

Teachers' Acceptability and Perceived Effectiveness of Grade 9 Learning Module: Implications for Instructional Material Development

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Abstract. Learning modules have become an essential component of instructional delivery in the Philippine educational system, particularly in the Department of Education (DepEd). They are designed to support teachers in facilitating effective teaching and learning processes. However, limited empirical evidence exists regarding teachers' evaluation of these module in the actual classroom settings. This study examined the acceptability and perceived effectiveness of Grade 9 Science learning modules and explored their implications for instructional material development. The study employed descriptive-correlational design employing an explanatory sequential approach. Quantitative data were collected through a structured survey administered to Grade 9 Science teachers from selected districts in Surigao del Sur. This was followed by qualitative interviews to provide deeper insights and explanations of the quantitative findings. Results indicated that the Grade 9 Science DepEd learning module were generally rated as acceptable and were perceived as effective instructional resources. Despite the positive feedback of teachers to the available learning modules, teachers also preferred leaning modules that has enhanced design and layout, content and delivery, and enriched supplementary features that could provide practical support for both teachers and learners. Statistical analysis revealed no significant difference on sex, length of service and educational attainment while significant difference exists with age, suggesting generational variations, attributed by accumulated teaching experiences and exposure to different instructional material designs. Furthermore, a moderate positive correlation was established between teachers' preferences and their perceived effectiveness of the modules. These findings suggest that while the modules are broadly functional and supportive for teaching and learning process, targeted enhancements are necessary to better address teachers' diverse needs and contextual realities.

Introduction

Learning modules have become an essential component of instructional delivery in the Philippine educational system, particularly in flexible and modular learning environments. In response to the implementation of the K-12 curriculum, various learning modules have been developed and provided, to serve as structured guides for teachers to deliver lessons effectively while promoting students' understanding, engagement, and independent learning. Existing literature highlights the important role of instructional materials in enhancing learner autonomy, flexibility, and differentiated instruction, especially in diverse classroom contexts (Hodges et al., 2020; Bozkurt & Sharma, 2020). From an instructional design perspective, effective modules should demonstrate clarity, coherence, relevance, and alignment with curriculum competencies to ensure improved comprehension and retention among learners (Cayabas, Jr., & Sumeg-ang, 2023; Tarigan et al., 2023). Consequently, its effectiveness largely depends on how teachers perceive and implement them in actual classroom contexts. Teachers play a pivotal role in mediating the effectiveness of these materials because their implementation strategies, instructional decisions, and classroom adaptations directly influence student engagement and learning outcomes (Twizeyimana et al., 2023).

Despite the intended benefits of modular instruction, several studies have identified persistent concerns related to unclear instructions, insufficient contextualization, learner disengagement, and cognitive overload, which may limit the effectiveness of instructional materials when poorly designed or inadequately evaluated (Lepasana et al., 2025). In the context of Grade 9 learning module, which was distributed and utilized in schools, empirical investigations focusing on teachers' acceptability and perceived effectiveness of these materials in actual classroom implementation remains limited. Existing evaluations of learning modules frequently concentrate on curriculum alignment, quality elements, and student achievement (Nabor, 2023), while the perspectives of teachers as primary implementers of instructional materials are often underrepresented. Thus, teachers' evaluations are deemed important because they provide practical insights on the value of learning modules within authentic educational settings. Their experiences may also reveal existing strengths and implementation challenges that are not immediately evident through curriculum-based evaluations alone. This highlights the necessity of context-specific and teacher-informed assessments that can better determine how instructional materials function under real classroom conditions (Admiraal et al., 2021).

Hence, this study aimed to evaluate teachers' acceptability and perceived effectiveness of Grade 9 Science learning module and identify the challenges encountered during their implementation in classroom settings. Specifically, the study sought to generate empirical evidence that may contribute to the improvement of instructional material development by providing insights into teachers' experiences and evaluations of modular instructional resources. The findings of this study are expected to contribute to the development of more responsive, contextually relevant, and pedagogically sound learning modules that can enhance instructional effectiveness and improve student learning outcomes in science education.

Methodology

Design

This study utilized a mixed-methods descriptive–correlational research design with an explanatory sequential approach to examine teachers' acceptability and perceived effectiveness for the Grade 9 Science DepEd learning module. Quantitative data were first collected through a structured survey questionnaire, followed by qualitative analysis to explain and enrich the quantitative findings. The study was conducted was carried out in selected districts of Surigao del Sur namely: San Agustin, Marihatag, Cagwait, San Miguel, Tago, Cortes, Lanuza, Carmen, Madrid, Cantilan, and Carrascal.

The respondents of this study were Grade 9 Science teachers who were actively utilizing the Department of Education (DepEd) Science learning module in their instructional practice. Initially, the study employed a complete enumeration approach, wherein all identified Grade 9 Science teachers in the target population ($N = 70$) were invited to participate. This approach was deemed appropriate to ensure comprehensive coverage of the population and to capture a complete range of perspectives regarding the utilization and evaluation of the learning modules. However, despite efforts to include the entire population, only 58 teachers participated, yielding a response rate of approximately 82.86%. In educational and survey research, response rates above 70% are generally considered acceptable and sufficient to ensure the reliability and representativeness of the data (Erickson et al., 2023). Thus, the obtained response rate is regarded as adequate for drawing meaningful conclusions from the study.

A researcher-made questionnaire were utilized in this study. It underwent content and face validation by the experts followed by reliability testing, yielding Cronbach's alpha coefficients of greater than 0.70, indicating acceptable internal consistency. Prior to the questionnaire administration, formal request from different offices were sought, Upon approval, printed copies of the research questionnaire were distributed personally by the researcher to the selected respondents. Respondents were properly oriented regarding the objectives and significance of the study, the procedures involved, and the estimated time required to accomplish the questionnaire. The respondents were likewise informed that participation in the study was entirely voluntary and that they had the right to withdraw from participation at any stage without any form of penalty or consequence.

The respondents were given one to two weeks to accomplish and return the questionnaires to provide them with sufficient time to complete the instrument accurately and thoughtfully. Follow-up visits and reminder communications were conducted to ensure a high retrieval rate and minimize non-response bias. Upon retrieval of the completed questionnaires, the collected data underwent systematic checking, cleaning, and organization to ensure completeness, consistency, and accuracy. Quantitative data were coded, tabulated, and encoded using statistical software such as Jamovi for statistical treatment and analysis. Meanwhile, qualitative responses were carefully transcribed, categorized, and organized for thematic analysis to identify recurring patterns, themes, and insights relevant to the objectives of the study.

Results and Discussion

Demographic Characteristics of the Respondents

Table 1 describe the characteristics of teachers involved in the study. It can be gleaned from this table that almost 69% of the respondents belonged to 31-40 years old, with more than half of the teachers had 6–10 years of teaching experience. The profile of respondents strengthens the validity of the findings because all participants were Science teachers directly involved in Grade 9 Science instruction. Their evaluations were therefore grounded in practical teaching experience and subject-specific expertise. Specifically, the profile signifies that respondents are professionally in its active stage of their teaching career, with substantial classroom exposure and familiarity with instructional materials. Educators within this stage are characterized by greater instructional engagement, pedagogical adaptability, and active involvement in curriculum implementation. Teachers in this phase generally demonstrate a balance between professional maturity, teaching competencies and openness to instructional innovation (Lopez-Martin et al., 2023), enabling them to critically evaluate the effectiveness, relevance, and usability of learning materials. This is supported by Darling-Hammond et al., (2020) emphasizing teaching experience enhances teachers' ability to analyze instructional resources critically and make informed pedagogical decisions. Additionally, teachers' extensive classroom exposure are better positioned to determine the practicality, accessibility, and adaptability of learning modules within varying educational contexts (Hodges et al., 2020). Furthermore, more experienced and professionally competent science teachers provide more reliable and actionable feedback on instructional modules, reinforcing the credibility of assessments obtained from this demographic group (Kulgemeyer et al., 2020).

Profile	Frequency	Percentage (%)
Age (in years)		
26 to 30	8	13.79
31 to 35	25	43.10
36 to 40	15	25.86
41 to 45	6	10.34
46 to 50	2	3.45
Above 50	2	3.45
Sex		
Male	14	24.14
Female	44	75.86
Length of Service, in years		
5 and below	5	8.62
6 to 10	31	53.45
11 to 15	20	34.48
16 to 20	2	3.45
Educational Attainment		
Bachelor's degree	45	77.59
Master's Degree	13	22.41
Specialization		
Science	58	100.0

Table No. 1. Frequency and Percentage Distribution of Respondents Demographic Profile

Perceived Acceptability of the Grade 9 Science Learning Module

Table 2 reveals the perceived acceptability of the teachers about the Grade 9 Science learning module. Results revealed that teachers rated three out of 5 as highly acceptable, suggesting that the material aligns with the current curriculum competencies, clarity of presentation and content accuracy. This findings reflects affirmation from the teachers that the Department of Education (DepEd)-provided Grade 9 learning module strongly aligned with the prescribed curriculum standards, learning competencies, and intended learning outcomes of the K–12 curriculum. This indicates that the module effectively embodies the curricular framework and competency requirements mandated by DepEd, enabling teachers to implement lessons with greater consistency and instructional direction. The finding further implies that the module serves as a dependable curriculum-based instructional resource, reflecting the agency's effort to ensure coherence between instructional content, learning activities, assessment tasks, and the expected competencies to be achieved by learners.

However, usability and language clarity garnered with the least mean but still rated as acceptable. While still reflecting favorable perceptions, these comparatively lower mean scores indicate aspects that may benefit from refinement. The usability rating suggests that improvements in user-friendliness, navigation, adaptability across classroom conditions, and ease of implementation could enhance teacher experience. Meanwhile, the language clarity rating implies a need for further simplification of instructional wording, refinement of sentence structures, and reduction of technical complexity to improve readability and learner comprehension. The relatively higher standard deviations for these domains indicate greater variability in teacher experiences, possibly influenced by differences in learner characteristics and instructional settings. These findings further suggests that These findings suggest that while the modules demonstrate strong alignment with DepEd learning competencies and exhibit sound structural design, improvements are needed to optimize clarity and practical usability. In particular, simplifying language, refining instructions, and ensuring learner-friendly explanations are essential to support students with varying levels of reading proficiency, an important consideration in modular learning contexts.

Learning Module Standards	Overall Mean	SD	Adjectival Description
Curriculum Alignment	4.46	0.564	Highly Acceptable
Technical Design	4.42	0.595	Highly Acceptable
Content Quality	4.28	0.711	Highly Acceptable
Usability	4.13	0.748	Acceptable
Language Clarity	4.11	0.792	Acceptable
Grand Mean	4.28	0.703	Highly Acceptable

Table No. 2. Teachers' Perception on the Extent of Grade 9 Learning Module Alignment to Quality Standards

This pattern is consistent with prior studies in the Philippine setting, which reported that instructional modules are often well-aligned and organized but may present challenges in terms of language accessibility and ease of implementation due to learner diversity and contextual constraints (Hodges et al., 2020; Elias Jr., & Ravago, 2025). Specifically, Elias Jr., & Ravago (2025) mentioned that material adaptation is a complex but necessary process that requires a balance of contextual, pedagogical, and technological factors. Often, teachers may agree module structure and alignment as excellent, yet identified language complexity and difficulties in adapting materials for heterogeneous classes as major implementation barriers. This could be the probable reason why most of the teachers often source out supplementary materials to scaffold and even contextualized to enhance teaching and learning process. Moreso, study of Datario and Espiritu (2026), emphasized continuous improvement in module design, contextualization, and assessment practices is crucial to ensure that all learners experience the same level of engagement and academic support. Thus, enhancement efforts should prioritize improving language clarity and usability while sustaining the modules' strengths in curriculum alignment, content quality, and technical design.

Perceived Effectiveness of the Grade 9 Science Learning Module

Table 3 presents the respondents perceptions regarding the effectiveness of the DepEd learning module in supporting teaching-learning outcomes. Perceived effectiveness is an important evaluation criteria because it reflects whether the module produces meaningful instructional outcomes in real teaching contexts, not only whether it meets standards on paper. Recent literature emphasizes that in modular learning environments, effectiveness depends on how well modules maintain learning access, promote engagement, and provide guidance that supports comprehension and task completion (Redmond et al., 2021).

The findings show generally favorable perceptions of effectiveness indicating that teachers perceive the Grade 9 Science DepEd learning module as an effective instructional resource capable of supporting learning delivery and learner outcomes in modular and flexible learning settings. The highest-rated indicator relates to continuity of learning during disruptions, followed by creating a positive and supportive classroom environment, and increasing student engagement and participation through meaningful contextualized lessons. These findings support the purpose of modular learning delivery as a strategy for sustaining education during emergencies and disruptions and various classroom learning conditions (Jayani, 2021; Alicabo & Cacharo, 2025). It also aligns with the findings of Salvane and Orongan (2024), where contextualized and localized self-learning modules promote better performance among learners. Conversely, though rated as the lowest indicators, motivating learners to complete lessons independently ($M = 3.84$), facilitating the application of learning to real-life contexts ($M=3.88$), and improving students' performance in quizzes and assessments ($M=3.90$), highlight critical areas for pedagogical enhancement. The findings suggest that while the module is structurally sound, it may not yet sufficiently promote users' satisfaction, learner autonomy, authentic application of knowledge, and measurable academic performance. These limitations point to the need for more intentional integration of scaffolding strategies, contextualized performance tasks, and embedded learner support mechanisms. This could be the probable reason why

most teachers utilized other learning materials to further scaffold the provided learning module, to address the gaps in language accessibility and implementation ease that arise from learner diversity and contextual constraints.

Indicators	Overall Mean	SD	Adjectival Description
The module ensures continuity of learning during class suspensions, lockdowns, or emergencies.	4.22	0.622	Highly Effective
The module creates a positive and supportive classroom environment conducive to effective learning.	4.10	0.612	Effective
The module increases student engagement and participation during learning activities and classroom discussions by providing meaningful and contextualized lessons.	4.09	0.657	Effective
The module promotes collaborative learning and teamwork among students.	4.09	0.657	Effective
The module helps strengthen both knowledge mastery and values formation.	4.09	0.629	Effective
The module enables teachers to deliver lessons confidently and efficiently.	4.07	0.617	Effective
The module helps students understand scientific concepts more effectively.	4.03	0.561	Effective
The module supports students of varying abilities, including those who need additional guidance.	4.03	0.772	Effective
The use of the module improves students' performance in quizzes and assessments.	3.90	0.693	Effective
The module helps students apply their learning to real-life situations.	3.88	0.727	Effective
The module motivates learners to explore and complete lessons independently.	3.84	0.586	Effective
Total Overall Mean	4.01	0.649	Effective

Table No. 3. Perceived Effectiveness of the Learning Modules

Such findings is supported by the review of Elias Jr., & Ravago (2025), where material adaptation is a complex but necessary process that requires a balance of contextual, pedagogical, and technological factors. Strengthening guided practice, providing clearer task directions, and incorporating real-world problem-based activities may enhance both engagement and transfer of learning. In modular learning environments, where direct teacher facilitation is limited, such supports become essential in bridging the gap between content exposure and meaningful understanding. In addition, Baniqued et al. (2024), who emphasize that student engagement and learning outcomes significantly improve when instructional materials incorporate structured scaffolding and timely feedback. Similarly, Collado et al., (2021) highlight that learners often rely on the guidance of teachers and more knowledgeable others (MKOs) to successfully navigate and complete modular tasks. All these insights underscore the importance of designing modules that not only deliver content but also actively support independent learning, application, and performance through deliberate instructional scaffolds.

Teachers' Preference of Science Learning Module

Table 4 presents the teachers' preferences regarding the characteristics and features of learning modules in terms of format accessibility, design and layout, content and delivery, supplementary features, and instructional flexibility, despite the standardized learning modules provided by DepEd. Teachers' preference is a crucial evaluative lens in this study since they are the primary implementers of instructional materials and directly experience the practical challenges and instructional demands associated with module utilization in classroom settings. These preferences may reflect the need for instructional materials that are more responsive to diverse learner needs, contextual classroom realities, and evolving teaching modalities.

Relative to respondents learning module preference, table 4 depicts that respondents demonstrated a very strong preference for the proposed learning module across all evaluated dimensions. It can be noted that, content delivery, design and lay-out and supplementary features are among the top three most preferred dimensions of the teachers. This implies that teachers prioritize not only curriculum-aligned content but also modules that are visually organized, instructionally engaging, well-supported, and adaptable to diverse teaching contexts. Despite the availability of Department of Education

(DepEd)-provided learning modules, some teachers perceive that existing materials lack sufficient depth in discussion and visual presentation, and also fail to adequately address the needs of diverse learners. This perceived insufficiency is not trivial; when a module presents content superficially or with limited visual support, students, especially those with varying cognitive styles and reading proficiencies, struggle to grasp abstract science concepts. Consequently, many teachers tend to contextualize instruction and supplement the modules with additional instructional resources such as simulations, YouTube video lectures, multimedia presentations, and other interactive learning materials. These supplementary resources serve multiple purposes: they deepen conceptual discussion, provide dynamic visual representations, and offer alternative entry points for learners who may not connect with the module's static, text-heavy format. This corroborates with the work of Leutner et al., (2009), as they emphasized that a well-designed instructional materials help reduce cognitive overload and allow students to navigate lessons more effectively, particularly in science subjects where complex concepts require clarity and visual support. The practice of contextualization, tailoring science content to learners' local experiences, language, and prior knowledge, has been empirically linked to improved student performance. As affirmed by Picardal and Sanchez (2022), contextualization in science instruction is associated with better performance, because it makes abstract concepts more relatable and cognitively accessible.

Preference Indicators	Overall Mean	SD	Adjectival Description
Format Accessibility	4.50	0.672	Highly Preferred
Design and Lay-out	4.76	0.433	Highly Preferred
Content and Delivery	4.75	0.439	Highly Preferred
Supplementary Features	4.72	0.450	Highly Preferred
Instructional Flexibility	4.55	0.695	Highly Preferred
Grand Mean	4.656		Highly Preferred

Table No. 4. Extent of Respondents Preference for a Learning Module

Significant Difference on Teachers Acceptability and Perceived Effectiveness of learning Module when grouped according to Profile

Table 5 presents the significant difference in teachers' acceptability and perceived effectiveness of the Grade 9 Science learning modules when grouped according to profile. Results revealed that only age where found to be significantly different in selected indicators such as Content Quality and Technical Design under teachers' acceptability, as well as Format Accessibility, Design and Lay-out, Content Delivery, and Supplementary Features under teachers' preference. These results indicate that teachers from different age groups vary in how they evaluate specific aspects of the learning modules.

Profile	Variables	Indicators	X ²	p-values	Decision	Interpretation
Age	Teachers' Acceptability	Content Quality	12.3	0.031*	Reject H_0	Significant
		Technical Design	18.8	0.002*	Reject H_0	Significant
		Format Accessibility	14.1	0.015*	Reject H_0	Significant
	Teachers' Preference	Design & Lay-Out	19.1	0.002*	Reject H_0	Significant
		Content Delivery	19.9	0.001*	Reject H_0	Significant
		Supplementary Features	13.6	0.018*	Reject H_0	Significant

Note: only significant variables shown are significant @0.05 level of significance

Table 5. Significant Difference in Teachers' Acceptability and Preference of Learning Module according to Profile

While overall acceptability and perceived effectiveness provide a general measure of quality, they do not capture potential variations in perception that may arise from differences in teachers' demographic and professional characteristics, such as years of teaching experience, educational attainment, specialization, or training exposure. These profile-related factors often shape teachers' instructional expectations, pedagogical orientations, and capacity to utilize learning resources effectively. Such variations may be explained by the fact that teachers' evaluation frameworks and expectations of learning materials are shaped by generational variations through their accumulated teaching experiences and exposure to different instructional material designs. This is consistent to the work of Jayme and Maguate (2025) saying that teachers' perceptions are influenced by practical experiences in implementation, particularly in how they interpret content depth, clarity of explanations, and ease of module navigation for learners. Possibly, younger teachers may be more receptive to visually organized and technology-integrated materials, while more experienced teachers may evaluate modules based on content depth and instructional practicality. This is also supported by the study of Scherer et al., (2019), which emphasized that

differences in technological exposure and instructional experiences influence teachers' acceptance and evaluation of instructional resources.

Significant Correlation on Teachers' Preference and Perceived Effectiveness of Learning Module

Table 6 presents the relationship between teachers' preference for the Grade 9 Science learning module and their perceived effectiveness of the materials. The findings revealed a Spearman's rho coefficient with a p-value of <0.001, indicating a statistically significant moderate positive correlation between the two variables. This implies that as teachers' preference for the learning modules increases, their perception of the modules' effectiveness also tends to increase.

Variables	Spearman's rho Coefficient	p-value	Decision	Interpretation
Teachers' Preference and Perceived Effectiveness	0.439	<0.001	Reject H_0	Significant

Table 6. Significant Correlation on Teachers' Preference and Perceived Effectiveness of Learning Module

Supporting this finding, Schunk and DiBenedetto (2020) emphasized that teachers' perceptions and preferences regarding how instructional materials are utilized can significantly influence student learning outcomes. This suggests that when instructional materials align with teachers' preferences, they are more effectively implemented in the classroom. Thus, improving module features that correspond to teachers' preferences may serve as a strategic approach to enhancing the overall quality and usability of learning materials.

However, the moderate strength of the correlation ($r = 0.439$) also indicates that teachers' preference does not fully explain perceived effectiveness. This implies that other external and contextual variables contribute to how teachers evaluate instructional materials. These may include teachers' ability to adapt and customize modules based on learners' needs, as well as variations in instructional contexts (ten Hagen et al., 2022). Such factors highlight that effectiveness is not solely dependent on the design of the material but also on its practical application in diverse classroom settings.

Moreover, it is important to note that correlation does not imply causation; while preference and perceived effectiveness are related, one does not necessarily directly cause the other. Thus, even well-designed and highly preferred modules may yield varied outcomes depending on the broader learning environment. This findings further affirm that while multiple factors shape perceptions of effectiveness, optimizing teacher-preferred module features remains a critical lever for improving instructional delivery.

Challenges and Barriers in Module Utilization

This study also includes documentation of the challenges encountered by teachers in Module Utilization in selected districts of Surigao del Sur. Results in table 7, showed consistent findings with quantitative results, emphasizing that a major challenge in module utilization is related to language and comprehension difficulty. Teachers reported that many learners struggle with scientific terminologies and reading-heavy explanations, making it necessary for teachers to provide additional scaffolding, supplementary features and simplified discussions before students can complete the activities.

In addition, Teachers also reported challenges regarding limited interactivity and learner engagement. While the module includes learning tasks and assessments, teachers expressed that some activities remain highly paper-based and do not always promote inquiry and active learning. This concern is significant in Science education, where meaningful understanding is strengthened through exploration, investigation, and contextual application. The lack of inquiry-based tasks may contribute to the relatively lower rating of the module in promoting analytical and creative thinking.

Another challenge highlighted by teachers involves addressing learner diversity. Teachers shared that learners differ widely in reading ability, comprehension level, and learning pace. As a result, the standardized activities in the module may not fully accommodate both struggling learners who require remediation and advanced learners who need enrichment. This situation often forces teachers to modify tasks or prepare alternative activities to ensure inclusivity and mastery for all learners.

Furthermore, teachers emphasized the limited availability of supplementary support materials such as intervention worksheets, enrichment tasks, teacher guides, assessment banks, and answer keys. Teachers noted that the module alone

is sometimes insufficient to ensure mastery of lessons, making it necessary to produce additional materials to strengthen learning. This finding reinforces the survey results showing teachers' strong preference for supplementary features. The lack of additional support resources increases teacher workload and may affect implementation efficiency.

Challenges	Teacher Responses
Language and Comprehension Difficulty	Learners struggle with scientific terminologies and reading-heavy explanations. Teachers need to simplify and provide additional scaffolding before tasks can be completed.
Limited Interactivity and Engagement	Activities are mostly paper-based and do not consistently promote inquiry or active learning.
Learner Diversity and Differentiation Issues	Learners vary in reading ability, comprehension, and pacing. Modules do not fully accommodate these differences.
Insufficient Supplementary Support Materials	Lack of worksheets, enrichment tasks, teacher guides, assessment banks, and answer keys. Teachers create additional materials.
Logistical and Technical Constraints	Issues with printing, limited copies, and delayed distribution of modules.

Table 7. Challenges Encountered in Module Utilization

Conclusion and Recommendations

The present study concludes that the provided Grade 9 science learning module were generally perceived as acceptable and effective. Affirming that the Department of Education (DepEd)-provided Grade 9 learning module strongly aligned with the prescribed curriculum standards, learning competencies, and intended learning outcomes of the K-12 curriculum. It effectively embodies the curricular framework and competency requirements mandated by DepEd, enabling teachers to implement lessons with greater consistency and instructional direction. However, usability and language clarity require improvement to strengthen learner comprehension and independent learning.

The study further concludes that teachers strongly prefer learning modules that are visually organized, clear in content delivery, flexible in instruction, and enriched with supplementary features. Such preferences suggest that effective instructional materials should not only meet content requirements but should also provide practical support for both teachers and learners.

Moreso, generational differences affects how instructional materials are utilized and evaluated. Thus, crafting instructional materials should also consider design and delivery features to remain responsive to generational needs to ensure effective and sustained module utilization.

The findings highlight the continuing value of the Department of Education's Grade 9 Science learning module as a primary instructional resource for curriculum implementation. Their strong alignment with prescribed competencies and learning outcomes indicates that teachers can rely on these materials to support standards-based instruction and maintain consistency in the delivery of science content across classrooms.

The concerns identified regarding usability and language clarity point to the need for periodic review and refinement of module content. Improving the readability of instructions, simplifying complex terminology, and enhancing the organization of learning tasks may lessen burden for teachers to look for supplementary materials that would scaffold their teaching engagement. Furthermore, it also help learners engage more independently with the material and reduce potential barriers to understanding.

Teachers' strong preference for modules that are visually organized, well-structured, and supported by supplementary learning resources suggests that the effectiveness of instructional materials extends beyond content accuracy alone. Educational material developers and curriculum planners may therefore consider integrating more learner-support features, contextualized examples, visual aids, and enrichment activities to increase the practical value of learning modules in diverse learner needs and classroom settings.

On the other hand, the influence of generational differences on module evaluation and utilization further implies that instructional materials should be designed with consideration for the varying expectations, learning habits, and

technological experiences of teachers. Responsive and adaptable learning resources are more likely to sustain teacher engagement and encourage consistent use of modules in instruction. Consequently, future module development initiatives may benefit from incorporating user feedback from teachers representing different age groups and teaching experiences to ensure that instructional materials remain relevant, accessible, and responsive to evolving educational needs.

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Competing Interests Statement

The authors declare that there are no known competing financial or personal interests that could have influenced the work reported in this study.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request. Data are not publicly available due to confidentiality and ethical considerations involving the research participants.

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Appendices

No appendices are attached to this study.