, the school serves approximately 2,990 senior high school learners, making it one of the largest senior high schools in the Division of Zamboanga City.

### Research Participants

The respondents of the study consisted of fifty (50) Grade 11 teachers and one hundred seventeen (117) Grade 11 STEM students of Baliwasan Senior High School–Stand Alone, Zamboanga City. The teacher respondents were selected from a population of sixty (60) Grade 11 teachers through purposive sampling. Only those who actively and regularly utilized PowerPoint presentations as part of their classroom instruction were included in the study. The student respondents were selected through stratified random sampling from a population of one hundred sixty-eight (168) Grade 11 STEM students. A total of one hundred seventeen (117) students participated in the study, ensuring proportional representation from all STEM sections. The selected respondents provided the data necessary to determine the extent of teachers' utilization of PowerPoint presentations and the level of students' engagement in classroom learning.

### Research Instrument

The researcher utilized a researcher-made survey questionnaire as the primary instrument for data collection. The questionnaire consisted of two major parts. Part A measured teachers' utilization of PowerPoint presentations and included five indicators: preparation of visually appealing slides, clarity of lesson presentation, use of audio-visual materials, instructional interactivity, and perceived usefulness of PowerPoint in facilitating students' understanding. Part B measured students' engagement in classroom learning through five indicators: attention during lessons, interest in learning activities, participation in class discussions, classroom focus, and learning motivation. The questionnaire employed a five-point Likert scale with the following responses: 5 – Very High, 4 – High, 3 – Moderate, 2 – Low, and 1 – Very Low. Prior to administration, the instrument underwent content validation by experts in educational research and instructional technology to ensure clarity, relevance, and appropriateness of the items. Recommendations from the validators were incorporated into the final version of the questionnaire. The instrument was likewise pilot-tested among respondents not included in the actual study, and reliability was assessed using Cronbach's Alpha coefficient.

### Data Gathering Procedure

Before conducting the actual data gathering, the researcher sought formal approval from the Schools Division Superintendent of the Department of Education – Division of Zamboanga City and the School Principal of Baliwasan Senior High School – Stand Alone. Upon approval, the researcher coordinated with the designated Grade 11 teachers to schedule the distribution of survey questionnaires. During the data collection process, the researcher personally administered the questionnaires to both teacher and student respondents to ensure a high retrieval rate and accuracy of the gathered responses. The purpose of the study was clearly explained to all participants, and they were assured of the confidentiality and anonymity of their responses. The teacher respondents answered the instrument based on their utilization of PowerPoint presentations in their Grade 11 stem classes, while student respondents accomplished the questionnaire according to their engagement during lessons where PowerPoint was used. Respondents were given ample time to accomplish the survey, after which the completed questionnaires were collected by the researcher, checked for completeness, and encoded for analysis. All ethical considerations were strictly observed, including voluntary participation, confidentiality, and proper treatment of data. Once completed, the data were carefully tabulated and prepared for interpretation using the appropriate statistical tools.

## Results and Discussions

### Research Question 1: What extent do teachers utilize PowerPoint presentations in their classroom learning?

**Table 1.** Utilization of Power Point Presentation

|    | Indicator                                    | Mean Respondents | Descriptive Equivalent       |
|----|----------------------------------------------|------------------|------------------------------|
| 1. | Frequency of PowerPoint use during class     | 4.58             | Very High Utilization        |
| 2. | Quality & Organization of PowerPoint Content | 4.54             | Very High Utilization        |
| 3. | Interactivity & Multimedia Integration       | 4.29             | Very High Utilization        |
|    | <b>Overall Mean</b>                          | <b>4.47</b>      | <b>Very High Utilization</b> |

The findings indicate that teachers demonstrated very high utilization of PowerPoint presentations, as reflected by the overall mean of 4.47. Among the indicators, the frequency of PowerPoint use during class obtained the highest mean ( $M = 4.58$ ), followed by quality and organization of PowerPoint content ( $M = 4.54$ ) and interactivity and multimedia integration ( $M = 4.29$ ), all interpreted as Very High Utilization. These results suggest that teachers regularly employ PowerPoint as an instructional medium and place considerable emphasis on organizing lesson content through visual and multimedia-supported presentations. This pattern is consistent with recent scholarship recognizing PowerPoint and multimedia presentations as commonly used instructional technologies in educational settings. León and García-Martínez (2021), however, emphasized that the educational value of PowerPoint should not be inferred simply from the availability or frequency of slides, as their quasi-experimental study found that access to instructor-provided slides did not automatically improve academic performance and could interact with students' engagement and study strategies. Similarly, Ongor and Cetinkaya Uslusoy (2023) reported that multimedia-based instruction can influence students' academic achievement and motivation, indicating that the instructional design and manner of integration are important considerations. Furthermore, a 2023 evaluation of PowerPoint materials in pharmacy education found that the alignment of slides with multimedia learning principles is an important consideration in assessing the quality of instructional presentations. Therefore, the very high utilization reported in the present study should be interpreted primarily as evidence of teachers' frequent and substantial use of PowerPoint rather than as direct evidence of improved student learning. The findings further suggest that the pedagogical effectiveness of PowerPoint may depend on the quality and organization of content, appropriate multimedia integration, cognitive relevance of visual elements, and opportunities for meaningful learner interaction. Thus, while the high utilization level demonstrates strong adoption of PowerPoint among teachers, its contribution to learning outcomes warrants consideration alongside instructional strategies, learner engagement, and evidence-based multimedia design principles.

## Research Question 2: What is the extent of student engagement in the classroom learning?

**Table 2.** Student engagement in the classroom learning

|    | Student Engagement Indicator                                                  | Mean Respondents | Descriptive            |
|----|-------------------------------------------------------------------------------|------------------|------------------------|
| 1. | I pay more attention when teachers use PowerPoint during lessons.             | 3.92             | High Engagement        |
| 2. | I feel more interested in learning when visual aids like PowerPoint are used. | 3.70             | High Engagement        |
| 3. | I actively participate in class discussions when teachers use PowerPoint.     | 3.52             | High Engagement        |
| 4. | PowerPoint presentation help me focus throughout the class.                   | 3.62             | High Engagement        |
| 5. | I feel more motivated to learn when teachers use PowerPoint.                  | 3.66             | High Engagement        |
|    | <b>Overall Mean</b>                                                           | <b>3.68</b>      | <b>High Engagement</b> |

The results revealed an overall mean of 3.68, indicating a high level of student engagement during PowerPoint-supported classroom instruction. Among the indicators, "I pay more attention when teachers use PowerPoint during lessons" obtained the highest mean ( $M = 3.92$ ), suggesting that students perceived PowerPoint-supported instruction as helpful in sustaining their attention during lessons. This was followed by interest in learning when visual aids such as PowerPoint are used ( $M = 3.70$ ), motivation to learn ( $M = 3.66$ ), and ability to maintain focus throughout the class ( $M = 3.62$ ). The lowest-rated indicator was active participation in class discussions when teachers use PowerPoint ( $M = 3.52$ ), although it remained within the high-engagement category. This pattern is important because student engagement extends beyond attention

and interest and includes behavioral and cognitive participation in learning activities. Recent research supports the view that digital and multimedia-supported instruction can influence different dimensions of student engagement, but the effects depend on how the technology is integrated into classroom pedagogy. Hutain and Michinov (2022), for example, found that combining presentation of the teacher's slideshow with questioning and quizzing increased students' affective engagement during in-person classes, suggesting that presentation technology can be more engaging when accompanied by interactive learning activities. Similarly, research on classroom attention has emphasized that students' attention-related behavior is influenced substantially by contextual factors and teacher practices rather than by instructional media alone. León and García-Martínez (2021) likewise found that students' academic engagement and study strategies moderated the relationship between access to PowerPoint slides and academic performance, reinforcing the importance of distinguishing engagement from learning outcomes. Thus, the present finding of high engagement ( $M = 3.68$ ) indicates that students perceive PowerPoint-supported instruction as conducive to attention, interest, motivation, and focus; however, the relatively lower score for active participation ( $M = 3.52$ ) suggests that visual presentation alone may not fully promote interactive engagement. Consequently, teachers may strengthen PowerPoint-supported instruction by incorporating guided questioning, collaborative activities, problem-solving tasks, formative assessment, peer discussion, and other active-learning strategies that move students from passive viewing toward meaningful participation.

### Research Question 3: Is there a significant relationship between teacher utilization of PowerPoint and students engage at the classroom?

**Table 3.** Significant relationship between teacher utilization of PowerPoint and students engage at the classroom

| X        | Y        | Coefficient r | P value | Interpretation  |
|----------|----------|---------------|---------|-----------------|
| Teachers | Students | .104          | 0.472   | Not Significant |

The relationship between teachers' utilization of PowerPoint presentations and students' engagement in classroom learning was examined using Spearman's rank-order correlation coefficient. The analysis yielded a very weak positive correlation ( $r_s = .104$ ) with a p-value of .472. Since the obtained p-value is greater than the 0.05 level of significance, the relationship between teachers' utilization of PowerPoint and students' engagement was not statistically significant. Thus, the null hypothesis stating that there is no significant relationship between teachers' utilization of PowerPoint presentations and students' engagement in classroom learning was not rejected. The result indicates that, within the context of the present study, higher reported utilization of PowerPoint was not statistically associated with higher student engagement. This finding is noteworthy because the descriptive results showed very high teacher utilization of PowerPoint ( $M = 4.47$ ) and high student engagement ( $M = 3.68$ ); however, high levels of two variables do not necessarily indicate that the variables are significantly related. The result is consistent with the broader literature indicating that the relationship between educational technology and student engagement is influenced by the manner in which technology is pedagogically integrated. Nkomo et al. (2021), in a systematic review of student engagement with digital technologies, found substantial variation in how engagement is conceptualized and measured and noted that self-report measures primarily capture students' perceptions rather than direct behavioral evidence. Similarly, León and García-Martínez (2021) found that student academic engagement and study strategies moderated the relationship between access to PowerPoint slides and academic performance, suggesting that PowerPoint itself should not be treated as an independent determinant of educational outcomes. Research on interactive digital presentations further indicates that the engagement benefits of presentation technology may be associated with interactive features and active learning opportunities, rather than simply the use of presentation slides. Therefore, the non-significant relationship found in the present study suggests that PowerPoint utilization alone may not be sufficient to explain variations in student engagement. Other factors, such as teacher-student interaction, instructional strategies, classroom climate, learner motivation, opportunities for collaboration, questioning, feedback, and the quality of multimedia design, may contribute to students' engagement. Accordingly, PowerPoint may be more appropriately viewed as a supporting instructional medium whose contribution to engagement depends on how it is integrated with broader pedagogical practices.

### Ethical Considerations

Ethical principles were observed throughout the conduct of the study. Permission to conduct the research was obtained from the Schools Division Office of Zamboanga City and from the school administration of Baliwasan Senior High School – Stand Alone. Administrative approval, however, was treated as

authorization to conduct the study and not as a substitute for ethical review. Participation in the study was entirely voluntary. All teacher respondents were provided with informed-consent forms explaining the purpose of the study, procedures, potential risks, and benefits. Since Grade 11 students participated in the study, parental or guardian consent was secured before data collection. Student assent was likewise obtained, ensuring that learners understood the nature of their participation and their rights as research participants. Respondents were informed that they could decline participation or withdraw from the study at any stage without penalty or negative consequences. No personally identifying information was included in the analysis or reporting of results. All completed questionnaires were treated confidentially, stored securely, and accessed only by the researcher. Data were used solely for academic purposes and were destroyed after completion of the study in accordance with institutional data-management procedures.

## Conclusions

Based on the findings of the study, Grade 11 teachers at Baliwasan Senior High School–Stand Alone demonstrated a very high level of PowerPoint presentation utilization in classroom instruction. Likewise, students reported a high level of engagement during PowerPoint-supported lessons. These findings suggest that PowerPoint remains a widely utilized instructional tool that supports lesson organization and visual presentation of learning content. However, the correlation analysis revealed a very weak positive relationship that was not statistically significant ( $r = .104$ ,  $p = .472$ ). Therefore, teachers' utilization of PowerPoint presentations was not significantly associated with students' engagement in classroom learning. The findings indicate that although PowerPoint can enhance lesson delivery and support visual learning, student engagement is influenced by various factors, including instructional strategies, classroom interactions, learning environment, and student motivation. Thus, PowerPoint should be viewed as a supportive instructional tool rather than the sole determinant of student engagement. Effective classroom instruction requires the integration of technology with learner-centered and interactive teaching approaches to promote meaningful learning experiences.

## Recommendations

Based on the findings of the study, it is recommended that school administrators continue supporting the integration of instructional technologies such as PowerPoint presentations while emphasizing pedagogical strategies that actively involve students in the learning process. Teachers are encouraged to utilize PowerPoint purposefully by incorporating interactive activities, discussion prompts, collaborative tasks, and multimedia resources that may promote student participation and engagement. Professional development programs may also be provided to strengthen teachers' skills in technology integration and learner-centered instructional practices. Furthermore, curriculum planners and education officials may consider developing guidelines that support the appropriate use of presentation technologies in classroom instruction while recognizing that student engagement is associated with multiple instructional and learner-related factors. Future researchers are encouraged to examine other variables related to student engagement, such as teaching strategies, classroom environment, student motivation, and learning preferences, and to conduct similar studies in different schools and educational settings to improve the generalizability of the findings.

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