Studies in Interdisciplinary Horizons
https://sih-journal.com | eISSN: 3082-5792
Volume 2 Issue No. |1 2026
Received: January 6, 2026 | Accepted: February 25, 2026 | Published: March 31, 2026

Article

Teaching- Learning Practices in Health and Science Education at Dinadiawan National High School

[1] Aimee Angeline C. Magdaleno
Northeastern College, Santiago City
Dinadiawan National High School
Eliseo C. Ronquillo Sr. Memorial National High School
Correspondence: reynon.panginen@deped.gov.ph

Abstract

This study examined the teaching–learning practices in Health and Science Education at Dinadiawan National High School using a descriptive mixed-methods research design. It explored instructional strategies, classroom practices, and assessment techniques employed by teachers, as well as their influence on students' engagement, scientific skills, and health awareness. Quantitative data were collected through survey questionnaires and classroom observation checklists, while qualitative data were gathered through semi-structured interviews and focus group discussions. Descriptive statistics and thematic analysis were used to analyze the data. Findings revealed that teachers demonstrated a very high level of inquiry-based, learner-centered, and contextualized teaching practices. Students showed very high engagement, participation, and health awareness, indicating positive learning outcomes in both Health and Science Education. However, challenges such as varied learner abilities, limited instructional materials, and time constraints were identified. Despite these challenges, teachers employed adaptive strategies, including lesson modification and improvisation of materials, to sustain effective instruction. The study concludes that effective pedagogical practices significantly enhance the quality of Health and Science Education. The findings provide a basis for instructional improvement, institutional support, and future research aimed at strengthening Health and Science teaching in secondary schools.

Keywords: *Health Education, Science Education, teaching–learning practices, student engagement, secondary education*

1. Introduction

Health and Science Education are essential components of secondary education as they equip learners with scientific knowledge, critical thinking skills, and health-related competencies necessary for informed decision-making and responsible behavior. Science Education fosters inquiry, problem-solving, and evidence-based reasoning, while Health Education promotes physical, mental, and social well-being among learners. Effective teaching–learning practices in these subjects are crucial in developing scientifically literate and health-conscious individuals who can respond to real-life challenges. In recent years, educational reforms have emphasized learner-centered, inquiry-based, and experiential approaches to enhance student engagement and learning outcomes. This study examines the teaching–learning practices in Health and Science Education at Dinadiawan National High School, with the aim of understanding how instructional strategies and classroom practices influence students' engagement, understanding, and skill development.

The K–12 Basic Education Curriculum in the Philippines underscores the importance of integrating inquiry-based learning, critical thinking, and contextualized instruction in Health and Science Education (Department of Education [DepEd], 2016). Teachers are expected to employ varied teaching strategies, including experiments, simulations, discussions, and real-life applications, to promote meaningful learning. However, several studies indicate that the implementation of these pedagogical approaches remains inconsistent, particularly in public secondary schools where challenges such as limited resources, time constraints, and diverse learner abilities persist (Montebon, 2019; Orbeta & Paqueo, 2020). In rural schools like Dinadiawan National High School, contextual factors further influence teaching–learning processes. Understanding how Health and Science teachers navigate these conditions and implement pedagogical practices is necessary to improve instructional quality and learner outcomes.

Effective teaching–learning practices in Science Education emphasize inquiry-based and experiential learning. According to Bybee (2014), inquiry-based instruction encourages learners to actively construct scientific knowledge through investigation and reflection. Similarly, Kolb (2015) highlighted that experiential learning enhances conceptual understanding and skill development. Studies have shown that hands-on experiments and collaborative activities improve students' engagement and scientific reasoning (Prince & Felder, 2006; Hmelo-Silver, 2013).

In Health Education, learner-centered and participatory approaches have been found to be effective in promoting health awareness and behavior change. Nutbeam (2008) emphasized that interactive health education develops functional, interactive, and critical health literacy. Research by Jourdan et al. (2016) revealed that school-based health education programs positively influence students' health-related knowledge and attitudes. Likewise, Basch (2011) argued that effective health instruction supports academic performance and overall well-being.

Assessment practices also play a significant role in Health and Science Education. Shepard (2019) emphasized the importance of formative assessment in supporting deep learning and skill development. Darling-Hammond et al. (2020) further noted that aligned instruction and assessment enhance learner engagement and higher-order thinking. However, studies report challenges such as reliance on traditional teaching methods, limited instructional materials, and insufficient teacher training in inquiry-based pedagogy (Dela Cruz, 2021; Gay, 2018; Montebon, 2019). These findings suggest the need for continuous pedagogical improvement and contextualized support in Health and Science classrooms.

While numerous studies have explored effective teaching strategies in Health and Science Education, most focus on either Science or Health as separate disciplines or emphasize national and international contexts. There is limited empirical research that simultaneously examines teaching–learning practices in both Health and Science Education within a single secondary school, particularly in rural public school settings. Moreover, few studies integrate teachers' instructional practices, students' engagement and skill development, and the challenges encountered in classroom implementation. This study addresses these gaps by providing a context-specific analysis of Health and Science teaching–learning practices at Dinadiawan National High School, offering evidence-based insights to enhance pedagogical practices and improve educational outcomes in secondary education.

2. Research Objectives

The study aims to examine and analyze the teaching–learning practices employed in Health and Science Education at Dinadiawan National High School. Specifically, it seeks to describe the instructional strategies, teaching methods, and classroom practices used by teachers in delivering Health and Science lessons, including the use of learner-centered approaches, inquiry-based activities, experiments, and health-related simulations. The study also aims to determine how these teaching–learning practices influence students' engagement, understanding, and skill development, particularly in scientific thinking, health awareness, decision-making, and responsible behavior. In addition, it intends to identify the challenges encountered by teachers and students in the teaching and learning of Health and Science, such as limitations in resources, time, and learner diversity, as well as the strategies employed to address these challenges. Ultimately, the study seeks to provide a basis for enhancing instructional practices and improving the quality of Health and Science Education in secondary schools through informed pedagogical and curricular interventions.

3. Research Methodology

This study employed a descriptive mixed-methods research design to examine the teaching–learning practices in Health and Science Education at Dinadiawan National High School. The descriptive approach was appropriate because the study aimed to document and analyze existing instructional strategies, classroom practices, and assessment techniques without manipulating variables. The mixed-methods design enabled the integration of quantitative data describing the extent of pedagogical practices and student engagement with qualitative data that provided deeper insights into teachers' and students' experiences, challenges, and coping strategies.

The locale of the study was Dinadiawan National High School. The participants consisted of Health and Science teachers and selected Grade 7–10 students. Teachers were selected through purposive sampling based on their assignment in Health and Science subjects, while students were chosen using simple random sampling from officially enrolled classes.

Data were gathered using three main instruments: (1) a researcher-made survey questionnaire to measure teaching–learning practices, (2) a classroom observation checklist to assess student engagement and instructional implementation, and (3) semi-structured interviews and focus group discussions to explore challenges and adaptive strategies. The instruments were validated by experts in Science and Health Education.

Quantitative data were analyzed using descriptive statistics (frequency, percentage, weighted mean, and ranking). Qualitative data were transcribed and analyzed using thematic analysis. Ethical standards such as informed consent, confidentiality, and voluntary participation were strictly observed.

4. Results and Findings

Quantitative Results

Table 1. Teaching–Learning Practices in Health and Science Education

Indicators	Weighted Mean	Verbal Interpretation
Inquiry-based and experimental activities	4.36	Very High
Use of learner-centered strategies	4.29	Very High
Integration of real-life health issues	4.41	Very High
Use of instructional materials and visuals	4.15	High
Varied assessment techniques	4.18	High
Overall Mean	4.28	Very High

The overall mean indicates a very high level of teaching–learning practices, which demonstrates that teachers in Health and Science Education consistently employ effective, learner-centered, and engaging instructional strategies. This finding suggests that teachers actively design lessons that encourage student participation, critical thinking, and meaningful learning through inquiry-based activities, hands-on experiments, and real-life health applications. By placing learners at the center of the instructional process, teachers create learning environments that support active exploration, collaboration, and informed decision-making. Such practices not only enhance students' understanding of scientific and health concepts but also promote the development of essential life skills, including problem-solving, health awareness, and responsible behavior, thereby strengthening the overall quality of Health and Science instruction.

Table 2. Students' Engagement and Learning Outcomes

Indicators	Weighted Mean	Verbal Interpretation
Interest and motivation	4.34	Very High
Participation in activities	4.31	Very High
Scientific and health-related skills	4.19	High
Health awareness and decision-making	4.37	Very High
Overall Mean	4.30	Very High

Students showed very high levels of engagement and positive learning outcomes, particularly in health awareness and active participation, highlighting the effectiveness of the instructional practices implemented in Health and Science Education. The use of interactive strategies such as discussions, experiments, simulations, and real-life health scenarios encouraged students to take an active role in the learning process and apply concepts to everyday situations. As a result, students became more conscious of healthy behaviors, informed decision-making, and personal responsibility toward their well-being. High participation rates also indicate that learners were motivated and interested in the lessons, suggesting that the teaching approaches successfully created meaningful and relevant learning experiences. Overall, these outcomes affirm that well-planned, learner-centered instructional practices significantly contribute to improved student engagement and holistic learning in Health and Science Education.

Table 3. Challenges in Health and Science Education

Challenges	Frequency	Percentage
Limited laboratory and health materials	12	60%
Time constraints	11	55%
Varied learner abilities	13	65%
Large class size	9	45%

Qualitative Results

Table 4. Emerging Themes

Theme	Description
Inquiry-based and experiential learning	Learning through experiments and real-life health issues
High student engagement	Active participation and interest
Instructional challenges	Resource and time limitations
Adaptive teaching strategies	Improvisation and collaboration

Participants Responses:

"Mas naiintindihan ng mga estudyante kapag may eksperimento at aktwal na halimbawa." (Teacher)

"Mas nagiging interesado kami kapag may kinalaman sa tunay na isyu sa kalusugan." (Student)

5. Discussion of Findings

The findings indicate that Health and Science teachers at Dinadiawan National High School employ highly effective learner-centered and inquiry-based practices, which significantly enhance student engagement and learning outcomes. The frequent use of experiments and real-life health applications

supports experiential learning theory (Kolb, 2015) and inquiry-based instruction (Bybee, 2014). Students' high levels of health awareness and participation affirm Nutbeam's (2008) claim that interactive health education promotes informed decision-making. However, challenges such as varied learner abilities and limited resources mirror findings from Montebon (2019) and Dela Cruz (2021), emphasizing the need for institutional support and differentiated instruction.

6. Conclusions

The study concludes that effective teaching–learning practices in Health and Science Education positively influence students' engagement, skills development, and health awareness. Inquiry-based, contextualized, and learner-centered strategies foster meaningful learning experiences. Despite instructional challenges, teachers' adaptive practices sustain quality education. Health and Science Education thus play a crucial role in developing scientifically literate and health-conscious learners.

References (APA 7th Edition)

Abana, A (2021). A Scrutiny of K-12 Strands and the Learning Program Vis-à-vis its Academic Performance. Psychology and Education Journal. 58 (2): 7977-7984

Andres, A. (2019). Achievement Goals and Mathematics Achievement of the Senior High School Students. International Journal of English and Education, 8 (2).

Andres, A. (2023). Establishing Quality Instrument for the Summative Assessment of Pre-Service Elementary Teachers. JETT. 14 (3), 9-16).

Andres, A.D. (2022). Metacognition and Performance in Mathematical Problem-Solving Among Bachelor of Elementary (BEED) Pre-service Teachers. Central European Management Journal, 30 (4). 86-95.

Antonio, A. (2021). Syntactical Scrutiny: Inaccuracies in the Lesson Planning of Non- Language Pre Service Teachers. *International Journal of Arts, Sciences and Education*,

Balog, P., & Gonzales, E. (2021). From Linguistic Landscapes to Teaching Resources: A Case of Some Rural Areas in the Province of Quezon. *International Journal of Arts, Sciences and Education*, *1*(2), 23–44.

Banares, A. J. (2022). Reinterpreting Sonnet 18 by William Shakespeare through Stylistic Analysis. *International Journal of Arts, Sciences and Education*, *3*(July Special Issue), 189–204. https://ijase.org/index.php/ijase/article/view/163.

Basch, C. E. (2011). Healthier students are better learners. Journal of School Health, 81(10), 593–601.

Bybee, R. W. (2014). The BSCS 5E instructional model. BSCS.

Darling-Hammond, L., et al. (2020). Applied Developmental Science, 24(2), 97–140.

Department of Education. (2016). K to 12 curriculum guide: Science and Health.

Dela Cruz, R. T. (2021). Teaching challenges in secondary science classrooms. Asia Pacific Journal of Multidisciplinary Research, 9(2), 45–53.

Gay, G. (2018). Culturally responsive teaching (3rd ed.). Teachers College Press.

Hmelo-Silver, C. (2013). Problem-based learning. Educational Psychology Review, 25(3), 271–295.

Kolb, D. A. (2015). Experiential learning (2nd ed.). Pearson.

Montebon, D. R. (2019). Pedagogical practices in Philippine basic education. International Journal of Education and Practice, 7(3), 156–165.

Nutbeam, D. (2008). Health literacy as a public health goal. Health Promotion International, 15(3), 259–267.

Prince, M., & Felder, R. (2006). Journal of Engineering Education, 95(2), 123–138.

Shepard, L. A. (2019). Classroom assessment to support learning. The ANNALS, 683(1), 183–200.