International Journal of Education, Literacies, and Curriculum Studies
ISSN: 3116-2991
https://ijelcs.minduraresearch.com/journal/index

EXPLORING GRADE 6 LEARNERS' LIVED EXPERIENCES IN HANDS-ON AND LECTURE-BASED SCIENCE INSTRUCTION: BEHAVIORAL ENGAGEMENT, LEARNING PARTICIPATION AND ASSESSMENT EXPERIENCES

Ronaldo S. Dimmangna[1], Dr. Alma Gonzales[2]
[1]*Northeastern College, Santiago City, Philippines*
rondimz22@gmail.com[1]
[2]*Northeastern College, Santiago City, Philippines*
almag0400@gmail.com[2]

Publication Date: **06-05-2016**

ABSTRACT

This qualitative phenomenological study explored Grade 6 learners' lived experiences in hands-on and lecture-based Science instruction, focusing on behavioral engagement, classroom participation, and assessment experiences. Specifically, the study examined learners' perceptions regarding instructional approaches, participation behaviors, interaction patterns, and experiences during Science-related assessments. Data were gathered through semi-structured in-depth interviews and focus group discussions with fifteen purposively selected Grade 6 learners from a public elementary school. Thematic analysis following Braun and Clarke's framework was utilized in analyzing the data. Findings revealed that learners demonstrated higher behavioral engagement, classroom interaction, and conceptual understanding during hands-on Science activities compared to lecture-based instruction. Participants described hands-on learning experiences as enjoyable, interactive, collaborative, and easier to understand due to active participation and practical application of concepts. In contrast, lecture-based instruction was perceived as useful for content explanation and note-taking but often associated with passive participation, reduced attention, and limited learner interaction. Learners also emphasized that assessment experiences became less stressful and more meaningful when instructional activities involved experimentation, demonstrations, and collaborative tasks. Despite resource limitations and varying learner participation levels, hands-on instruction promoted curiosity, confidence, and active classroom involvement. The findings underscore the importance of experiential and learner-centered Science instruction in strengthening engagement, participation, and assessment performance among elementary learners.

Keywords: *hands-on instruction, lecture-based instruction, Science education, behavioral engagement, learner participation, assessment experiences, qualitative research*

Received: 03-02-2026 **Revised:** 03-19-2026 **Accepted:** 05-31- 2026 **Published:** 06-05-2016

ISSN:3116-2991

International Journal of Education, Literacies, and Curriculum Studies
ISSN: 3116-2991
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I. INTRODUCTION

Science education plays a significant role in developing learners' critical thinking, problem-solving abilities, scientific literacy, and understanding of real-world phenomena. In elementary education, effective Science instruction helps learners develop curiosity, inquiry skills, and meaningful understanding of scientific concepts through active classroom experiences. Consequently, instructional approaches significantly influence learners' behavioral engagement, classroom participation, and academic experiences in Science learning.

Two commonly utilized instructional approaches in Science education are hands-on instruction and lecture-based instruction. Hands-on instruction emphasizes active learner participation through experimentation, demonstrations, collaborative activities, and experiential learning tasks. This approach encourages learners to explore scientific concepts through observation, manipulation, and inquiry-based activities. In contrast, lecture-based instruction primarily focuses on teacher-centered discussion, explanation, and content delivery, where learners assume more passive roles during classroom interaction.

Behavioral engagement and participation are important indicators of meaningful learning experiences in Science classrooms. Learners who actively participate in classroom discussions, collaborative activities, and practical tasks tend to demonstrate greater motivation, comprehension, and confidence. Conversely, passive learning environments may reduce learner interaction, attentiveness, and classroom involvement.

Assessment experiences also influence learners' perceptions and participation in Science instruction. Learners often respond differently to assessments depending on the instructional strategies used during classroom learning. Experiential and interactive instructional approaches may improve learners' confidence and conceptual understanding during assessment activities.

Despite increasing advocacy for learner-centered pedagogies, lecture-based instruction remains prevalent in many elementary Science classrooms due to time constraints, curriculum demands, and limited instructional resources. Consequently, understanding learners' lived experiences regarding these instructional approaches is important in strengthening Science teaching practices and promoting meaningful learning engagement.

This study explored Grade 6 learners' lived experiences in hands-on and lecture-based Science instruction, focusing on behavioral engagement, learning participation, and assessment experiences. Specifically, it examined learners' instructional perceptions, classroom participation, and assessment-related experiences within Science learning environments.

Objectives of the Study

This study aimed to:

1. Explore Grade 6 learners' lived experiences in hands-on and lecture-based Science instruction;
2. Examine learners' behavioral engagement and classroom participation during Science learning activities; and
3. Identify learners' assessment experiences and perceptions regarding instructional approaches in Science education.

Review of Related Literature

Hands-on and experiential instructional approaches significantly influence learner engagement and conceptual understanding in Science education. According to Kolb (1984), experiential learning occurs when learners actively participate in concrete experiences, reflection, and practical application of concepts. Hands-on Science instruction promotes inquiry, observation, experimentation, and collaborative problem-solving among learners.

Research by Freeman et al. (2019) revealed that active learning approaches significantly improve learner participation, classroom engagement, and academic performance in Science-related subjects. Learners become

International Journal of Education, Literacies, and Curriculum Studies
ISSN: 3116-2991
https://ijelcs.mindumaresearch.com/journal/index

more motivated and attentive when instruction involves practical activities and interactive learning experiences.

In contrast, lecture-based instruction remains useful for content explanation and organized information delivery but may reduce opportunities for active learner participation and inquiry-based exploration. Mayer (2021) emphasized that meaningful learning occurs when learners actively process and apply information rather than passively receiving instructional content.

Studies further highlight that assessment experiences are influenced by classroom instructional approaches. Learners exposed to collaborative and experiential instruction often demonstrate greater confidence and reduced assessment anxiety due to improved conceptual understanding and classroom participation.

Theoretical Framework

The study was anchored on Kolb's Experiential Learning Theory (1984), which emphasizes learning through concrete experiences, reflection, conceptualization, and active experimentation. The framework guided the exploration of learners' experiences in hands-on Science instruction.

The study also utilized Constructivist Learning Theory by Vygotsky (1978), which explains that learners construct understanding through active participation, social interaction, and collaborative learning experiences.

II. METHODOLOGY

This study employed a qualitative phenomenological research design to explore the lived experiences of psychological stress and coping mechanisms among healthcare workers at Aurora Memorial Hospital. Phenomenology was appropriate because it enabled the researcher to understand participants' emotional experiences, workplace realities, and coping processes within their professional environments.

The participants consisted of fifteen purposively selected healthcare workers composed of nurses, medical technologists, nursing attendants, and allied healthcare personnel. Inclusion criteria required participants to: (1) currently work in the hospital setting; (2) possess at least two years of healthcare service experience; and (3) be willing to share their workplace experiences and coping practices.

Data were gathered through semi-structured in-depth interviews focusing on workplace stress experiences, emotional challenges, coping mechanisms, support systems, and professional experiences in healthcare service. Ethical considerations including informed consent, confidentiality, anonymity, and voluntary participation were strictly observed throughout the conduct of the study.

The gathered data were analyzed using Braun and Clarke's (2006) thematic analysis framework. Interview transcripts were transcribed, coded, and categorized to identify recurring meanings, patterns, and themes related to psychological stress and coping experiences. Trustworthiness was established through member checking, triangulation, audit trails, and thick description.

III. RESULTS AND DISCUSSION

Theme 1: Demonstrating Higher Behavioral Engagement Through Hands-On Science Activities

Participants consistently described hands-on Science activities as more engaging, interactive, enjoyable, and motivating compared to lecture-based instruction. Learners explained that experiments, demonstrations, collaborative tasks, and practical activities increased their attention, participation, and curiosity during Science lessons. Participants emphasized that active involvement in classroom activities made learning more meaningful and easier to understand because they directly experienced scientific concepts rather than merely listening to explanations.

One participant shared:

"Mas enjoyable ang Science kapag may experiments at activities kasi mas naiintindihan namin."

International Journal of Education, Literacies, and Curriculum Studies
ISSN: 3116-2991
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Another learner explained:
"Mas active kami kapag may hands-on activities kaysa puro discussion lang."
Participants also observed that practical activities encouraged collaboration, questioning, observation, and active classroom interaction. Learners became more interested in lessons when they manipulated materials, conducted experiments, and participated in demonstrations. Many participants explained that hands-on learning reduced boredom and sustained classroom attention throughout instructional activities.
One participant remarked:
"Mas exciting ang lesson kapag kami mismo ang gumagawa ng activity."
Another learner stated:
"Kapag may experiments, mas gusto naming sumali at makinig kasi curious kami sa mangyayari."
Participants further described how hands-on instruction strengthened confidence and encouraged them to ask questions and share ideas during classroom discussions. Learners perceived Science lessons as more enjoyable and memorable when they actively participated in inquiry-based tasks and collaborative activities.
One participant explained:
"Mas natatandaan namin ang lesson kapag kami mismo ang naka-experience."
The findings suggest that hands-on Science instruction significantly strengthens behavioral engagement, classroom participation, curiosity, and learner motivation. These findings support Kolb's Experiential Learning Theory, which emphasizes that meaningful learning occurs through direct experience, experimentation, and active participation. Similarly, Freeman et al. (2019) found that active learning approaches significantly improve learner engagement, motivation, and academic participation in Science education. The findings also align with Constructivist Learning Theory, which highlights the importance of learner interaction and experiential involvement in knowledge construction.

Theme 2: Experiencing Passive Participation During Lecture-Based Science Instruction

Learners described lecture-based Science instruction as informative and organized but often associated with passive participation, reduced classroom interaction, and decreased attentiveness. Participants explained that prolonged teacher discussions, note-taking activities, and extended explanations sometimes caused boredom and reduced learner involvement during Science lessons.
One participant shared:
"Kapag puro lecture, minsan inaantok at nawawala ang attention namin."
Another learner explained:
"Mas tahimik lang kami kapag discussion kasi nakikinig lang."
Participants observed that during lecture-based instruction, learners mostly listened to explanations without actively participating in activities or collaborative tasks. Some learners admitted that they occasionally lost focus when lessons relied heavily on verbal discussion and memorization rather than practical engagement.
One participant remarked:
"Minsan mahirap mag-focus kapag puro sulat at lecture lang."
Another learner stated:
"Nakikinig naman kami pero mas mabilis kaming mawalan ng interest kapag walang activities."
Despite these concerns, participants acknowledged that lecture-based instruction remained useful in explaining complex concepts, organizing information, and clarifying lesson content. Learners appreciated teachers' explanations and examples during discussions but expressed preference for lessons that combined lecture with interactive and practical activities.
One participant explained:
"Maganda rin ang lecture kasi nai-explain nang maayos ang lesson pero mas gusto namin kapag may activities."
Participants further emphasized that lecture-based instruction became more effective when combined with visual aids, demonstrations, questioning activities, and

International Journal of Education, Literacies, and Curriculum Studies
ISSN: 3116-2991
https://ijelcs.minduraresearch.com/journal/index

classroom interaction.

The findings indicate that lecture-based instruction may limit active learner participation, attentiveness, and experiential engagement in Science classrooms when used excessively without interactive components. These findings support Mayer (2021), who emphasized that learners achieve deeper understanding when they actively process and apply information rather than passively receiving content. Similarly, research by Prince (2020) revealed that passive instructional approaches may reduce learner participation and classroom engagement compared to active learning environments.

Theme 3: Strengthening Learning Participation Through Collaborative and Inquiry-Based Activities

Participants emphasized that collaborative learning activities, peer interaction, inquiry-based instruction, and group discussions significantly strengthened classroom participation and learner confidence during Science lessons. Learners explained that group activities encouraged communication, teamwork, questioning, and shared problem-solving, making classroom learning more interactive and supportive.

One participant stated:

"Mas confident kami kapag group activities kasi nagtutulungan kami."

Another learner remarked:

"Kapag may activities at discussions, mas nakakapagtanong kami."

Participants described how collaborative activities created opportunities for learners to exchange ideas, clarify misunderstandings, and actively engage in scientific inquiry. Learners explained that group-based experiments and discussions reduced fear of making mistakes because classmates supported one another during classroom tasks.

One participant explained:

"Mas nakakasagot kami kapag may kasama kaming tumutulong at nagpapaliwanag."

Another learner shared:

"Kapag collaborative ang activity, mas naiintindihan namin ang lesson."

Participants also observed that inquiry-based activities increased their curiosity and encouraged them to ask questions, investigate observations, and explore scientific explanations independently. Learners became more willing to participate during lessons when teachers allowed them to explore and discover concepts through guided activities.

One participant remarked:

"Mas interesting ang lesson kapag kami mismo ang nag-iinvestigate at nagdi-discover."

Participants further emphasized that collaborative and inquiry-based instruction strengthened classroom relationships and improved participation among shy or less confident learners.

The findings highlight the importance of inquiry-based and collaborative pedagogical approaches in strengthening learner participation, communication, confidence, and conceptual understanding in Science education. These findings align with Vygotsky's Social Constructivist Theory, which emphasizes collaborative interaction and social engagement in promoting meaningful learning. Similarly, Johnson and Johnson (2019) emphasized that cooperative learning significantly improves learner participation, confidence, and academic engagement in classroom settings.

Theme 4: Perceiving Assessments as More Meaningful Through Experiential Learning

Learners described assessment experiences as less stressful, more understandable, and more meaningful when lessons involved hands-on and experiential instructional activities. Participants explained that practical experiences, experiments, and collaborative tasks improved their understanding and retention of Science concepts during quizzes, recitations, written examinations, and performance-based assessments.

One participant shared:

"Mas madali naming nasasagutan ang quizzes kapag may experiments at activities."

Another learner explained:

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ISSN: 3116-2991
https://ijelcs.minduraresearch.com/journal/index

"Kapag na-experience namin mismo ang lesson, mas natatandaan namin sa assessment."

Participants emphasized that experiential learning helped them connect theoretical concepts to actual classroom experiences, making it easier to recall information during assessments. Learners also observed that practical activities improved confidence and reduced anxiety during recitations and classroom evaluations.

One participant remarked:

"Mas confident kami sumagot kapag familiar kami sa ginawa naming activities."

Another learner stated:

"Hindi gaanong nakaka-stress ang assessment kapag naiintindihan talaga namin ang lesson."

Participants further explained that performance-based and collaborative assessments felt more enjoyable and engaging compared to purely written examinations. Learners appreciated assessment activities that allowed them to demonstrate understanding through practical application and teamwork.

One participant explained:

"Mas gusto namin ang activities at demonstrations kasi mas napapakita namin ang natutunan namin."

Participants also observed that experiential learning strengthened long-term retention and deeper understanding of Science concepts because lessons became connected to memorable classroom experiences.

The findings suggest that hands-on and experiential instructional approaches positively influence learners' assessment experiences, conceptual understanding, retention, and academic confidence. These findings support Kolb's Experiential Learning Theory, which emphasizes that learning becomes more meaningful when learners actively experience and apply concepts. Similarly, Black and Wiliam (2019) explained that meaningful learning experiences and active engagement positively influence assessment performance and learner confidence. Research by Hattie (2020) further revealed that experiential and learner-centered instructional approaches significantly improve academic achievement, participation, and assessment outcomes.

Discussion

The findings revealed that Grade 6 learners demonstrate higher behavioral engagement, participation, and conceptual understanding during hands-on Science instruction compared to lecture-based learning experiences. Learners perceived experiential and collaborative activities as enjoyable, interactive, and supportive of meaningful Science learning.

Although lecture-based instruction remained useful for organized explanation and content delivery, learners associated it with passive participation and reduced classroom interaction. Hands-on activities promoted curiosity, collaboration, questioning, and learner confidence in classroom and assessment situations.

The study further highlights the importance of learner-centered and experiential Science instruction in strengthening participation, engagement, and academic confidence among elementary learners.

IV. CONCLUSION

The study concluded that Grade 6 learners perceive hands-on Science instruction as more engaging, interactive, and supportive of meaningful learning compared to lecture-based instruction. Hands-on activities significantly improve behavioral engagement, learner participation, collaboration, and conceptual understanding in Science education.

Although lecture-based instruction remains useful for content explanation and lesson organization, learners experience more active participation and confidence during experiential and inquiry-based learning activities. Assessment experiences also become more meaningful and less stressful when learners actively engage in practical Science tasks and collaborative activities.

The findings underscore the importance of strengthening experiential, collaborative, and learner-centered Science instruction in promoting active participation and meaningful learning experiences among elementary

International Journal of Education, Literacies, and Curriculum Studies
ISSN: 3116-2991
https://ijelcs.minduraresearch.com/journal/index

learners.

Implications of the Study

The findings may guide Science teachers, curriculum developers, and school administrators in strengthening experiential and inquiry-based instructional practices in elementary Science education. Schools may further enhance laboratory activities, collaborative learning tasks, and contextualized Science instruction that promote learner engagement and participation.

The study also highlights the importance of balanced instructional approaches that combine conceptual explanation with practical learning experiences to strengthen learners' understanding and assessment performance.

Future studies may further examine the long-term effects of experiential Science instruction on academic achievement, scientific literacy, and learner motivation across diverse educational contexts.

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