EDUCATION

Enhancing Experimentation Skills of Grade 5 Pupils in Science through the "See and Do Quest" Strategy

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Abstract

This study aimed to determine the effectiveness of the "See and Do Quest" Strategy in enhancing the experimentation skills of Grade 5 pupils at a selected public elementary school in Ozamiz City during the School Year 2025–2026. A classroom-based action research design using a one-group pretest–posttest approach was employed. The respondents consisted of forty-five (45) Grade 5 pupils selected through purposive sampling. Data were gathered using a researcher-made Experimentation Skills Assessment Sheet validated by experts and tested for reliability, with Cronbach's alpha values above 0.70. Data were analyzed using mean, standard deviation, frequency, percentage, and paired t-test through JAMOVI. Findings revealed that pupils' experimentation skills improved from Fairly Satisfactory before the implementation to Very Satisfactory after the intervention. Statistical analysis further showed a very highly significant difference between the pre-test and post-test scores, indicating that the "See and Do Quest" Strategy effectively enhanced pupils' experimentation skills in Science. The study concluded that the strategy is an effective learner-centered and inquiry-based approach in improving Grade 5 pupils' science process skills and engagement in scientific inquiry.

Keywords: science education; See and Do Quest strategy; experimentation skills; inquiry-based learning; Grade 5 pupils; science process skills

1 Introduction

1.1 Context and rationale

Teaching Science at the elementary level is vital for building students' curiosity and problem-solving skills and preparing them for future involvement in Science, technology, engineering, and mathematics (STEM) fields. Education systems worldwide face pressure to improve STEM skills because societies increasingly depend on scientific innovation and evidence-based decision-making. However, research shows that many students begin to lose interest in Science during the late elementary years, especially when instruction focuses on abstract ideas and passive learning (Deehan et al., 2022). This highlights the need to create teaching methods that actively engage students in meaningful scientific practices, including experiments. In the Philippines, this problem is even more significant. Science teaching in elementary schools, especially public ones, largely relies on textbooks, with few opportunities for hands-on experiments due to a lack of facilities, teaching materials, and teacher training in inquiry-based methods. Studies show that when practical activities are limited to demonstrations or verification exercises, students miss out on important skills such as observing, predicting, inferring, and concluding (Widyaningsih et al., 2020). As a result, students often see Science as hard and disconnected from real life.

Grade 5 is a pivotal stage in elementary science education, as pupils are expected to transition from simple content acquisition to more structured scientific inquiry. At this level, learners should already be developing foundational experimentation skills that support higher-order thinking and scientific reasoning. However, research has shown that many elementary pupils exhibit low proficiency in designing and conducting simple experiments, largely due to limited exposure to guided inquiry and hands-on activities (Lestari et al., 2023). This gap is further compounded in under-resourced settings, where access to laboratories and specialized instructional tools is minimal.

Recent literature emphasizes that effective science learning occurs when pupils are actively involved in seeing, doing, and reflecting on scientific phenomena. Constructivist and inquiry-based approaches highlight the importance of visual aids, guided questioning, and learner-centered activities in promoting deeper understanding (Cruz-Guzmán et al., 2020). Studies on hands-on and minds-on learning demonstrate that pupils develop stronger science process skills when instruction integrates observation, material manipulation, and purposeful tasks rather than rote memorization (Secrieru and Calalb, 2025). Moreover, guided inquiry models are effective in improving experimental skills among elementary learners, particularly when teachers scaffold activities to match pupils' developmental levels (Lestari et al., 2023).

Emerging research on gamified and quest-based learning further suggests that structured challenges and task-oriented activities can significantly enhance pupil motivation and engagement. Gamification and quest-based strategies have been shown to promote active participation, persistence, and enjoyment in learning, especially among young learners (Barab et al., as cited in Deehan et al., 2022). While such approaches have been applied successfully in other subject areas and technology-enhanced environments, empirical studies examining their direct impact on elementary science experimentation skills remain limited, particularly in developing country contexts.

In response to these challenges, the See and Do Quest strategy is proposed as a resource-efficient, learner-centered approach to enhance experimentation skills among Grade 5 pupils. The strategy emphasizes visual stimuli (“See”) and guided, task-based experimentation (“Do”) embedded within a quest-like learning structure that motivates pupils to complete scientific tasks progressively. By combining visual observation, hands-on activities, and guided inquiry, the strategy aligns with recommendations from science education research advocating for active learning and meaningful practical work (Marchand Martella et al., 2020).

Despite the growing body of literature supporting inquiry-based and experiential learning, a significant research gap remains regarding the effectiveness of integrated visual and quest-based strategies in improving experimental skills at the elementary level. This study seeks to address this gap by systematically examining the effects of the See and Do Quest strategy on the experimentation skills of Grade 5 pupils in Science. Findings from this research may provide empirical evidence to support innovative, scalable instructional practices that can be implemented even in schools with limited resources. Ultimately, this study aims to improve elementary science education by fostering essential scientific skills, promoting equitable learning opportunities, and strengthening the foundation for future STEM engagement.

1.2 The See and Do Quest strategy

In response to these challenges, the See and Do Quest strategy is proposed as a resource-efficient, learner-centered approach to enhance experimentation skills among Grade 5 pupils. The strategy emphasizes visual stimuli (“See”) and guided, task-based experimentation (“Do”) embedded within a

quest-like learning structure that motivates pupils to complete scientific tasks progressively. By combining visual observation, hands-on activities, and guided inquiry, the strategy aligns with recommendations from science education research advocating for active learning and meaningful practical work (Abrahams and Millar, 2008).

The See and Do Quest strategy actively engages pupils through concrete materials, visual prompts, simple science tools, and structured task cards that guide learners as they observe phenomena and perform hands-on experiments. During the "See" phase, pupils interact with pictures, real objects, diagrams, demonstrations, and short visual scenarios that help them recognize patterns and identify variables before experimentation. In the "Do" phase, pupils manipulate materials, follow guided procedures, record observations, and complete quest-based tasks. This combination of visual and hands-on engagement supports pupils' conceptual understanding by allowing them to construct knowledge from direct experience rather than passive listening. Research has shown that learners develop stronger science process and experimental skills when instruction integrates developmentally appropriate observation, material manipulation, and guided inquiry activities (van Eijck et al., 2024).

Several studies have reported that inquiry-based and experiential approaches similar to the See and Do Quest strategy have a significant positive effect on pupils' experimentation and science process skills. For instance, Marchand Martella et al. (2020) found that elementary pupils who participated in structured active-learning activities demonstrated higher proficiency in designing and conducting simple experiments than those exposed to traditional instruction. This suggests that approaches emphasizing guided experimentation are effective at developing learners' ability to observe, predict, and draw conclusions based on evidence.

Implementing the See and Do Quest strategy among Grade 5 pupils can be done through guided, step-by-step classroom activities embedded in regular Science lessons. Teachers begin by introducing a scientific concept, using visual stimuli to activate prior knowledge and focus pupils' attention on the phenomenon's observable features. This is followed by quest-based experimental tasks in which pupils work individually, in pairs, or in small groups to conduct simple experiments under teacher guidance. The teacher scaffolds each activity by providing clear instructions, guiding questions, and feedback to ensure that pupils correctly follow procedures and engage meaningfully with the task. Such scaffolded inquiry is effective in improving elementary pupils' experimentation skills and scientific reasoning, particularly when teacher support is gradually reduced as learners gain confidence (Lestari et al., 2023).

The See and Do Quest strategy typically follows a structured sequence: introduction of the task through visual prompts, guided observation and prediction, hands-on experimentation, data recording, and reflection. Pupils are encouraged to document their observations using tables, drawings, or simple written explanations, reinforcing accuracy and organization in data collection. Reflection activities at the end of each Quest allow pupils to explain their findings and connect results to scientific concepts. Studies indicate that such structured inquiry cycles strengthen pupils' understanding of scientific procedures and promote the development of experimentation skills through repeated, meaningful practice (Secrieru and Calalb, 2025).

During each stage, teachers carefully monitor learners' participation, accuracy of observations, and adherence to experimental procedures. The regular use of the See and Do Quest strategy encourages students to actively engage in scientific tasks, thereby reinforcing critical skills such as careful observation, logical prediction, and evidence-based reasoning. When implemented systematically, the

See and Do Quest strategy becomes a meaningful instructional approach that helps pupils develop confidence in experimentation, deepen their understanding of scientific concepts, and strengthen essential science process skills needed for future inquiry-based learning (Abrahams and Millar, 2008).

1.3 Statement of the problem

This action research aims to determine the effectiveness of the See and Do Quest as a strategy for enhancing experimentation skills among Grade 5 pupils at a selected school in Ozamiz City during the school year 2025–2026.

Specifically, it seeks to answer the following questions:

1. What is the level of experimentation skills of Grade 5 pupils before the implementation of the "See and Do Quest" strategy?
2. What is the level of experimentation skills of Grade 5 pupils after the implementation of the strategy?
3. Is there a significant difference between the pupils' experimentation skills before and after the implementation of the "See and Do Quest" strategy?

1.4 Null hypothesis

H_{01}: There is no significant difference in the experimentation skills of Grade 5 pupils before and after the implementation of the "See and Do Quest" strategy.

2 Research methodology

2.1 Research design

This study adopted a classroom-based action research approach using a one-group pretest–posttest approach. This design is appropriate for classroom-based action research, where the primary purpose is to improve teaching practices and learner outcomes within an existing educational setting. The design involved measuring the experimentation skills of the same group of Grade 5 pupils before and after the implementation of the See and Do Quest strategy to determine its effectiveness.

The pretest was administered before the intervention to establish the baseline level of pupils' experimentation skills. After implementing the See and Do Quest strategy in regular Science classes, a posttest was administered using the same instrument. The comparison of pretest and posttest results provided empirical evidence of any changes in pupils' experimentation skills attributable to the intervention. This design was chosen because it allows for direct measurement of learning gains over time and is practical in school settings where the use of control groups may not be feasible.

2.2 Research setting

This study was conducted at a public elementary school in Ozamiz City, Misamis Occidental, Philippines, that offered a complete basic education program, including Grade 5. The selected school served as the site for the See and Do Quest Strategy, implemented as part of regular instructional activities. The setting allowed the intervention to be implemented naturally within the learners' everyday classroom routines, ensuring that the strategy was experienced under authentic learning conditions. A Grade 5 class was chosen because pupils at this level were expected to develop foundational

experimentation skills, such as observation, prediction, and inference, which are crucial for scientific inquiry and often underdeveloped due to limited hands-on opportunities (DepEd K-12 Curriculum Guide, 2016). By situating the research in a functioning public school, the study generated findings that were both meaningful and applicable to similar educational settings in the region.

2.3 Respondents of the study

This study included Grade 5 pupils enrolled in a public elementary school in Ozamiz City, Misamis Occidental, Philippines, for the School Year 2025–2026. Purposive sampling was employed to select the class where the See and Do Quest was implemented, ensuring that the respondents were actively participating in the intervention. Only pupils whose parents or guardians consented to their participation were included, ensuring adherence to ethical research standards.

Grade 5 pupils were chosen as respondents because this level represented a critical stage in elementary science education, where learners were expected to develop foundational experimentation and science process skills. At this stage, pupils were introduced to more structured inquiry activities that required observation, prediction, variable identification, and concluding. Enhancing experimental skills at this level is essential for preparing pupils for more advanced scientific inquiry at higher grade levels.

2.4 Research instrument

The study used the following questionnaire as a data-gathering instrument:

2.4.1 Experimentation skills assessment sheet (Appendix A)

This researcher-designed instrument was used to measure the experimentation skills of Grade 5 pupils through a pretest and posttest administered before and after the implementation of the See and Do Quest strategy. The assessment sheet was developed based on studies that emphasize the importance of hands-on, inquiry-based, and experiential learning in developing science process and experimental skills among elementary learners (Widyaningsih et al., 2020).

The instrument consisted of developmentally appropriate items that assessed pupils' abilities to observe scientific phenomena, make predictions, identify variables, formulate simple hypotheses, record observations, and conclude. The test included multiple-choice and short-response items designed to reflect real classroom experimentation tasks appropriate for Grade 5 learners. The same assessment sheet was used for both the pretest and posttest to ensure consistency in measuring learning gains resulting from the intervention.

Each Science session lasted approximately 40 minutes, during which the See and Do Quest activities were integrated into the lesson. Pupils' experimental skills were evaluated using their pretest and posttest scores, enabling the researcher to assess improvements in skill acquisition. The assessment emphasized active engagement and understanding rather than rote memorization, consistent with inquiry-based science instruction. To ensure validity, education experts reviewed the tool for clarity and relevance, and a pilot test confirmed its appropriateness. Reliability was tested using Cronbach's alpha, with values above 0.70, indicating consistency.

To interpret pupils' experimentation skill performance, a four-point rating scale was used, where 4 indicates the highest level of proficiency, and 1 indicates the lowest:

Table 1. Scoring scale for the experimentation skills assessment.

Scores	Remarks
38–40	Outstanding
35–37	Very Satisfactory
32–34	Satisfactory
28–31	Fairly Satisfactory
1–28	Did Not Meet Expectations

2.4.2 Lesson plan (Appendix B)

In this study, the See and Do Quest Strategy was integrated into Grade 5 Science lesson plans to develop experimental skills. Each 40-minute lesson began with a short motivational or review activity to activate prior knowledge, followed by a guided instructional phase in which pupils were introduced to the scientific concept through visual prompts and concrete examples ("See").

The lesson then transitioned to the "Do" phase, where pupils engaged in hands-on, guided experimentation activities presented as quest-based tasks. These tasks required pupils to observe, predict outcomes, manipulate materials, record data, and draw conclusions in a structured yet engaging manner. The quest format was designed to increase motivation and sustained engagement while reinforcing experimentation skills through repeated practice.

At the end of each lesson, a brief synthesis and reflection activity was conducted to reinforce learning and allow pupils to articulate their observations and conclusions. By reviewing pupils' experimental performance and engagement during each session, the lesson plans served as an essential instrument for assessing the effectiveness of the See and Do Quest strategy in enhancing experimental skills and promoting active learning in Science.

2.5 Data collection

Prior to data collection, the researcher sought formal approval to conduct the study by submitting letters to the appropriate authorities. The process began with a letter to the Dean of the College, the Schools Division Superintendent, and the School Principal of the selected elementary school in Ozamiz City. Upon approval from the Superintendent and the Principal, subsequent letters were addressed to the ELC Coordinator and the Cooperating Teacher, and their consent was obtained prior to the implementation of any data collection procedures. Each letter detailed the objectives, methodology, and expected duration of the intervention.

After securing institutional approvals, the researcher distributed informed consent forms to the parents or guardians of the Grade 5 pupils, along with assent forms for the pupils themselves, ensuring voluntary participation. The study evaluated the effectiveness of the See and Do Quest Strategy in enhancing pupils' experimental skills.

Data collection was conducted over several lessons, each lasting 40 minutes. Each session began with a brief review of the previously introduced experimentation quest, followed by teacher-led instruction that incorporated the See and Do Quest into the main learning segment. During this time, the teacher introduced a new experimental task, explained its scientific concepts, and guided pupils through visual observation ("See") and hands-on activities ("Do") to practice throughout the lesson.

At the end of each session, a short recall activity was conducted in which pupils were asked to demonstrate their experimental skills, such as making observations, making predictions, and drawing inferences. These responses were recorded to monitor daily learning progress. In addition to the See and Do Quest assessments, a pre-assessment was administered before the first session to determine pupils' baseline experimentation skills level. After the intervention period, a post-assessment was given to evaluate changes in their skills.

Mean scores from the pre-assessment, post-assessment, and daily recall checks were computed using standardized scoring criteria to ensure reliable and objective measurement of pupils' performance. The collected data will then be analyzed to determine whether the See and Do Quest Strategy is effective in enhancing experimentation skills among Grade 5 pupils.

2.6 Ethical consideration

After conducting the study, ethical considerations were carefully established to prioritize the well-being, rights, and privacy of all participants. Ethical approval was sought from the Misamis University Research Ethics Board (MUREB) to ensure that the entire research procedure adhered to institutional and national ethical research standards. The researcher also adhered to all school policies and guidelines to safeguard the respondents' welfare throughout the study's implementation.

Approval to conduct the study was requested from the school principal, the grade-level head, and the class adviser. Their consent was obtained prior to any data collection to confirm that the procedures aligned with the school's operations and educational environment. These approvals attested that the research did not disrupt regular classroom instruction and that it was appropriate for Grade 5 learners.

Informed consent procedures were implemented for all participants. Parents or guardians of the selected Grade 5 pupils received consent forms outlining the study's purpose, procedures, duration, and expectations. Meanwhile, pupils provided assent, indicating that their participation was voluntary. All participants were informed that they had the right to withdraw from the study at any time without penalties or negative consequences.

Confidentiality and anonymity were strictly upheld. Personal identifiers such as names and addresses were not included in any part of the research documentation. Each participant was instead assigned a unique coded identification number to protect their identity. All collected digital data were encrypted, while physical documents such as answer sheets and consent forms were stored in a locked cabinet accessible only to the researcher. These measures were in accordance with the provisions of Republic Act No. 10173, also known as the Data Privacy Act of 2012, ensuring that all participants' privacy, dignity, and security are maintained.

The study was carefully designed to minimize risks and prevent harm. All activities, including See and Do Quest sessions, were conducted within regular classroom settings and under direct teacher supervision. Tasks were age-appropriate and did not involve any physical strain, psychological discomfort, or emotional stress. If any participant felt unsafe or uncomfortable, immediate support and adjustments were provided.

By adhering to these ethical measures, the researcher ensured that the rights and welfare of the pupils were fully protected while maintaining the study's integrity, credibility, and trustworthiness.

2.7 Data analysis

This study utilized the following statistical methods for data analysis using JAMOVI software:

Frequency and percentage were employed to describe the level of Grade 5 pupils' experimentation skills before and after the implementation of the See and Do Quest strategy.

The mean and standard deviation were used to assess the average level and variability of pupils' experimental skills before and after the intervention.

A paired t-test was conducted to determine whether there were significant differences in Grade 5 pupils' experimental skills before and after the intervention. This statistical procedure aimed to evaluate the effectiveness of the See and Do Quest strategy in improving pupils' ability to observe, predict, infer, and conclude from scientific experiments.

2.8 Dissemination plan

The findings of the study were disseminated to school administrators, Science teachers, and Grade 5 pupils and their parents through short reports and simplified summaries that clearly present the results of the See and Do Quest strategy in enhancing pupils' experimentation skills. It was ensured that during the dissemination of the results, ethical standards, such as informed consent and assent procedures, were followed to protect participants' rights and confidentiality.

The study results were also disseminated to the university community and other interested educators through research presentations, learning action cell sessions, and written research outputs. These dissemination activities served as an avenue to update educators on effective, resource-efficient instructional strategies that facilitated inquiry-based, experiential learning in elementary science classrooms.

2.9 Utilization plan

The results of this study were presented in a poster and published. A poster highlighting the key findings, conclusions, and recommendations was displayed during research dissemination activities to help teachers, school leaders, and other stakeholders easily understand the effectiveness of the See and Do Quest Strategy. The study was also prepared for publication in an academic journal or institutional repository to reach a wider audience and encourage educators to adopt multimodal, inclusive strategies that enhance pupil engagement and vocabulary learning in mainstream classrooms.

3 Results and discussion

3.1 Level of experimentation skills of Grade 5 pupils before the implementation of the "See and Do Quest" strategy

Table 2 presents the level of experimentation skills of Grade 5 pupils before the implementation of the "See and Do Quest" Strategy. The results revealed that the pupils' overall performance was at the Fairly Satisfactory level, with a mean of M = 30.03 (SD = 1.44). In terms of distribution, the majority of the pupils fell under the Did Not Meet Expectations category (n = 34, 75.6%), with a mean score of M = 22.4 (SD = 3.64). This was followed by pupils who obtained a Fairly Satisfactory rating (n = 6, 13.3%) with (M = 29.2, SD = 0.41), those who achieved a Satisfactory level (n = 3, 6.7%) with (M = 33.0, SD = 1.00), and lastly, pupils who attained a Very Satisfactory rating (n = 2, 4.4%) with (M =

35.5, SD = 0.71). No pupil achieved an Outstanding performance level during the pre-implementation stage.

The findings indicate that most Grade 5 pupils had limited experimentation skills prior to the implementation of the "See and Do Quest" Strategy. The high percentage of pupils who did not meet expectations suggests that many learners had difficulty performing scientific processes such as observing, hypothesizing, conducting procedures, and interpreting results. This may indicate inadequate exposure to hands-on, inquiry-based learning experiences that develop practical science skills (Lestari et al., 2023). Moreover, the relatively low number of pupils who reached the satisfactory and very satisfactory levels indicates that only a few learners were able to apply experimental skills independently and effectively. The low standard deviations among the higher-performing groups further indicate that their scores were closely clustered, reflecting consistency among the few pupils who demonstrated better experimentation abilities. Overall, the findings highlight the need for more engaging and experiential teaching strategies that can actively involve pupils in scientific investigations and improve their confidence in conducting experiments (Abrahams and Millar, 2008)

The results imply that science teachers, school administrators, and curriculum planners should strengthen the use of interactive, learner-centered instructional approaches to improve pupils' experimental skills. Teachers may provide more hands-on activities, guided laboratory tasks, collaborative experiments, and inquiry-based projects that encourage active participation and critical thinking (Deehan et al., 2022). School administrators may also support science instruction by ensuring the availability of laboratory materials and conducting professional development programs focused on innovative science teaching strategies (Evitasari et al., 2025). In addition, the implementation of the "See and Do Quest" Strategy may serve as an intervention program that can help bridge the gaps identified in the pretest results by providing structured and engaging activities that enhance pupils' scientific process skills, problem-solving abilities, and overall performance in Science (van Eijck et al., 2024).

Table 2. Level of experimentation skills of Grade 5 pupils before the implementation of the “See and Do Quest” strategy.

Performance	Frequency	Percentage	M	SD
Very Satisfactory	2	4.4	35.5	0.71
Satisfactory	3	6.7	33.0	1.00
Fairly Satisfactory	6	13.3	29.2	0.41
Did Not Meet Expectations	34	75.6	22.4	3.64
Overall Performance	45	100.00	30.03	1.44

Note: 38–40 (Outstanding); 35–37 (Very Satisfactory); 32–34 (Satisfactory); 29–31 (Fairly Satisfactory); 1–28 (Did Not Meet Expectations)

3.2 Level of experimentation skills of Grade 5 pupils after the implementation of the “See and Do Quest” strategy

Table 3 presents the level of experimentation skills of Grade 5 pupils after the implementation of the "See and Do Quest" Strategy. The findings revealed that the pupils' overall performance improved to the Very Satisfactory level, with a mean of M = 34.53 (SD = 0.79). In terms of performance distribution, the highest proportion of pupils obtained an Outstanding rating (n = 15, 33.3%) with a mean score of (M = 38.7, SD = 0.799), followed closely by those who achieved a Very Satisfactory rating (n = 15, 33.3%) with (M = 35.9, SD = 0.799). Meanwhile, pupils who reached the Satisfactory level

numbered n = 10 (22.2%) (M = 33.1, SD = 0.994), while the fewest pupils fell under the Fairly Satisfactory category (n = 5, 11.1%) (M = 30.4, SD = 0.548). Notably, no pupil remained in the Did Not Meet Expectations category after the intervention was implemented.

The findings suggest that the "See and Do Quest" Strategy positively influenced Grade 5 pupils' experimentation skills in Science. The increase in the overall mean score and the absence of pupils in the Did Not Meet Expectations category indicate a substantial improvement in learners' ability to perform scientific processes and experimentation tasks. The equal percentage of pupils who attained Outstanding and Very Satisfactory ratings further implies that the strategy was effective in helping learners develop higher-order thinking skills, active participation, and confidence in conducting experiments. Moreover, the relatively low standard deviations across all performance levels indicate consistency in pupils' scores, suggesting that the intervention benefitted not only high-performing learners but also those who previously struggled with experimentation activities. These findings support the idea that engaging, hands-on, and inquiry-based strategies can significantly enhance pupils' understanding and application of scientific concepts and skills.

The results imply that science teachers should continuously integrate interactive and experiential learning strategies, such as the "See and Do Quest" Strategy, into classroom instruction to sustain and further improve pupils' experimentation skills. School administrators may support this initiative by providing adequate laboratory materials, instructional resources, and training programs that strengthen teachers' competence in implementing learner-centered science activities. Curriculum planners and education stakeholders may also consider incorporating more inquiry-based and performance-oriented tasks in Science instruction to promote active learning and skill development. To address the remaining gaps among pupils who achieved only the fairly satisfactory and satisfactory levels, teachers may provide remediation activities, peer-assisted experiments, science workshops, and differentiated instruction to cater to varying learning needs. Continuous monitoring and assessment of pupils' experimentation skills may also help ensure sustained improvement and academic growth in Science learning.

Table 3. Level of experimentation skills of Grade 5 pupils after the implementation of the “See and Do Quest” strategy.

Performance	Frequency	Percentage	M	SD
Outstanding	15	33.3	38.7	0.799
Very Satisfactory	15	33.3	35.9	0.799
Satisfactory	10	22.2	33.1	0.994
Fairly Satisfactory	5	11.1	30.4	0.548
Overall Performance	45	100.00	34.53	0.79

Note: 38–40 (Outstanding); 35–37 (Very Satisfactory); 32–34 (Satisfactory); 29–31 (Fairly Satisfactory); 1–28 (Did Not Meet Expectations)

3.3 Significant difference between the pupils’ experimentation skills before and after the implementation of the “See and Do Quest” strategy

Table 4 presents the significant difference between the pretest and posttest scores on experimentation skills of Grade 5 pupils after the implementation of the "See and Do Quest" Strategy. The findings revealed a highly significant difference in the pupils' experimental skills before and after the implementation of the intervention, as reflected by the computed t-value and probability value (t = 22.7, p = 0.001). The mean score of the pupils increased from M = 24.6 (SD = 5.18) on the pretest to M

= 35.6 (SD = 2.92) on the posttest. Since the obtained p-value was less than the 0.05 level of significance, the null hypothesis stating that there is no significant difference in the experimentation skills of Grade 5 pupils before and after the implementation of the "See and Do Quest" Strategy was rejected.

The significant increase in the pupils' mean scores indicates that the "See and Do Quest" Strategy was effective in enhancing the experimentation skills of Grade 5 pupils in Science. The substantial improvement from the pretest to the posttest suggests that the intervention provided meaningful learning experiences that enabled pupils to understand scientific concepts better and apply experimentation processes more effectively. The higher posttest mean also implies that the pupils became more engaged, confident, and skilled in conducting science-related activities after exposure to the strategy. Furthermore, the lower standard deviation in the posttest scores compared to the pretest scores suggests that pupils' performances became more consistent after the implementation of the intervention. This consistency may indicate that the strategy benefitted a wide range of learners, including those who previously demonstrated lower experimentation skills. The very highly significant result further strengthens the claim that interactive and hands-on learning approaches can positively influence pupils' science performance and practical skills development.

There were no non-significant findings observed in the study since the obtained p-value (p = 0.001) was lower than the 0.05 level of significance. This means that all results consistently supported the effectiveness of the "See and Do Quest" Strategy in improving the experimentation skills of the pupils. The absence of non-significant findings further suggests that the intervention had a measurable and meaningful impact on the learners' academic performance in Science.

The findings imply that science teachers should continuously adopt and strengthen the use of innovative, learner-centered, and inquiry-based teaching strategies to improve pupils' experimentation skills and overall science achievement. School administrators may provide support through the allocation of laboratory materials, instructional resources, and professional development training focused on experiential science teaching approaches. Curriculum planners and education stakeholders may also consider integrating more activity-based and hands-on learning experiences into the Science curriculum to promote active participation and deeper understanding among learners. To sustain the gains observed in the study, teachers may conduct regular science investigatory activities, collaborative experiments, guided discovery tasks, and science enrichment programs that further develop pupils' critical thinking, problem-solving, and experimentation skills. Continuous monitoring and assessment may also help ensure that learners maintain and further improve their performance in Science.

Table 4. Significant difference between the pupils' experimentation skills before and after the implementation of the "See and Do Quest" strategy.

Performance	M	SD	T-value	P-value	Decision
Before the Implementation of the "See and Do Quest" Strategy	24.6	5.18	22.7***	0.001	Reject H_{01}
After the Implementation of the "See and Do Quest" Strategy	35.6	2.92			

Note: ***p < 0.001 (Very Highly Significant); **p < 0.01 (Highly Significant); *p < 0.05 (Significant)

4 Summary, findings, conclusions and recommendations

4.1 Summary

This study aimed to determine the effectiveness of the "See and Do Quest" Strategy in enhancing the experimentation skills of Grade 5 pupils at a selected school in Ozamiz City during the School Year 2025–2026. Specifically, it sought to determine the level of experimentation skills of Grade 5 pupils before the implementation of the "See and Do Quest" Strategy, determine the level of experimentation skills of Grade 5 pupils after the implementation of the strategy, and identify whether there was a significant difference between the pretest and posttest experimentation skills scores of the pupils after the implementation of the strategy.

4.2 Findings

This study yielded the following findings:

1. The level of experimentation skills of Grade 5 pupils before the implementation of the “See and Do Quest” Strategy was at the Fairly Satisfactory level, with an overall mean of 30.03 and a standard deviation of 1.44. Most of the pupils fell under the Did Not Meet Expectations category.
2. The level of experimentation skills of Grade 5 pupils after the implementation of the “See and Do Quest” Strategy improved to the Very Satisfactory level, with an overall mean of 34.53 and a standard deviation of 0.79. No pupil remained under the Did Not Meet Expectations category after the implementation of the strategy.
3. There was a very highly significant difference between the pretest and posttest experimentation skills scores of the pupils after the implementation of the "See and Do Quest" Strategy, as reflected by the computed t-value of 22.7 and p-value of 0.001. Thus, the null hypothesis was rejected.

4.3 Conclusions

Based on the findings of the study, the following are the conclusions:

1. Grade 5 pupils demonstrate fairly satisfactory experimentation skills before the implementation of the “See and Do Quest” Strategy.
2. Grade 5 pupils demonstrate improved and very satisfactory experimentation skills after the implementation of the “See and Do Quest” Strategy.
3. The “See and Do Quest” Strategy effectively enhances the experimentation skills of Grade 5 pupils in Science.

4.4 Recommendations

Based on the findings and conclusions of the study, it is recommended that:

1. Science teachers integrate the “See and Do Quest” Strategy through hands-on and inquiry-based activities to improve pupils’ experimentation skills and science performance.
2. School administrators provide laboratory materials, instructional resources, and teacher training programs that support the effective implementation of learner-centered Science strategies.
3. Future researchers conduct similar studies using different groups of respondents, grade levels, or instructional strategies to validate further the effectiveness of the "See and Do Quest" Strategy in improving experimentation skills.

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