(REVIEW ARTICLE)

Assessing the interactive learning approach: Teacher and student perspectives on participation, collaboration, and technology use

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Abstract

This study examines the implementation of interactive learning strategies in Philippine classrooms, focusing on teacher and student perspectives from Saint Theresa College of Tandag, Inc. Using a descriptive-correlational design, the research assessed (1) demographic profiles of 25 teachers and 388 students, (2) perceived levels of implementation across five domains (participation, collaborative learning, feedback mechanisms, technology use, and differentiated strategies), and (3) relationships between demographics and implementation.

Key findings revealed that teachers consistently rated interactive strategies as "Very Often" implemented (overall mean = 3.61–3.72), with strengths in fostering respectful debate (WM=3.88) and self-paced learning (WM=3.68). However, gaps emerged in structured collaboration (e.g., role assignment, WM=3.48) and multimodal instruction (WM=3.44). Significant correlations were found between teachers' implementation levels and their age (p=.027), years of experience (p=.003), and training (p=.033), while student demographics showed no significant impact (p>.05).

The study highlights the critical role of teacher preparedness over student characteristics in successful interactive learning. Recommendations include: (1) targeted professional development for early-career teachers, (2) mentorship programs leveraging experienced educators, and (3) institutional support for technology and differentiated instruction. These findings contribute to the discourse on equitable pedagogy in resource-constrained settings, emphasizing the need for context-specific training in rural Philippine schools.

Keywords: Interactive learning; Teacher training; Student engagement; Differentiated instruction; Philippine education

1. Introduction

This study examines how educators and learners perceive the implementation of interactive learning strategies in classroom settings. Specifically, it explores the demographic profiles of teachers and students and their views on key aspects of interactive learning, including participation, collaborative learning, feedback mechanisms, technology integration, and differentiated instruction. By comparing these perspectives, the research aims to provide insights into the effectiveness of interactive pedagogies and identify potential areas for improvement in instructional delivery.

Recent studies continue to affirm the critical role of interactive learning in modern education. According to Lai [19] and Metaria and Cahyono [22], technology-enhanced interactive methods significantly improve student engagement, particularly in post-pandemic classrooms where digital tools have become essential. Similarly, Karim et al. [17] found that collaborative learning strategies boost academic performance by fostering peer-to-peer knowledge exchange. The importance of immediate feedback in interactive settings has also been reinforced by Isik et al. [14], who argue that

real-time assessments enhance learning efficiency. Furthermore, studies by Terletska [30] highlight how differentiated instruction, supported by adaptive learning technologies, accommodates diverse student needs. The shift toward blended and hybrid learning models [24] has further emphasized the need for effective participation strategies, which underscores the value of student interaction in virtual classrooms. Meanwhile, Jamil et al. [15] stress that successful technology integration depends on teacher training and institutional support. Despite these advancements, disparities in implementation persist, particularly in regions with limited resources [34], suggesting that contextual factors heavily influence outcomes.

While extensive research exists on interactive learning globally, there remains a scarcity of studies focusing on its implementation in the Philippine educational system, particularly in rural areas such as Surigao del Sur. Factors such as limited technological infrastructure, teacher training gaps, and socioeconomic disparities may influence how interactive strategies are adopted in local classrooms. Existing studies often center on urban schools, leaving a knowledge gap regarding the challenges and effectiveness of these approaches in provincial settings. This study seeks to address this gap by examining the perceptions of teachers and students in Surigao del Sur, providing context-specific recommendations for improving interactive learning practices.

Ultimately, this research holds significant value for educators, policymakers, and curriculum developers in the Philippines, particularly in Surigao del Sur. By identifying the current level of interactive learning implementation and the factors affecting its effectiveness, the study can guide targeted teacher training programs, resource allocation, and policy adjustments. Furthermore, the findings may contribute to the broader discourse on inclusive and adaptive pedagogical strategies in under-resourced regions, ultimately enhancing educational quality and student engagement in similar contexts.

2. Material and methods

This study employed a descriptive-correlational research design, which is appropriate for examining relationships among naturally occurring variables without manipulating teaching methods or controlling extraneous factors. This approach allowed the researcher to explore the natural dynamics within classroom settings, particularly the interplay between oral communication and interactive teaching strategies. The quantitative phase addressed three primary research questions: the demographic profiles of participants, the perceived levels of implementation of interactive teaching strategies, and the relationships between demographic variables and implementation levels. Data were gathered through structured questionnaires administered to both teachers and students. These questionnaires collected demographic information such as age, gender, years of teaching experience, and academic track, along with perceived implementation levels measured using Likert-scale items that focused on aspects like participation, collaboration, and use of technology. Both descriptive statistics (mean, frequency, and percentage) and inferential statistics (including Pearson's r, chi-square tests, and regression analysis) were employed, particularly to examine the associations between demographic variables and implementation levels. This research design was ideal as it enabled the analysis of real classroom practices, offering insights that could inform educators and policymakers in enhancing strategies that promote student engagement and critical thinking.

Moreover, the study was conducted at Saint Theresa College of Tandag, Inc., a senior high school recognized for its consistent use of oral communication and interactive teaching approaches. This school provided a structured yet natural environment where these methods are actively practiced across various subjects such as English, Social Studies, and Science. These disciplines frequently incorporate student-centered activities like discussions, debates, presentations, and collaborative tasks, making them suitable for examining the effects of interactive learning. The participants consisted of senior high school teachers and students who regularly engage in these instructional strategies. To ensure the relevance and reliability of the data, inclusion criteria were applied. Student participants were required to be currently enrolled, have participated in interactive learning activities, and be willing to share honest reflections on their engagement and critical thinking. Teachers, on the other hand, needed to be actively teaching in the senior high school department, consistently incorporate oral and interactive methods in their instruction, possess at least one year of teaching experience, and be willing to share their observations and teaching experiences. Additionally, informed consent was distributed to ensure respondents' acceptance on the conduct of the study. These criteria ensured that all respondents had adequate exposure to the strategies being studied, resulting in more accurate and meaningful findings.

Table 1 Respondents of the Study

Senior High school students	Total Population	Sample Population
Grade 11	352	187
Grade 12	402	201
Total No. of respondents	754	388

The selection of respondents for this study is based on a systematic sampling approach to ensure a representative sample of senior high school students from Saint Theresa College of Tandag, Inc. A total of 388 students were chosen from a population of 754, representing approximately 51.5% of the total student body. This sample size is deemed appropriate for statistical analysis and generalizability within the given educational setting.

To achieve balanced representation, proportional stratified random sampling will be employed, dividing the population into two strata: Grade 11 (352 students) and Grade 12 (402 students). The sample for each grade level was determined proportionally, with 187 respondents from Grade 11 and 201 from Grade 12. This ensures that both groups are adequately represented in the study while maintaining the integrity of the data.

The study's questionnaire was a researcher-made. It was consisted of three sections. The first section gathered demographic information to provide context for the analysis, including data on age, gender, teaching experience, academic track, and relevant training in oral communication. The second section assessed the level of implementation of interactive learning approaches from both the teachers' and students' perspectives, focusing on key aspects such as participation, collaborative learning, feedback mechanisms, use of technology, and differentiated strategies.

To establish the instrument's validity, it underwent both face and content validation conducted by experts in language teaching, education, or educational research—each with a minimum of five years of experience, a master's degree, and expertise in questionnaire development. These validators evaluated the appropriateness, clarity, and alignment of the questionnaire items with the study's objectives. Their feedback was carefully reviewed and integrated to improve the instrument's overall validity and reliability. To further ensure the tool's effectiveness, the researcher conducted a pilot test with a small group of respondents. Statistical analyses, including assessments of internal consistency and construct validity, were performed. Data from the pilot test were analyzed and used to refine the questionnaire, ensuring that it accurately measured the intended constructs and produced reliable, meaningful data for the study

3. Results and discussion

The following provides a detailed analysis of teacher and student demographics, along with the perceived application of interactive learning strategies across various dimensions.

Table 2 Demographic Profile of Teachers

Teachers	Frequency	Percent
Age		
21 - 25	7	28%
26 - 30	8	32%
31 - 36	5	20%
36 and above	5	20%
Total	25	100%
Gender		
Female	17	68%
Male	8	32%
Total	25	100%

Number of Years in Teaching		
1 - 5	10	40%
6 - 10	10	40%
11 - 15	2	8%
16 and above	3	12%
Total	25	100%
Attended Training		
Yes	10	40%
No	15	60%
Total	25	100%
No. of Training related to oral communication		
None	15	60%
1 - 2	8	32%
3 - 4	2	8%
Total	25	100%

The demographic data reveals key trends in the teacher population that could significantly impact the study's outcomes. The workforce is predominantly young, with 32% of teachers aged 26-30 and 28% aged 21-25. This suggests strong potential for adopting modern teaching methods but also highlights a limited presence (only 20%) of educators over 36, who typically bring greater classroom management expertise [36].

A notable gender imbalance exists, with 68% of teachers being female—consistent with global trends. This may contribute to more collaborative teaching environments, while the lower male representation (32%) could reduce diversity in teaching styles [21].

Experience levels also present significant concerns. While 80% of teachers have 1-10 years of experience, only 12% have more than 16 years—experience that is essential for mentoring and advanced pedagogy [11]. More alarmingly, 60% of teachers have no formal training, and an equal percentage lack oral communication training—an essential skill for interactive teaching effectiveness [2]. Despite strong evidence linking communication training to effective classroom engagement, only 8% have attended three or more communication-focused trainings [10].

These findings highlight an urgent need for professional development, particularly in communication strategies and structured experience-sharing. Schools should implement mandatory workshops on research-backed interactive techniques, such as Socratic seminars, alongside structured mentorship programs that pair novice teachers with experienced educators [10, 26]. These interventions could bridge the experience gap while leveraging younger teachers' adaptability to technology, ultimately enhancing student engagement and critical thinking skills.

Table 3 Demographic Profile of Students

Grade 11		
Age	**Frequency**	**Percentage**
16-18	127	100%
Total	127	100%
Gender		
Male	76	59.8%
Female	51	40.2%

Total	127	100%
Academic Track		
STEM	48	37.8%
ABM	21	16.5%
HUMSS	54	42.5%
TVL	4	3.2%
Total	127	100%
Grade 12		
Age	Frequency	Percentage
16- 18	125	99.2%
19 - 21	1	8%
Total	126	100%
Gender		
Male	49	38.9%
Female	77	61.1%
Total	126	100%
Academic Track		
STEM	35	27.8%
ABM	16	12.7%
HUMSS	65	51.6%
TVL	10	7.9%
Total	127	100%

The demographic analysis of students reveals distinct patterns between Grade 11 and Grade 12 that may impact engagement and critical thinking outcomes. In terms of age distribution, both grades are predominantly within the 16-18 age range (100% in Grade 11 and 93.7% in Grade 12), indicating developmental homogeneity. However, a small percentage (8%) of older Grade 12 students (18-21) suggests delayed progression, highlighting potential learning support needs. Gender distribution presents notable disparities; Grade 11 exhibits a striking male majority (93.8% male vs. 40.2% female), though data inconsistencies suggest a possible reporting error. In contrast, Grade 12 reverses this trend, with 61.1% female and 38.9% male, aligning with global patterns of higher female retention in later grades [35]. These imbalances may influence classroom dynamics, as research indicates that gender composition affects participation styles [7].

Academic track preferences further reveal significant trends. The Humanities and Social Sciences (HUMSS) strand dominates in both Grade 11 (42.5%) and Grade 12 (51.8%), followed by the Science, Technology, Engineering, and Mathematics (STEM) strand, which shows a decline from 37.8% in Grade 11 to 27.8% in Grade 12. This suggests a stronger inclination toward humanities and social sciences, reflecting broader educational trends (OECD, 2021). Meanwhile, enrollment in the Technical-Vocational-Livelihood (TVL) track remains minimal (3.2% in Grade 11 and 7.9% in Grade 12), indicating a gap in technical-vocational education that may limit skill diversification.

Table 4 Level of Implementation of the Interactive Learning Approach as Perceived by a Teacher as to Participation and Collaborative Learning

		Weighted Mean	Adjectival Rating
	Participation		
1.	I encourage students to actively participate in class discussions.	3.96	Very Often
2.	I use various strategies to ensure all students have opportunities to speak.	3.72	Very Often
3.	I create a safe and supportive environment for students to share their ideas.	3.84	Very Often
4.	I incorporate activities that require students to verbally express their understanding.	3.84	Very Often
5.	I provide regular opportunities for students to ask questions and seek clarification.	3.76	Very Often
6.	I use techniques like think-pair-share or small group discussions to promote participation.	3.56	Very Often
7.	I value and acknowledge student contributions in class.	3.84	Very Often
8.	I offer guidance and suggestions to help students improve their oral communication	3.80	Very Often
9.	I use different questioning techniques to stimulate student thinking and responses.	3.72	Very Often
10.	I encourage students to respectfully challenge and build upon each other's ideas.	3.88	Very Often
	Mean	3.79	Very Often
	Collaborative Learning		
1.	I regularly incorporate group activities into my lessons.	3.72	Very Often
2.	I structure group tasks to promote interdependence and shared responsibility	3.64	Very Often
3.	I provide clear guidelines and expectations for group work	3.64	Very Often
4.	I assign roles within groups to ensure all members contribute.	3.48	Very Often
5.	I provide opportunities for groups to share their work and learn from each other	3.68	Very Often
6.	I assess both individual and group contributions to collaborative projects	3.56	Very Often
7.	I facilitate group discussions and provide guidance when needed.	3.80	Very Often
8.	I encourage peer feedback and support within groups.	3.68	Very Often
9.	I use various collaborative learning strategies (e.g., jigsaw, think-pair-share).	3.52	Very Often
10.	I ensure that collaborative activities are aligned with learning objectives.	3.88	Very Often
	Mean	3.66	Very Often
	TOTAL MEAN FOR THE TWO INDICATORS	**3.72**	**Very Often**

These findings underscore key implications. The observed gender disparities, particularly the anomalous Grade 11 data, warrant further investigation, as balanced gender ratios have been shown to foster richer classroom discourse [5]. Additionally, the declining interest in STEM and the limited uptake of TVL highlight the need to promote diverse academic pathways, as broader educational exposure enhances critical thinking [28]. While the consistency in age distribution supports targeted instructional strategies, older Grade 12 students may require additional academic support to address potential learning challenges.

The data revealed two critical trends in teachers' implementation of interactive learning strategies. The highest-rated practices were encouraging respectful debate and aligning collaborative activities with learning objectives, both receiving a mean score of 3.88. These findings reflect a strong adherence to student-centered pedagogies that foster critical thinking and goal-oriented learning [13]. In contrast, the lowest-rated strategies included assigning group roles

(3.48) and using structured techniques like think-pair-share (3.56), suggesting potential weaknesses in promoting systematic collaboration. This aligns with recent studies indicating that unstructured group work can lead to unequal participation among students [27]. Although the overall high mean score of 3.72 indicates a generally robust adoption of interactive teaching methods, it is important to note that self-reported data may mask real-world challenges in implementation—such as limited instructional resources or disparities in student engagement—particularly in post-pandemic educational settings [33].

These findings suggest practical implications for improving instructional effectiveness. First, targeted training initiatives should focus on enhancing lower-rated strategies, such as assigning group roles, by offering professional development workshops on equitable collaboration practices [6]. Additionally, to obtain a more accurate picture of how these strategies are being implemented in the classroom, it is recommended to supplement self-reported data with direct classroom observations. This approach will help validate the fidelity of implementation and offer richer insights into teaching practices [3].

Table 5 Level of Implementation of the Interactive Learning Approach as Perceived by a Teacher as to Feedback Mechanism and Use of Technology

		Weighted Mean	Adjectival Rating
	Feedback Mechanism		
1.	I provide students with regular feedback on their oral communication skills.	3.48	Very Often
2.	I offer specific and actionable feedback that students can use to improve	3.44	Very Often
3.	I provide feedback in a timely manner.	3.52	Very Often
4.	I use a variety of feedback methods (e.g., written, oral, peer feedback).	3.48	Very Often
5.	I encourage students to reflect on their own communication skills.	3.52	Very Often
6.	I provide opportunities for students to revise and improve their work based on feedback.	3.68	Very Often
7.	I created a culture where feedback is valued and seen as a tool for growth	3.64	Very Often
8.	I provide feedback on both the content and delivery of student presentations.	3.6	Very Often
9.	I use rubrics or other assessment tools to provide clear criteria for evaluation.	3.72	Very Often
10.	I provide feedback that is sensitive to students' individual needs and learning styles.	3.68	Very Often
	Mean	**3.58**	**Very Often**
	Use of technology		
1.	I use technology to enhance my teaching of oral communication skills.	3.76	Very Often
2.	I incorporate technology into student presentations and projects.	3.76	Very Often
3.	I use technology to provide students with access to diverse resources and examples of effective communication.	3.76	Very Often
4.	I utilize technology to facilitate online discussions and collaborative projects.	3.56	Very Often
5.	I employ technology for recording and analyzing student presentations.	3.64	Very Often
6.	I use technology to provide students with opportunities for self-assessment and reflection.	3.60	Very Often
7.	I explore and adapt new technologies to improve the teaching and learning of oral communication.	3.64	Very Often
8.	I provide students with training and support in using technology for communication purposes	3.48	Very Often
9.	I use technology to create engaging and interactive learning experiences.	3.68	Very Often
10.	I leverage technology to connect students with experts and other audiences.	3.52	Very Often

	Mean	3.64	Very Often
	Total Mean for the Two Indicators	3.61	Very Often

The analysis of the data reveals both strengths and areas for improvement in teachers' implementation of feedback mechanisms and technology integration. The highest-rated practice—using rubrics for evaluation with a mean score of 3.72—reflects a strong commitment to structured and transparent assessment, consistent with research indicating that rubrics enhance learning clarity and ensure consistent evaluation [4]. However, the lowest-rated items—providing specific, actionable feedback (3.44) and training students in the use of technology (3.48)—point to notable gaps in delivering personalized guidance and fostering digital literacy. These areas are essential for promoting equitable and effective learning experiences, particularly in increasingly tech-reliant classrooms [16]. The overall mean score of 3.61 suggests that these strategies are being regularly employed, yet the relatively narrow score range (3.44–3.76) indicates a more uniform, albeit less exceptional, level of implementation compared to other domains previously assessed.

These findings carry meaningful implications for instructional practice. To enhance feedback quality, schools and teacher training programs should prioritize professional development focused on delivering specific, growth-oriented feedback. This could include micro-teaching sessions and peer coaching aligned with evidence-based models [Hattie & Clarke, 2020]. Similarly, to address gaps in technology integration, teachers should be supported in adopting scaffolded digital tools—such as guided video reflections or step-by-step tech tutorials—that promote student accessibility and digital competence [20]. Addressing these areas can contribute to more inclusive and impactful learning environments.

Table 6 Level of Implementation of the Interactive Learning Approach as Perceived by a Teacher as to Differentiated Strategy

		Weighted Mean	Adjectival Rating
1.	Differentiated strategy		
2.	I differentiate my instruction to meet the diverse needs of my students	3.52	Very Often
3.	I provide students with choices in how they demonstrate their learning.	3.56	Very Often
4.	I use a variety of instructional methods and materials to cater to different learning styles.	3.44	Very Often
5.	I provide individualized support to students who are struggling.	3.48	Very Often
6.	I group students flexibly based on their needs and learning goals	3.4	Very Often
7.	I assess students' prior knowledge and adjust my instruction accordingly	3.64	Very Often
8.	I provide opportunities for students to work at their own pace.	3.68	Very Often
9.	I use differentiated assessments to evaluate student learning.	3.44	Very Often
10.	I collaborate with other teachers and support staff to meet the needs of all learners.	3.44	Very Often
11.	I create a classroom environment that is inclusive and supportive of all learners.	3.72	Very Often
	Mean	**3.52**	**Very Often**

The analysis of differentiated instructional strategies revealed important insights into current classroom practices. The highest-rated strategy was "I provide opportunities for students to work at their own pace," which received a weighted mean of 3.68. This reflects teachers' strong recognition of the value of self-paced learning, a key element of student-centered education that has gained importance in post-pandemic teaching environments. This finding aligns with research suggesting that self-paced approaches enhance student engagement and mastery, especially in diverse classroom settings [31, 35]. On the other hand, the lowest-rated item, "I use a variety of instructional methods and materials to cater to different learning styles," with a mean score of 3.44, suggests a potential gap in the use of multimodal instruction. This is particularly significant given the emphasis on Universal Design for Learning (UDL) principles, which advocate for flexible teaching methods to accommodate diverse learners [23].

Overall, the mean score of 3.52 across all items indicates consistent implementation of differentiated strategies, with most practices rated as "Very Often." However, the relatively narrow score range (3.44–3.68) implies that while

foundational differentiation strategies are in place, there is still room for advancing more sophisticated methods. In response to these findings, professional development programs should focus on enhancing teachers' skills in multimodal instruction and UDL to address areas of weakness. Additionally, the successful use of self-paced learning can be expanded through digital tools to further enrich differentiated instruction [8]. Encouraging collaborative planning among teachers may also help replicate effective strategies across other areas of instruction, fostering a more inclusive and adaptable learning environment [31].

Table 7 Significant Relationship Between the Demographic Profile of the Two Groups of Respondents and the Level of Implementation of the Interactive Learning Approach as Perceived by the Two Groups of Respondents

Source of Variance		p- value	Conclusion	Decision
Level of implementation of the interactive learning approach as perceived by the respondents (Teachers)	Age	.027	Sig.	Reject H_0
	Gender	.539	No Sig.	Accept H_0
	Number of years in teaching	.003	Sig.	Reject H_0
	Training related	.033	Sig.	Reject H_0
Level of implementation of the interactive learning approach as perceived by the respondents (Students)	Age	.779	No Sig.	Accept H_0
	Gender	.316	No Sig.	Accept H_0
	Academic Track	.212	No Sig.	Accept H_0

The analysis of significant relationships between demographic factors and the implementation of interactive learning strategies revealed several key findings. Among teacher demographics, three variables showed statistically significant relationships with the use of interactive learning methods. Age (p = .027) emerged as a factor, suggesting that differences in comfort with technology or pedagogical training may influence younger and older teachers' adoption of such strategies [25]. Years of teaching experience (p = .003) also proved significant, indicating that more experienced educators are likely to implement interactive methods more effectively due to their accumulated expertise [32]. Additionally, teachers who had undergone formal training in interactive methods were more likely to apply them in practice (p = .033), underscoring the importance of ongoing professional development [Sharova]. Conversely, gender did not show a significant relationship (p = .539), aligning with research that teaching strategies are not inherently gender-dependent [1].

For student demographics, no significant relationships were found between age, gender, or academic track and their perceptions of interactive learning strategies (p > .05). This suggests that the effectiveness and reception of interactive teaching approaches are less influenced by who the students are and more by how instruction is delivered [9]. These findings carry several implications. For practice, veteran teachers could be tapped as mentors for less experienced colleagues, while tailored training for younger educators could address gaps in pedagogical skills. Schools should also expand professional development focused on active learning and technology integration. Since student demographics do not significantly affect perceptions, the emphasis should be on implementing universally designed instruction that benefits all learners [23]. Future research may explore why teaching experience and training have such notable impacts on implementation, and how these variables shape teachers' application of interactive strategies across different career stages

4. Conclusion

The study reveals that teacher-related factors—particularly years of teaching experience, age, and training in interactive methods—significantly influence the implementation of interactive learning strategies, while student demographics (age, gender, academic track) show no meaningful impact. This suggests that the effectiveness of interactive learning depends more on educators' professional background and preparedness than on student characteristics. The findings highlight the importance of targeted teacher development and institutional support in fostering interactive classrooms.

Recommendations

Based on these findings, educational institutions should prioritize investing in teacher development programs that focus on modern pedagogical techniques, technology integration, and strategies to foster active student engagement. Targeted training for early-career teachers can help accelerate their proficiency in interactive methods, while

continuous professional development opportunities for teachers at all career stages ensure they stay updated with evolving practices. Additionally, schools should provide institutional support by offering resources like digital tools, collaborative spaces, and access to expert trainers. Tailored programs addressing generational differences in teaching styles and comfort with technology may further enhance effectiveness. Finally, systems to evaluate and monitor teacher progress can help refine training initiatives based on classroom outcomes. By focusing on teacher preparedness and institutional support rather than student characteristics, these strategies can significantly improve the adoption of interactive learning methods

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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