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CONTEXTUALIZED AND LOCALIZED SUPPLEMENTARY LEARNING MATERIALS IN BIOLOGY 8

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Abstract

The study aimed to develop and evaluate Contextualized and Localized Supplementary Learning Materials in Biology 8 for the learners of the District of Angono, Rizal, Philippines. The study utilized a descriptive research design with developmental methods. Twenty-four respondents consisting of module writers and science teachers evaluated the materials, which were based on local contexts and prescribed learning competencies. The materials were rated highly by the respondents in terms of content, format, presentation, organization, accuracy, and up-to-datedness. The study concluded that these materials have potential to increase student interest and academic performance. Future research is recommended to develop similar materials for other subjects and grade levels.

Keywords: contextualized, localized, supplementary learning materials, biology, evaluation

INTRODUCTION

The contemporary educational landscape continuously seeks innovative approaches to improve learning. Numerous studies underscore the imperative of aligning teaching methodologies with contemporary trends while fostering learner engagement. Contextualization, a pedagogical strategy that integrates local culture, history, biogeography, language, values, and career-relevant contexts into instruction, has emerged as a promising approach (Corporal, 2021). By harnessing personal experiences and interests, contextualization can significantly elevate instruction.

Numerous educational research endeavours have explored the potential benefits of contextualization in enhancing teaching and learning. Localization, a specific contextualization method that utilizes local community resources as instructional examples, further reinforces the relevance of the learning process. Research suggests that contextualized and localized instruction can positively impact academic proficiency (Yadav and Oyelere, 2020) and learner motivation (Kamaludin, Surtikanti, and Surakusumah, 2018).

Biology, a core subject in the Philippine K-12 basic education program, often presents abstract concepts that can lead to misconceptions (Singer, Nielsen & Schweingruber, 2013). Given the wide-ranging applications of biology in fields such as medicine, environmental conservation, economics, politics, and culture, effective and efficient instruction is crucial.

To address these challenges and enhance biology education, this study aims to develop Contextualized and Localized Supplementary Learning Materials in Biology 8. Section 2 of Republic Act 10533, the Enhanced Basic Education Act of 2013, mandates the Department of Education (DepEd) to adhere to contextualization and localization principles in curriculum development. Moreover, Republic Act 9155, the Governance of Basic Education Act of 2001, empowers schools and learning centers to implement local initiatives for educational improvement. By developing these supplementary materials, this study seeks to bridge the gap of insufficient contextualized and

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localized science learning materials in the District of Angono and contribute to the enhancement of student learning in biology.

Research Questions

The study aimed to develop and evaluate Contextualized and Localized Supplementary Learning Materials in Biology 8.

Specifically, it sought to answer the questions;

1. How were the contextualized and localized supplementary materials in biology developed?
2. How did the module writers and science teachers evaluate the developed contextualized and localized supplementary materials in Biology 8 with respect to:
 - 2.1. Content;
 - 2.2. Format;
 - 2.3 Presentation and Organization, and;
 - 2.4 Accuracy and Up-to Datedness of Information?
3. What are the comments and suggestions of module writers and science teachers on the developed Contextualized and Localized Supplementary Learning Materials in Biology 8?

LITERATURE REVIEW

Contextualization

Contextualization is a pedagogical approach that integrates local culture, history, biogeography, language, values, and career-relevant contexts into instruction. This approach can enhance learner engagement, understanding, and academic achievement by making learning more relevant and meaningful. When learners see connections between their personal experiences and the learning material, they are more likely to be interested and engaged (Corporal, 2021). Additionally, contextualization can help learners understand how biology concepts apply to their everyday lives, making the subject matter more relevant and interesting (Camara, 2018; Rivera and Sanchez, 2020; Madrazo and Dio, 2020; Saguin et al., 2020; Yadav and Oyelere, 2020). Furthermore, by connecting biology to local contexts, learners can develop critical thinking skills as they analyze and evaluate information from different perspectives (Camara, 2018; Rivera and Sanchez, 2020; Madrazo and Dio, 2020; Saguin et al., 2020; Yadav and Oyelere, 2020).

Localization

Localization is a pedagogical approach that tailors learning materials to the specific local context by using local examples, resources, and situations. This can enhance learner understanding and relevance by connecting lessons to familiar experiences (Corporal, 2021; Creus, 2019). Furthermore, localization can foster a sense of connection between learners and the subject matter, as well as their community (Corporal, 2021; Creus, 2019). By using local examples, localization can also promote cultural awareness, helping learners develop a deeper understanding and appreciation of their own culture and the cultures of others (Corporal, 2021; Creus, 2019).

Supplementary Learning Materials

Supplementary Learning Materials offer additional discussions and activities to enhance curriculum content. By providing supplementary explanations and examples, these materials can deepen learner's understanding of the subject matter (Jimenez, 2020; Gumonan & Bug-os, 2021). Additionally, they can reinforce key concepts and skills, aiding learners in remembering and applying their knowledge (Jimenez, 2020; Gumonan & Bug-os, 2021). Furthermore, supplementary

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materials provide opportunities for learners to practice and apply their knowledge in various ways (Jimenez, 2020; Gumonan & Bug-os, 2021).

Content

Content refers to the subject matter and topics covered in the learning materials. High-quality content should be comprehensive, engaging, relevant, and accurate. It should cover all essential curriculum topics, motivate learners, relate to their lives and experiences, and provide up-to-date information (Vergara, 2017; Abirin, 2019; San Jose, 2022; Balderas in San Jose, 2022).

Format

Format encompasses the visual presentation of learning materials, including prints, illustrations, design and layout, paper and binding, and size. A well-formatted material can enhance learner engagement, improve readability, and support learning. Visually appealing and well-organized materials can capture attention and make the content more engaging (Sta. Catalina, 2019; Apiado, 2022; San Jose, 2022). Clear and readable text facilitates understanding and following the material (Apler, 2019; Microsoft, 2013). Additionally, the format can support learning by providing visual cues and making information easier to find and process (Price, McElroy, and Martin, 2016; Tarasov, Sergeev, and Filimonov, 2015; Nakayiza, 2019; Kollofel, 2017).

Presentation and Organization

Presentation and organization are essential components of effective learning materials. A well-structured and visually appealing presentation can enhance learner understanding, engagement, and the ability to connect concepts. Clear and logical organization helps learners grasp information easily, while an engaging presentation captures attention and makes the material more interesting (San Jose, 2022; Tarr et al., 2015; Salcedo, 2016).

Accuracy and Up-to-datedness

Accuracy and up-to-date information are crucial for high-quality learning materials. Accurate information helps learners develop a correct understanding of the subject matter (Tan, 2017; Apiado, 2022; San Jose, 2022). Up-to-date information ensures that learners are learning the most current knowledge, avoiding outdated and potentially inaccurate content (Tan, 2017; Apiado, 2022; San Jose, 2022).

RESEARCH METHODOLOGY

The study utilized a descriptive research design with developmental research methods to develop and evaluate the Contextualized and Localized Supplementary Learning Materials in Biology 8. Descriptive research design provides qualitative or quantitative characterization of variables as they are in the present, without manipulating them (Siedleki, 2020). This design is suitable for generating detailed descriptions of the materials, from their development to evaluation and recognition of their potential.

Developmental research methods focus on studying the design, development, and evaluation of instructional programs, processes, and products based on specific criteria. This approach is commonly used to analyze and describe product-development processes, including the evaluation of the final output (Camara, 2018). In this study, the developmental research method was used to describe and analyze the processes of designing, developing, and evaluating the Contextualized and Localized Supplementary Learning Materials in Biology 8. The evaluation of the materials was conducted by chosen respondents using the adopted Evaluation Rating Sheet for

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Print Resources from the Guideline and Process for Learning Resources Management and Development System (LRMDS).

Subject of the Study

The respondents of the study were module writers and science teachers from the Division of Rizal. The module writers had experience as authors and contributors in developing science learning materials, while the science teachers were public school teachers in Rizal province with at least five years of experience teaching junior high school Science. Their expertise in writing modules and teaching Science was crucial for generating reliable evaluation results to describe the Contextualized and Localized Supplementary Learning Materials in Biology 8.

Instrument of the Study

The study adopted the prescribed Evaluation Rating Sheet for Print Learning Resources from the DepEd LRMDS. This evaluation rating sheet was used to assess the content, format, presentation and organization, and accuracy and up-to-datedness of information of the developed materials. The rating sheet has a 4-point scale which was used as a basis for evaluation.

Procedure

The development and evaluation of the materials were divided into five (5) phases adapted from the ADDIE (Analyze, Design, Develop, Implement, and Evaluate) model of instructional design of Branch (2009). The following shows the step-by-step process in the Analyze, Design, Development, Implement, and Evaluate phases of the development and evaluation of the Contextualized and Localized Supplementary Learning Materials in Biology 8.

- **Analyze Phase:** Gathered legal bases and identified gaps to justify the study. The identified gap was the insufficient contextualized and localized supplementary learning materials in Biology for learners in the District of Angono.
- **Design Phase:** Identified lessons and activities to be included in the content of the materials, based on the learning competencies listed in the K-12 Science Curriculum Guide for Biology 8.
- **Develop Phase:** Developed and wrote the content of the materials, including designing and layout, writing lesson contents, activities, and assessments. Infused relevant contexts and local examples to ensure the content was contextualized and localized. Prepared the Evaluation Rating Sheet for distribution to respondents.
- **Implement Phase:** Introduced the materials to respondents. Consulted language experts and graphic lay-out artists to ensure appropriate language and layout. Validated the content by science teachers. Distributed the materials to respondents for evaluation using the adopted Evaluation Rating Sheet.
- **Evaluate Phase:** Respondents, consisting of module writers and science teachers from the Division of Rizal, evaluated the materials using the criteria set in the evaluation rating sheet. Gathered, tabulated, and analyzed the data from the evaluation. Listed and used comments and suggestions from respondents for revising the materials.

RESULTS

This section presents the findings according to the study's research questions. This also reveals the data collected, their analysis and interpretation.

Development of the Contextualized and Localized Supplementary Learning Materials in Biology 8

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This study developed supplementary learning materials in Biology 8 specifically tailored to the context and needs of Grade 8 students in Angono, Philippines. The materials, titled "*Higanteng HayNayon*" aimed to enhance students' understanding of biology concepts by connecting them to local culture, history, and environment.

The development of the supplementary materials involved several key steps. First, lesson content was carefully aligned with the prescribed learning competencies in the Science Curriculum Guide for Grade 8 Biology. Second, local literature, the existing Science 8 Learner's Module, and other relevant resources were analyzed to design contextualized and localized lesson plans. Third, the criteria in DepEd's evaluation rating sheet were used to ensure the content, format, presentation, organization, accuracy, and up-to-date nature of the materials.

Each module included the following components: objectives, introduction, vocabulary, review of previous concepts, discussion, summary, application, comprehension check, and assessment. To make the materials more relevant to students, local elements were integrated into the discussions and activities. These included culture (Higantes Festival, Feast of St. Clement, local food, arts, folklores, superstitions), history (local history and biogeography), language (local language and dialects), values (respect for indigenous people and religious traditions), and career paths (fish and itik production, art and design, entertainment).

The supplementary materials underwent a validation process involving a layout artist, language experts, and science teachers. After validation, the materials were printed in color on A4-size paper and hardbound with laminated covers. They were then distributed to module writers and science teachers for evaluation.

Evaluation of the Module Writers and Science Teachers on the Developed Contextualized and Localized Supplementary Learning Materials in Biology 8 with respect to Content, Format, Presentation and Organization, and Accuracy and Up-to-datedness

Table 1 presents the evaluation of the module writers on the developed Contextualized and Localized Supplementary Learning Materials in Biology 8 with respect to Content.

Table 1

Evaluation of the Module Writers on the Developed Contextualized and Localized Supplementary Learning Materials in Biology 8 with Respect to Content

Content	Modyul 1		Modyul 2		Modyul 3		Modyul 4		Overall	
	Mea n	VI	Mea n	VI	Mea n	VI	Mea n	VI	Mea n	VI
1. Content is suitable to the student's level of development.	4.00	V S	4.00	V S	4.00	V S	4.00	V S	4.00	V S
2. Material contributes to the achievement of specific objectives of the subject area and grade/year	4.00	V S	4.00	V S	4.00	V S	4.00	V S	4.00	V S

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level for which it is intended.										
3. Material provides for the development of higher cognitive skills such as critical thinking, creativity, learning by doing, inquiry, problem solving, etc.	3.83	V S	4.00	V S	4.00	V S	4.00	V S	3.96	V S
4. Material is free of ideological, cultural, religious, racial, and gender biases and prejudices.	4.00	V S	3.83	V S	4.00	V S	4.00	V S	3.96	V S
5. Material enhances the development of desirable values and traits such as: Pride in being a Filipino; Love for Country, Critical and creative thinking.	4.00	V S	4.00	V S	4.00	V S	4.00	V S	4.00	V S
6. Material has the potential to arouse interest of target reader.	4.00	V S	4.00	V S	4.00	V S	4.00	V S	4.00	V S
7. Adequate warning/cautionary notes are provided in topics and activities where safety and health are of concern.	4.00	V S	4.00	V S	4.00	V S	4.00	V S	4.00	V S
Overall	3.98	V S	3.98	V S	4.00	V S	4.00	V S	3.99	V S

Legend: VS= Very Satisfactory

With regards to the evaluation of module writers on Content of the supplementary learning materials in Biology 8, *Modyul 1* and *Modyul 2* both obtained an average weighted mean of 3.98 verbally interpreted as Very Satisfactory. Meanwhile, *Modyul 3* and *Modyul 4* both gained perfect score from the module writers with average weighted mean of 4.00 which is also verbally interpreted

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as Very Satisfactory. It can be noted that the mean scores gained by each module are very close to each other as their verbal interpretations are just the same. These evaluations from the module writers gave the developed Contextualized and Localized Supplementary Learning Materials in Biology 8 an overall weighted mean of 3.99 which is verbally interpreted as Very Satisfactory. This means that the output of study had a very adequate, suitable, appropriate contents as perceived by the module writers. The result of evaluation further implies that the contextualized and localized supplementary learning materials in Biology 8 has very acceptable content that can improve learner's motivation and cognitive skills thereby enhancing academic achievement. This is supported by the findings of Brame (2016) stating that a well-crafted educational material enhances student learning of its targeted learning goals. Additionally, Gemina (2014) stated that a very much acceptable content is suitable to the needs of the learners.

Table 2 below shows the evaluation of the science teachers on the developed Contextualized and Localized Supplementary Learning Materials in Biology 8.

Table 2

Evaluation of the Science Teachers on the Developed Contextualized and Localized Supplementary Learning Materials in Biology 8 with Respect to Content

Content	Modyul 1		Modyul 2		Modyul 3		Modyul 4		Overall	
	Mea n	VI	Mea n	VI	Mea n	VI	Mea n	VI	Mea n	VI
1. Content is suitable to the student's level of development.	4.00	V S	4.00	V S	4.00	V S	4.00	V S	4.00	V S
2. Material contributes to the achievement of specific objectives of the subject area and grade/year level for which it is intended.	4.00	V S	4.00	V S	4.00	V S	4.00	V S	4.00	V S
3. Material provides for the development of higher cognitive skills such as critical thinking, creativity, learning by doing, inquiry, problem solving, etc.	4.00	V S	4.00	V S	4.00	V S	4.00	V S	4.00	V S
4. Material is free of ideological, cultural, religious, racial, and gender	4.00	V S	4.00	V S	4.00	V S	4.00	V S	4.00	V S

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biases and prejudices.										
5. Material enhances the development of desirable values and traits such as: Pride in being a Filipino; Love for Country, Critical and creative thinking.	4.00	V S	4.00	V S	4.00	V S	4.00	V S	4.00	V S
6. Material has the potential to arouse interest of target reader.	4.00	V S	4.00	V S	4.00	V S	4.00	V S	4.00	V S
7. Adequate warning/cautionary notes are provided in topics and activities where safety and health are of concern.	3.94	V S	4.00	V S	4.00	V S	3.94	V S	3.97	V S
Overall	3.99	V S	4.00	V S	4.00	V S	3.99	V S	4.00	V S

Legend: VS= Very Satisfactory

As shown in Table 2, science teachers rated the content of the supplementary learning materials in Biology 8 as Very Satisfactory. Both *Module 1* and *Module 4* received an average weighted mean of 3.99, while *Module 2* and *Module 3* achieved a perfect score of 4.00. This consistency indicates highly appropriate content across all modules. This further suggests the materials effectively address learning needs and can enhance motivation and cognitive skills, potentially leading to improved academic achievement. These findings align with research by Wiphasith et al. (2016), who emphasize the importance of well-designed content for successful learning.

Similar to module writers, science teachers praised the content's ability to promote desirable values like national pride. This can be attributed to the inclusion of local culture, traditions, and values in the lessons and activities. Research by Kamaludin et al. (2018) supports this, suggesting that relevant contexts increase learner interest. Additionally, studies by Yadav & Oyeler (2020) and Saguin et al. (2020) highlight the potential of contextualization to enhance academic proficiency. This research aligns with the present study, suggesting that contextualized and localized content can promote both interest and academic achievement.

The overall weighted mean scores for content from both module writers and science teachers were 3.99 and 4.00, respectively (both Very Satisfactory). This implies a high level of agreement on content quality. These results indicate that the materials are well-crafted with relevant and acceptable content, which aligns with research by Apiado (2022) and San Jose (2022) on the

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importance of content for achieving learning objectives, developing higher-order thinking skills, and arousing learner interest. Additionally, Sta. Ana (2014) emphasized the role of adequate content in enhancing teaching and learning. Given the Very Satisfactory content rating, the Contextualized and Localized Supplementary Learning Materials in Biology 8 have the potential to positively impact instruction and student performance.

Table 3 below shows the evaluation of the module writers on the developed Contextualized and Localized Supplementary Learning Materials in Biology 8 with respect to Format.

Table 3

Evaluation of Module Writers on the Developed Contextualized and Localized Supplementary Learning Materials in Biology 8 with Respect to Format

Format	Modyul 1		Modyul 2		Modyul 3		Modyul 4		Overall	
	Mean	VI	Mean	VI	Mean	VI	Mean	VI	Mean	VI
1. Prints										
1.1 Size of letters is appropriate to the intended user.	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS
1.2 Spaces between letters and words facilitate reading.	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS
1.3 Font is easy to read.	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS
1.4 Printing is of good quality (i.e., no broken letters, even density, correct alignment, properly placed screen registration).	4.00	VS	4.00	VS	3.83	VS	3.83	VS	3.92	VS
2. Illustrations										
2.1 Simple and easily recognizable.	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS
2.2 Clarify and	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS

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supplement the text.										
2.3 Properly labelled or captioned (if applicable)	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS
2.4 Realistic / appropriate colors.	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS
2.5 Attractive and appealing.	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS
2.6 Culturally relevant.	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS
3. Design and Layout										
3.1 Attractive and pleasing to look at.	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS
3.2 Simple (i.e., does not distract the attention of the reader).	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS
3.3 Adequate illustration in relation to text.	4.00	VS	4.00	VS	4.00	VS	3.83	VS	3.96	VS
3.4 Harmonious blending of elements (e.g., illustrations and text).	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS
4. Paper and Binding										
4.1 Paper used contributes to easy reading.	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS
4.2 Durable binding to	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS

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withstand frequent use.										
5. Size and Weight of Resource										
5.1 Easy to handle.	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS
5.2 Relatively light.	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS
Overall	4.00	VS	4.00	VS	3.99	VS	3.98	VS	3.99	VS

Legend: VS= Very Satisfactory

As seen from the Table 3, Modyul 1 and Modyul 2 received a perfect score of 4.00, while Modyul 3 and scored 3.99 and 3.98, respectively. Although there were minor differences, the overall weighted mean for format was 3.99, verbally interpreted as Very Satisfactory. This indicates a high level of satisfaction with the print, illustrations, design, layout, paper, binding, size, and weight to serve its intended purpose to its target users.

Specifically, the illustrations and paper/binding received perfect scores, suggesting that the materials are durable and visually appealing. These findings align with the study conducted by Sta. Catalina (2019) and Nakayiza (2019), which emphasized the importance of visual elements and durability in the acceptability of instructional materials.

Table 4 below presents the evaluation of the science teachers on the developed Contextualized and Localized Supplementary Learning Materials in Biology 8 in terms of Format.

Table 4
Evaluation of Science Teachers on the Developed Contextualized and Localized Supplementary Learning Materials in Biology 8 with Respect to Format

Format	Modyul 1		Modyul 2		Modyul 3		Modyul 4		Overall	
	Mean	VI	Mean	VI	Mean	VI	Mean	VI	Mean	VI
1. Prints										
1.1 Size of letters is appropriate to the intended user.	4.00	VS	3.88	VS	4.00	VS	4.00	VS	3.97	VS
1.2 Spaces between letters and words facilitate reading.	3.94	VS	3.88	VS	3.83	VS	3.94	VS	3.90	VS
1.3 Font is easy to read.	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS

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1.4 Printing is of good quality (i.e., no broken letters, even density, correct alignment, properly placed screen registration).	3.94	VS	3.88	VS	3.89	VS	3.89	VS	3.90	VS
2. Illustrations										
2.1 Simple and easily recognizable.	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS
2.2 Clarify and supplement the text.	3.94	VS	3.94	VS	3.89	VS	3.94	VS	3.93	VS
2.3 Properly labelled or captioned (if applicable)	3.94	VS	3.88	VS	3.94	VS	3.94	VS	3.93	VS
2.4 Realistic / appropriate colors.	4.00	VS	4.00	VS	3.94	VS	4.00	VS	3.99	VS
2.5 Attractive and appealing.	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS
2.6 Culturally relevant.	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS
3. Design and Layout										
3.1 Attractive and pleasing to look at.	4.00	VS	4.00	VS	4.00	VS	3.94	VS	3.99	VS
3.2 Simple (i.e., does not distract the attention of the reader).	4.00	VS	4.00	VS	4.00	VS	3.94	VS	3.99	VS
3.3 Adequate illustration in	4.00	VS	4.00	VS	3.94	VS	4.00	VS	3.99	VS

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relation to text.										
3.4 Harmonious blending of elements (e.g., illustrations and text).	3.89	VS	4.00	VS	4.00	VS	4.00	VS	3.97	VS
4. Paper and Binding										
4.1 Paper used contributes to easy reading.	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS
4.2 Durable binding to withstand frequent use.	3.94	VS	4.00	VS	4.00	VS	4.00	VS	3.99	VS
5. Size and Weight of Resource										
5.1 Easy to handle.	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS
5.2 Relatively light.	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS
Overall	4.00	VS	4.00	VS	3.99	VS	3.98	VS	3.99	VS

Legend: VS= Very Satisfactory

Similar to module writers, science teachers evaluated the format of the supplementary learning materials in Biology 8 as Very Satisfactory. All modules received scores between 3.97 and 3.98, with high marks for readability, illustrations, design, layout, paper/binding, and size/weight. Notably, the readability of the font received particular praise. This aligns with research by Price et al. (2016) highlighting the positive impact of font size and style on learner recall.

Module writers and science teachers awarded the materials a very similar overall weighted mean score for format (3.99 and 3.97, respectively). The evaluation results reveal that a very satisfactory format elements, including readable print, engaging illustrations, user-friendly design, durable binding, and manageable weight, contribute to the overall acceptability of supplementary learning materials. This aligns with research by Apiado (2022) and Sta. Catalina (2019), who emphasize the importance of these elements. Furthermore, the positive format evaluation supports the notion that well-designed learning materials can enhance learner cognitive skills. This is parallel with Kollofel's (2017) findings on the format encouraging critical thinking.

Table 5 below shows the evaluation of the module writers on the developed Contextualized and Localized Supplementary Learning Materials in Biology 8 with respect to Presentation and Organization.

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Table 5

Evaluation of the Module Writers on the Developed Contextualized and Localized Supplementary Learning Materials in Biology 8 with Respect to Presentation and Organization

Presentation and Organization	Modyul 1		Modyul 2		Modyul 3		Modyul 4		Overall	
	Mean	VI	Mean	VI	Mean	VI	Mean	VI	Mean	VI
1. Presentation is engaging, interesting, and understandable.	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS
2. There is logical and smooth flow of ideas.	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS
3. Vocabulary level is adapted to target reader's likely experience and level of understanding.	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS
4. Length of sentences is suited to the comprehension level of the target reader.	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS
5. Sentences and paragraph structures are varied and interesting to the target reader.	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS
Overall	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS

Legend: VS= Very Satisfactory

It is clearly seen on Table 5 that the Presentation and Organization of all the developed supplementary learning materials gained a perfect mean of 4.00 which is verbally interpreted as Very Satisfactory. This equates that the content of the output is excellently presented and organized as perceived by module writers. This suggests that the output of the study can be used as a very acceptable model in developing modules to facilitate organization of ideas in learning high school Biology. As San Jose (2022) has noted, a content having smooth and logical flow of presentation receives high rating from module writers.

The results of the evaluation of the module writers also indicate that the Contextualized and Localized Supplementary Learning Materials have a very understandable content. This further implies

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that the developed output can make the concepts in Biology learned easier due to its coherent and unified content. As mentioned by Salcedo (2016), highly acceptable organization and presentation of content offers understandable concepts in a learning material.

Table 6 on the next page shows the evaluation of the science teachers on the developed Contextualized and Localized Supplementary Learning Materials in Biology 8.

It could be observed on Table 6 that all the developed supplementary learning materials obtained a very high overall mean of 4.00, verbally interpreted as Very Satisfactory. The results of the evaluation only reflects that the output of the study is well-presented and well-organized as perceived by the science teachers. This implies that it in order for a learning material to receive positive evaluation, its content shall have an engaging, smooth and understandable presentation and organization of contents. This implication is supported by Gemina (2014) stating that when the supplementary learning material is well-presented and well-organized, then it is very much acceptable by the teachers.

Table 6

Evaluation of the Science Teachers on the Developed Contextualized and Localized Supplementary Learning Materials in Biology with Respect to Presentation and Organization

Presentation and Organization	Modul 1		Modul 2		Modul 3		Modul 4		Overall	
	Mean	VI	Mean	VI	Mean	VI	Mean	VI	Mean	VI
1. Presentation is engaging, interesting, and understandable.	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS
2. There is logical and smooth flow of ideas.	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS
3. Vocabulary level is adapted to target reader's likely experience and level of understanding.	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS
4. Length of sentences is suited to the comprehension level of the target reader.	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS
5. Sentences and paragraph structures are varied and	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS

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*interesting to
the target
reader.*

Overall	4.00	VS	4.00	VS	4.00	VS	4.00	VS	4.00	VS
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Legend: VS= Very Satisfactory

It can be gleaned on Table 5 and Table 6 that the overall weighted mean obtained by the Presentation and Organization of the output from the evaluation of module writers and science teachers are both 4.00 which is verbally interpreted as Very Satisfactory. This revealed that there is no difference on how the module writers and science teachers evaluated the presentation and organization of the developed Contextualized and Localized Supplementary Learning Materials in Biology 8. This means that the respondents agreed that the output of the study has an engaging and interesting presentation of content that follows a logical and smooth flow of organization.

The impressive presentation and organization of the output of the study as revealed by the overall mean scores from the experts can be attributed to the logical arrangement of the parts of the lessons patterned to the sequence of learning activities in the preparation of daily learning plans as stated in DepEd Policy Guidelines on Daily Lesson Preparation for the K-12 Basic Education Program. This further suggests that supplementary learning materials that follow what the DepEd prescribed in terms of sequence of contents can be effective in engaging learners to learn. It is indeed, the presentation, as well as organization of learning material helps get the attention of its target users (Presentation of a lesson, n.d.).

Considering the result of the evaluation of all the respondents, it is enough to say that the presentation and organization of the output of the study can enhance the academic performance of its intended users. The study of San Jose (2022) mentioned that students can easily catch information if the content is presented chronologically, logically, and systematically. In addition, Tarr, et.al (2015) states that organization of content has significant effect on learner's academic performance.

Table 7 on the next page shows the evaluation of the module writers on the Accuracy and Up-to-datedness of Information of the developed Contextualized and Localized Supplementary Learning Materials in Biology 8.

Accuracy and Up-to-datedness of the Information of the output received a perfect overall mean of 4.00 verbally interpreted as Not Present. This implies that the developed Contextualized and Localized Supplementary Learning Materials in Biology 8 has no conceptual, factual, grammatical, computational, and typographical error as evaluated by the module writers. Moreover, the results also revealed that the content of the supplementary learning materials are updated containing no obsolete information. Based on the perfect scores given by the module writers on the accuracy and up-to-datedness of the output, it is safe to say that the developed Contextualized and Localized Supplementary Learning Materials in Biology 8 contains quality information and can be a reliable source of information in teaching Biology. In relation, Picomto (2020) has suggested that a content that is accurate and free from obsolete data gives quality information.

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Table 7

Evaluation of the Module Writers on the Developed Contextualized and Localized Supplementary Learning Materials in Biology with Respect to Accuracy and Up-to-datedness of Information

Accuracy and Up-to-Datedness of Information	Modyul 1		Modyul 2		Modyul 3		Modyul 4		Overall	
	Mean	VI	Mean	VI	Mean	VI	Mean	VI	Mean	VI
1. Conceptual errors.	4.00	NP	4.00	NP	4.00	NP	4.00	NP	4.00	NP
2. Factual errors.	4.00	NP	4.00	NP	4.00	NP	4.00	NP	4.00	NP
3. Grammatical errors.	4.00	NP	4.00	NP	4.00	NP	4.00	NP	4.00	NP
4. Computational errors.	4.00	NP	4.00	NP	4.00	NP	4.00	NP	4.00	NP
5. Obsolete information.	4.00	NP	4.00	NP	4.00	NP	4.00	NP	4.00	NP
6. Typographical and other minor errors (e.g., inappropriate or unclear illustrations, missing labels, wrong captions, etc.).	4.00	NP	4.00	NP	4.00	NP	4.00	NP	4.00	NP
Overall	4.00	NP	4.00	NP	4.00	NP	4.00	NP	4.00	NP

Legend: NP= Not Present

Table 8 shows the evaluation of the science teachers on the Accuracy and Up-to-datedness of Information of the developed Contextualized and Localized Supplementary Learning Materials in Biology 8.

Table 8

Evaluation of the Science Teachers on the Developed Contextualized and Localized Supplementary Learning Materials in Biology 8 with Respect to Accuracy and Up-to-datedness of Information

Accuracy and Up-to-Datedness of Information	Modyul 1		Modyul 2		Modyul 3		Modyul 4		Overall	
	Mean	VI	Mean	VI	Mean	VI	Mean	VI	Mean	VI
1. Conceptual errors.	4.00	NP	4.00	NP	4.00	NP	4.00	NP	4.00	NP
2. Factual errors.	4.00	NP	4.00	NP	4.00	NP	4.00	NP	4.00	NP
3. Grammatical errors.	4.00	NP	4.00	NP	4.00	NP	4.00	NP	4.00	NP
4. Computational errors.	4.00	NP	4.00	NP	4.00	NP	4.00	NP	4.00	NP
5. Obsolete information.	4.00	NP	4.00	NP	4.00	NP	4.00	NP	4.00	NP

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6. Typographical and other minor errors (e.g., inappropriate or unclear illustrations, missing labels, wrong captions, etc.).	4.00	NP	4.00	NP	4.00	NP	4.00	NP	4.00	NP
Overall	4.00	NP	4.00	NP	4.00	NP	4.00	NP	4.00	NP

Legend: NP= Not Present

As gleaned on Table 8, the accuracy and up-to-datedness of all the developed supplementary learning materials obtained a perfect overall mean of 4.00 from the Science Teachers which is verbally interpreted as Not Present. This evaluation is the same with that of the module writers and thus indicates that all the respondents agree that the information in the output of the study is accurate and updated containing no major and minor errors. Additionally, this reveals that both the module writers and science teachers have seen that the Contextualized and Localized Supplementary Learning Materials in Biology 8 contains quality information. This therefore implies that the output of the study can be confidently used because the content is up-to-date and free from conceptual, factual, grammatical, computational, and typographical errors. These findings of the study is supported with what Picomto (2020) stated that a quality information given in a learning material must be recently modified and evolved.

Moreover, the outstanding rating gained by the developed supplementary learning materials from the respondents suggests that the future learning material developers shall invest more time in ensuring high level of accuracy and up-to-datedness of their output in order to be useful, effective, and acceptable for its target users. Furthermore, based on the standard set in the evaluation of print resources from DepEd LRMS, the learning material should gain perfect 4.0 score in order to pass. Since the output of the study gained perfect score from both the module writers and science teachers, the Contextualized and Localized Supplementary Learning Materials in Biology 8 have passed the standard of DepEd for printed resources. This implies that the output of the study is very acceptable to be used as resource material by public school learners.

Table 9 below presents the overall evaluation of the module writers and science teachers on the developed Contextualized and Localized Supplementary Learning Materials in Biology 8 with respect to Content, Format, Presentation and Organization, and Accuracy and Up-to-datedness of Information.

Table 9

Composite Table Showing the Evaluation of the Module Writers and Science Teachers on the Developed Contextualized and Localized Supplementary Learning Materials in Biology 8 with Respect to Different Criteria

Criteria	Modyul 1		Modyul 2		Modyul 3		Modyul 4		Overall	
	Mean	V I	Mean	V I	Mean	V I	Mean	V I	Mean	V I

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Module Writers	1. Content	3.98	V S	3.9 8	V S	4.0 0	V S	4.0 0	V S	3.9 9	VS
	2. Format	4.00	V S	4.0 0	V S	3.9 9	V S	3.9 8	V S	3.9 9	VS
	3. Presentation and Organization	4.00	V S	4.0 0	V S	4.0 0	V S	4.0 0	V S	4.0 0	VS
	4. Accuracy and Up-to-datedness of Information	4.00	N P	4.0 0	N P	4.0 0	N P	4.0 0	N P	4.0 0	NP
	Grand Mean	4.00	V S	4.0 0	V S	4.0 0	V S	4.0 0	V S	4.0 0	VS
Science Teachers	1. Content	3.99	V S	4.0 0	V S	4.0 0	V S	3.9 9	V S	3.9 9	VS
	2. Format	3.97	V S	3.9 7	V S	3.9 8	V S	3.9 8	V S	3.9 7	VS
	3. Presentation and Organization	4.00	V S	4.0 0	V S	4.0 0	V S	4.0 0	V S	4.0 0	VS
	4. Accuracy and Up-to-datedness of Information	4.00	N P	4.0 0	N P	4.0 0	N P	4.0 0	N P	4.0 0	NP
	Grand Mean	3.99	V S	3.9 9	V S	4.0 0	V S	3.9 9	N P	3.9 9	VS
Overall		4.00	V S	4.0 0	V S	4.0 0	V S	4.0 0	V S	4.0 0	VS

Legend: VS= Very Satisfactory; NP = Not Present

As shown in Table 9, Module writers gave each module a computed grand mean of 4.00, which is verbally interpreted as Very Satisfactory. These gave the developed Contextualized and Localized Supplementary Learning Materials in Biology 8 a grand overall mean of 4.00, verbally interpreted as Very Satisfactory. As for the Science teachers, Modyul 3 received a computed grand mean of 4.00, verbally interpreted as Very Satisfactory, while Modyul 1, Modyul 2, and Modyul 4 obtained a computed grand mean of 3.99 each, which is also verbally interpreted as Very Satisfactory. These scores from the science teachers resulted to a grand mean score of 3.99, verbally interpreted as Very Satisfactory.

The grand overall mean score obtained from the combined evaluation results of the module writers and science teachers is 4.00, verbally interpreted as Very Satisfactory. This reveals that the

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overall developed Contextualized and Localized Supplementary Learning Materials in Biology 8 is very satisfactory with respect to its content, format, presentation and organization, and accuracy and up-to-datedness as perceived by all the respondents. This further means that the output of the study has very satisfactorily passed the prescribed quality of a printed learning material prescribed by the Department of Education. Moreover, the evaluation gathered from the respondents implies that the developed supplementary learning materials are of high quality and very acceptable to be used by learners to enhance their academic performance in Biology 8. To support this claim, Ahmad Zabidi, et.al. (2017) have concluded that good quality modules can help learners achieve their needs and meet expectations. Moreover, Pham et. al. (2019), in their study determined the influence of e-learning service quality to e-learning student satisfaction and loyalty, concluded that course material quality has a positive relation to learner's satisfaction and loyalty.

Comments and Suggestions of the Module Writers and Science Teachers to the Developed Contextualized and Localized Supplementary Learning Materials in Biology 8

Module writers and science teachers provided feedback on the Contextualized and Localized Supplementary Learning Materials in Biology 8, suggesting minor revisions to content and format. These included replacing a few photos and words to enhance clarity and addressing data privacy and intellectual property concerns. These changes were incorporated into the final version presented during the oral defense.

The presentation and organization of the materials received perfect scores from both module writers and science teachers. An expert noted that each section in the module provided a clear and logical progression of subject matter, making it easy to follow.

Minor errors in grammar and typography identified by some respondents were corrected in the revised version. The revised materials were then resubmitted for evaluation, with the results included in Chapter 4.

The positive overall evaluation of the materials was supported by comments such as "very creative" and "good and effective module." Respondents also recommended that the modules be used as standalone resources and in other subjects. These responses suggest that the materials are highly acceptable and valuable for improving student achievement in Biology 8.

CONCLUSION AND RECOMMENDATION

The Contextualized and Localized Supplementary Learning Materials in Biology 8, as evaluated by module writers and science teachers using the LRMDs guidelines, demonstrate the potential to enhance student interest and academic performance. The materials' positive reception and alignment with LRMDs criteria suggest their effectiveness in supporting learning.

Future research could evaluate the direct impact of these materials on student learning outcomes. Additionally, parallel studies using different variables (e.g., student demographics, teaching methods) could provide further insights into their effectiveness. Finally, developing similar materials for other grade levels in Biology could broaden their potential benefits.

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REFERENCES

- Abirin, S. G., & Obra, M. R. (2020). Development and use of social media-based mathematics instructional module for Grade 7 students. *Far East Journal of Mathematical Science (FJMS)*, 11(5), 171-193.
- Ahmad Zabidi, N., Woo, T. K., Rajesh Kumar, P., Fadzil, M., & Syed Husain, S. H. (2017). Quality assurance in learning material development at OUM. *Asian Association of Open Universities Journal*, 12(1), 69-81.
- Apiado, S. A. (2022). *Competency-based instructional materials in Edukasyong Pantahanan at Pangkabuhayan Five* (Unpublished master's thesis). University of Rizal System, Morong, Rizal.
- Bada, S., & Olusegun, S. (2015). Constructivism learning theory: A paradigm for teaching and learning. *IOSR Journal of Research and Method in Education*, 5(6), 66-70.
- Bansiong, A., & Wan, P. (2019). Readability, content, and mechanical feature analysis of selected commercial science textbooks intended for third grade Filipino learners. *Cogent Education*, 6(1).
- Bradley, R. L., & Noell, G. H. (2018). The effectiveness of supplemental phonics instruction employing constant time delay instruction for struggling readers. *Psychology in the Schools*, 55(7), 880-892.
- Brame, C. J. (2016). Effective educational videos: Principles and guidelines for maximizing student learning from video content. *CBE—Life Sciences Education*, 15(4), es6.
- Creus, B. (2019). The effectiveness of using localized instructional materials in the performance of Grade Seven food technology students in Amaya School of Home Industries. *Ascendens Asia Journal of Multidisciplinary Research Abstracts*, 3(2).
- Dela Cruz, R. J. D. (2014). *Development and validation of online-based module in evolution* (Unpublished master's thesis). University of Rizal System, Morong, Rizal.
- Gimena, M. E. (2014). *Development and validation of socio-cultural based supplementary materials in teaching Asian studies* (Unpublished master's thesis). University of Rizal System, Morong, Rizal.
- Gregorio, M. S. (2020). *Skills-based supplementary learning materials in making children's wear* (Unpublished master's thesis). University of Rizal System, Morong, Rizal.
- Gumonan, M. D., & Bug-os, M. A. A. C. (2021). Development and validation of graphic novel as a supplementary learning material in chemical bonding. *American Journal of Educational Research*, 9(10), 654-659.
- Hasibuan, A. M., Saragih, S., & Amry, Z. (2019). Development of learning materials based on realistic mathematics education to improve problem-solving ability and student learning independence. *International Electronic Journal of Mathematics Education*, 14(1), 243-252.
- Jimenez, E. C. (2020). Motivating factors of teachers in developing supplementary learning materials (SLMs). *International Journal of Advanced Research (IJAR)*, 8(5), 108-113.
- Kamaludin, S., Surtikanti, H. K., & Surakusumah, W. (2018). Developing issue-based teaching materials to improve student learning outcomes in freshwater biology course. *JPBI (Jurnal Pendidikan Biologi Indonesia)*, 4(2), 161-170.
- Kollöffel, B. (2017). Exploring the relation between visualizer-verbalizer cognitive styles and performance with visual or verbal learning material. *Computers & Education*, 58(2), 697-706.
- Larawan, L. (2019). Acceptability of teacher-made modules in production management. *International Journal of Managerial Studies and Research (IJMSR)*, 1(2), 10-22.
- Manuel, D. N. (2015). *Development and validation of enhancement activities in teaching literature* (Unpublished master's thesis). University of Rizal System, Morong, Rizal.
- Magsombol, B. (2020, December 9). PH lowest among 58 countries in math, science. *Philippine Daily Inquirer*. <https://newsinfo.inquirer.net/1367394/ph-lowest-among-58-countries-in-math-science>
- Mohammed, A. B., Alhassan, J. A., & Oyedum, G. U. (2018). Impact of quality information resources on students' academic performance in tertiary institutions in Niger State, Nigeria. *Library Philosophy and Practice Journal*, 1-15.
- Nakayiza, F. (2019). *Adaptation of instructional materials for children with hearing impairment in primary schools in Goma division, Mukono municipality* (Doctoral dissertation). Kyambogo University.
- Pino, N. (2019). Localized instructional materials in teaching mathematics for Grade 1 learners: Its acceptability. *Ascendens Asia Journal of Multidisciplinary Research Abstracts*, 3(2F).
- Pham, L., Limbu, Y. B., Bui, T. K., et al. (2019). Does e-learning service quality influence e-learning student satisfaction and loyalty? Evidence from Vietnam. *International Journal of Educational Technology in Higher Education*, 16, 7.

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- Price, J., McElroy, K., & Marti, N. J. (2016). The role of font size and font style in younger and older adults' predicted and actual recall performance. *Aging, Neuropsychology, and Cognition*, 23(3), 366-388.
- Rio, L. C. (2014). Development and acceptability of training module in switching logic. *International Journal of Scientific and Research Publications*, 4(10).
- Rivera, G. M., & Sanchez, J. M. P. (2020). Use of contextualized instructional materials: The case of teaching gas laws in a public uptown high school. *Orbital: The Electronic Journal of Chemistry*, 276-281.
- Salcedo, R. E. (2016). Acceptability of developed teaching module on selected writings of Jose Rizal. *Southeast Asian Journal of Science and Technology*, 90-97.
- Saguin, E. D., Inocian, R., & Un, J. L. (2020). Contextualized differentiated instruction in contemporary issues vis-à-vis the development of COVID-19 model. *Journal of Research, Policy and Practice of Teachers and Teacher Education*, 10(2), 18-31.
- San Diego, J. M. (2016). *The effect of computer-aided learners on the performance of high school sophomore students in selected topics in biology* (Unpublished master's thesis). University of Rizal System, Morong, Rizal.
- San Jose, H. J. (2020). *Development and acceptability of module in household services for junior high school learners* (Unpublished master's thesis). University of Rizal System, Morong, Rizal.
- Singer, S. R., Nielsen, N. R., & Schweingruber, H. A. (2013). Biology education research: Lessons and future directions. *IBE—Life Science Education*, 12(129-132).
- Siedlecki, S. L. (2020). Understanding descriptive research designs and methods. *Clinical Nurse Specialist*, 34(1), 8-12.
- Sta. Catalina, M. P. (2019). *Development of virtual learning environment (VLE) in teaching robotics* (Unpublished master's thesis). University of Rizal System, Morong, Rizal.
- Tarasov, D. A., Sergeev, A. P., & Filimonov, V. V. (2015). Legibility of textbooks: A literature review. *Procedia-Social and Behavioral Sciences*, 174, 1300-1308.
- Tarr, J., Grouws, D., & V. S. (2013). The effects of content organization and curriculum implementation on students' mathematics learning in second-year high school courses. *Journal for Research in Mathematics Education*, 44.
- Udo, S. (2013). Instructional materials utilization and students performance in practical agriculture, 49-54.
- Vergara, A. M. (2017). *Development, effectiveness and acceptability of module for the problem-solving and critical thinking skills of alternative learning system in the district of Tanay II* (Unpublished master's thesis). Tomas Claudio Memorial College.
- Wiphasith, H., Narumol, R., & Sumalee, C. (2016). The design of the contents of an e-Learning for teaching M.5 English Language using ADDIE model. *International Journal of Information and Education Technology*, 6(2), 127-131.
- Yadav, A. K., & Oyelere, S. S. (2020). Contextualized mobile game-based learning application for computing education. *Education and Information Technologies*, 26, 2539-2562.
- Yilmaz, R. (2020). Prospective mathematics teachers' cognitive competencies on realistic mathematics education. *Journal on Mathematics Education*, 11(1), 17-44.

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