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## NARRATIVES OF SCIENCE TEACHERS ON THE USE OF COLLABORATIVE LEARNING: BASES FOR AN INTERVENTION PROGRAM

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### ABSTRACT

This qualitative-phenomenological study explored the narratives of science teachers on the use of collaborative learning as bases for an intervention program in Oton National High School during the School Year 2025–2026. Data were collected from seven (7) science teachers through a validated researcher-made interview schedule. Using thematic analysis, the study provided valuable insights for designing intervention programs that could enhance both teaching practices and student learning outcomes in specialized science education. Based on the results of the in-depth interview conducted with the participants, it was found that the narratives of science teachers on the use of collaborative learning include pairing weak learners with fast learners, providing opportunities for learners to ask questions and share ideas, offering ease and comfort to teachers, and experiencing unequal participation among learners during group activity. Given the results, the study recommends collaborative learning as a primary instructional strategy to ensure students effectively master complex scientific concepts.

**Keywords:** *Narratives, Science Teachers, Collaborative Learning, Intervention Program*

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## INTRODUCTION

Collaborative learning is a pedagogical approach wherein students interact with peers to achieve shared goals and deepen conceptual understanding. This strategy necessitates active cooperation and mutual accountability, as each member contributes to the collective success of the group. Given that learning often occurs through peer-led discussions and the exchange of ideas—frequently outside of direct teacher observation—effective communication and social interaction are essential for successful knowledge construction (Johnson & Johnson, 2021).

Typically involving small groups working toward common objectives, collaborative learning fosters cooperative problem-solving and active engagement. Research indicates that this method significantly enhances academic achievement, improves interpersonal communication, and increases information retention compared to solitary learning. The efficacy of this approach is rooted in core principles such as positive interdependence, individual accountability, and promotive interaction (Johnson & Johnson, 2021).

Recent scholarship emphasizes that collaborative learning has the potential to bolster student confidence, motivation, and overall learning outcomes (Supena et al., 2021; Buriro et al., 2023). While the terms collaborative, cooperative, and team-based learning are often used interchangeably, collaborative learning specifically denotes student-driven activities where the teacher functions primarily as a facilitator (Kirschner et al., 2021). Furthermore, this approach promotes deep learning through high-quality social interactions, including argumentation and the critical questioning of contradictory information (Visschers-Pleijers et al., 2021). In science

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education, such engagement is vital for conceptual change, as students explain and interrogate complex processes among their peers (Van Boxtel et al., 2021; Linton et al., 2021). Consequently, learning outcomes in these settings depend heavily on the quality of peer-to-peer discourse and collective idea-building (Chinn et al., 2021; Barron et al., 2021).

Despite the extensive literature regarding the benefits of collaborative learning, several critical gaps remained. Most existing research focused on higher education or general classroom settings, with limited data specifically addressing collaborative learning within Special Science Elementary School (SSES) programs. Additionally, while positive outcomes were well-documented, there was insufficient evidence concerning teachers' lived experiences, specific challenges, and coping strategies when implementing collaborative models within specialized science curricula. Furthermore, few studies examined the integration of collaborative learning alongside intervention programs targeted at learners performing below grade level.

Thus, this study was conducted to address these gaps by exploring the experiences of teachers, the challenges they encountered, and the strategies they employed to facilitate collaborative learning in SSES classrooms. The findings sought to provide valuable insights for designing intervention programs that could enhance both teaching practices and student learning outcomes in specialized science education.

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## MATERIALS AND METHODS

### Research Methodology

This chapter outlines the comprehensive methodology employed in the study, detailing the research design, participant selection, and the specific instruments and procedures used for data collection and analysis. The central aim of this investigation is to examine the personal accounts of science educators regarding collaborative learning practices, which may serve as the foundation for developing a targeted intervention program at Oton National High School during the 2025-2026 academic year.

### Research Method

This study employed a descriptive qualitative approach, utilizing in-depth interviews as the primary method of inquiry. This research strategy was designed to systematically detail a phenomenon exactly as it occurs in its natural environment, avoiding any manipulation of variables.

As highlighted by Elliott (2025), descriptive research seeks to offer a precise representation of existing conditions, instructional practices, or interpersonal dynamics within schools. By documenting authentic events and participant perceptions without interfering with the setting, this method allows researchers to effectively identify trends and practical implications relevant to the educational field.

During the interview process, the researcher and the participant were positioned comfortably together to facilitate a thoughtful dialogue centered on a specific topic. This arrangement was designed to create a conducive environment for the interviewee to reflect

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deeply on a series of questions. Ultimately, the goal is to capture the essential perspectives and core insights of the participants within their social context, using their detailed responses to build a comprehensive understanding of the issue at hand.

## Research Design

The study adopted phenomenological research design, a philosophical framework within qualitative research that seeks to understand the world through the eyes of the participants. By centering on individuals' subjective interpretations of their own lives, this approach explores how personal perspectives may differ from conventional or widely accepted viewpoints. Frequently utilized in disciplines like psychology and sociology, phenomenology relies on in-depth interviews to capture the unique impressions and lived experiences of the subjects.

At its core, phenomenology examines the structures of human consciousness from a first-person point of view. According to Biemel and Spiegelberg (2024), the primary objective is to investigate and describe phenomena exactly as they are consciously perceived. This requires the researcher to set aside preconceived notions and theoretical explanations, focusing instead on the authentic essence of the experience as it is described by the participant.

## Participants of the Study

The participants of the study were seven (7) science teachers purposely chosen from the science teachers of Oton National High School. These individuals were chosen as the primary respondents due to their direct involvement in delivering the science curriculum and

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their first-hand observations of student interactions. Their collective feedback provides the essential data needed to shape the study's outcomes.

## Sampling Design

The study utilized a purposive sampling design, a non-probability technique where participants were selected specifically because they possessed the precise characteristics required for the research (Nikolopoulou, 2023). Often referred to as judgmental sampling, this method involved the researcher intentionally choosing individuals who were best positioned to provide the high-quality information necessary to fulfill the study's objectives. By selecting these units "on purpose," the researcher relied on professional judgment to identify cases and events that would offer the most significant insights for the investigation.

## Research Instrument

The research instrument employed for this investigation was a custom interview schedule developed by the researcher. This specialized tool was crafted to ensure the inquiry remained aligned with the study's specific goals, providing a clear framework for the interactions between the investigator and the educators. By designing the instrument specifically for this study, the researcher ensured that the inquiries were relevant to the unique context of the science department.

Functioning as a standardized guide, the interview schedule consisted of a pre-planned list of questions that facilitated a consistent data collection process. As noted by Socio.health (2024), such a schedule serves to maintain uniformity, ensuring that the same core topics and questions are addressed across all sessions. This systematic approach was vital for supporting

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a reliable comparison and analysis of the data gathered during the face-to-face or electronic meetings.

The core of the interview schedule was centered on two primary questions designed to elicit the detailed narratives of the science teachers. These focal points were specifically structured to capture the depth of their professional experiences and personal reflections regarding the implementation of collaborative learning. This concentrated focus allowed the researcher to gather rich, qualitative insights that were essential for the development of the intended intervention program.

To complement the written schedule, audio and video recording devices were utilized to capture the nuances of the dialogue and provide thorough documentation. The use of these electronic tools was strictly contingent upon the explicit permission of each participant, ensuring that the data-gathering process remained ethically sound. These recordings allowed for a more precise transcription of the teachers' responses, preserving the authenticity of their narratives for later thematic interpretation.

### **Validity of the Research Instrument**

Before assessing the validity of the researcher-developed interview schedule, the researcher sought formal review and modification from a group of experts. This group included the study's adviser, the Dean of the Graduate School, and a panel of jurors selected for their specialized knowledge in research methodology, testing, assessment, and linguistics. This rigorous vetting process was designed to refine each question and ensure the instrument was professionally scrutinized before implementation.

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Validity serves as the benchmark for ensuring that a study's findings and conclusions accurately and meaningfully represent the subject being investigated. As Creswell and Creswell (2022) emphasize, this process confirms that the research tool truly measures its intended variables, yielding results that are credible reflections of reality. To establish content validity, the instrument's format and questions must be strictly aligned with the study's objectives, ensuring every item is relevant and representative of the core concepts.

To finalize the instrument, the researcher carefully integrated the comments, corrections, and suggestions provided by the validation panel. This refinement process was structured using the criteria established by Good and Scates (1972, as cited by Soqueña, 2021). By incorporating this expert feedback through a recognized evaluative framework, the researcher enhanced the overall accuracy and utility of the data collection tool in relation to the study's goals.

### Data Gathering Procedures

To ensure the study was conducted with full authorization, the researcher secured formal permits from the adviser, the Dean of the Graduate School, and the Office of the Schools Division Superintendent. Additionally, approvals were obtained from the Office of the District Supervisors, the respective School Heads, and all individual participants. To facilitate the process, the researcher personally traveled to schools or other community locations that were most convenient for the respondents to carry out the interviews.

Ethical considerations were a priority, and the researcher encouraged all participants to sign waivers or consent forms regarding their involvement in the study.

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During the in-depth interviews, both voice and video recorders were employed to accurately capture every detail of the participants' responses. Once the series of interviews was finished, the researcher consolidated all the gathered data for systematic review.

## Data Analyses

The data collected via the interview schedule was scrutinized using thematic analysis, a qualitative methodology specifically chosen for its capacity to detect, interpret, and document recurring patterns within narrative information. This analytical framework allowed the researcher to extract profound insights from the science teachers' accounts regarding their implementation of collaborative learning strategies.

As noted by Braun and Clarke (2023), thematic analysis offered a rigorous yet adaptable structure for processing qualitative data, facilitating the identification of both overt and underlying meanings within the participants' stories. This method proved particularly effective for educational research aimed at deciphering intricate social and organizational behaviors. Furthermore, Nowell et al. (2021) highlighted that this approach bolstered the study's transparency and credibility by requiring a systematic method for coding and interpreting the gathered information.

The transcribed interview data was processed according to the thematic analysis framework established by Braun and Clarke (2023), which focused on the identification and reporting of significant qualitative patterns.

The analysis adhered to a standardized six-phase procedure:

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1. Familiarization with Data: The researcher engaged in a repetitive process of reading the transcripts in both the original local language and the English translation to gain a deep understanding of the content.
2. Generating Initial Codes: Meaningful segments of the text were assigned concise labels or phrases—such as "shared phone," "fear of judgment," or "poor signal"—to categorize the raw data.
3. Searching for Themes: These initial codes were synthesized into potential overarching themes and sub-themes that represented major patterns; for instance, labels like "no insult" and "private correction" were clustered under a broader conceptual category.
4. Reviewing Themes: The researcher refined these themes by cross-referencing them with the complete dataset to ensure they authentically represented the participants' intent and the research focus.
5. Defining and Naming Themes: Clear, academically rigorous titles were developed for the final themes that emerged from the data, which were subsequently presented in the fourth chapter.
6. Producing the Report: The final phase involved integrating the themes and supporting direct quotes into a cohesive narrative structure for data interpretation, ensuring a logical connection back to the study's theoretical framework.

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## RESULTS AND DISCUSSIONS

This investigation was initiated to explore the personal accounts and professional experiences of science teachers regarding the implementation of collaborative learning, serving as the essential groundwork for a future intervention program at Oton National High School during the 2025-2026 academic year.

A qualitative research methodology was employed to conduct this study, focusing on the depth and context of the educators' shared experiences.

The study's participant consisted of seven (7) science teachers currently assigned to Oton National High School. These participants employed collaborative learning as a strategy in teaching science subject.

Data collection was facilitated through an interview schedule, with the sessions strategically planned to accommodate the personal and professional availability of the respondents.

The inquiry utilized a researcher-developed questionnaire that underwent a rigorous validation process by subject matter experts. Every recommendation and corrective comment provided during the validation stage was carefully integrated into the final tool, and official permission to proceed with the interviews was secured only after the questionnaire was finalized.

Formal authorizations were obtained from a comprehensive list of stakeholders, including the research adviser, the Dean of the Graduate School, the Office of the Schools

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ISSN: 2704-3010

Volume VII, Issue III

February 2026

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Division Superintendent, the School Head, and the individual teachers themselves, ensuring full ethical and administrative compliance.

Once collected, the qualitative data was systematically processed, examined, and decoded using thematic analysis to identify core patterns and insights.

The research yielded the following significant findings:

Based on the results of the in-depth interview with the participants, it was found that the narratives of science teachers on the use of collaborative learning include pairing weak learners with fast learners, providing opportunities for learners to ask questions and share ideas, offering ease and comfort to teachers, and experiencing unequal participation among learners during group activity.

The implementation of collaborative learning revealed a variety of behavioral dynamics among the students. These observations encompassed both positive and negative social interactions that surfaced during and after the group activities. A significant challenge identified was the emergence of over-reliance or "passive dependence" within certain groups; when a member was perceived as particularly bright or knowledgeable, others tended to disengage, allowing a single individual to shoulder the entire task.

To mitigate such occurrences and ensure equitable participation, it is essential for teachers to strategically monitor groupings and pairings to prevent biases and academic loafing. Furthermore, the study noted a disparity in the effectiveness of this approach across different learner profiles; teachers observed that collaborative learning

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was more seamlessly integrated in higher-performing sections, whereas lower-performing sections often required more intensive teacher intervention, contradicting the student-led nature of the collaborative model.

However, the collaborative environment also served as a catalyst for revealing the "hidden" potential and positive behaviors of students. Because learners often felt more at ease and comfortable within a peer-supported structure, they were more inclined to express ideas they might otherwise withhold in a traditional teacher-centered setup. This sense of psychological safety within the group allowed for more authentic self-expression and social bonding.

## CONCLUSION

In the light of the findings and insights arrived in this study, the following recommendations are highlighted:

Primarily, science teachers are encouraged to intentionally design groupings that mix students with different skill levels to enable peer scaffolding and reinforce mastery for all participants. By facilitating active peer exchange, educators can create structured opportunities for students to discuss and explain concepts, which strengthens reasoning abilities and supports thoughtful participation.

Furthermore, teachers should transition into the role of instructional facilitators by designing experiences that allow students to work autonomously, thereby improving classroom management and providing timely, targeted assistance. To ensure the effectiveness of these activities, it is essential to organize groups with specific responsibilities and clear

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instructions, utilizing active observation to prevent participation imbalances and strengthen individual accountability.

Beyond the classroom level, learners should be encouraged to embrace collaborative responsibility by actively engaging in their assigned roles and supporting their peers to build self-confidence and interpersonal trust.

On an institutional level, school heads should provide the necessary infrastructure, including flexible learning spaces and administrative support, to sustain these collaborative practices.

Concurrently, Department of Education (DepEd) officials are urged to promote pedagogical innovation by integrating collaborative learning frameworks into national teacher training programs, advocating for these strategies as essential tools for bridging achievement gaps nationwide. Curriculum planners also play a vital role by embedding social learning components directly into science modules, ensuring that instructional materials are tailored to support diverse learner demographics through group-based inquiry.

Finally, the study suggests that future researchers expand longitudinal inquiry into the long-term impact of collaborative learning on critical thinking and academic performance within specialized science programs. Investigations into innovative strategies for overcoming technological barriers in group settings remain a critical area for further study.

Ultimately, collaborative learning is recommended as a primary instructional strategy to ensure that students effectively master complex scientific concepts. By fostering group engagement and mutual assistance, this approach helps bridge the gap between diverse

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Volume VII, Issue III

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learners, empowering them to achieve both academic success and the collaborative spirit essential for their future endeavors.



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